ARTICLE IV. - WATER CONSERVATION PLAN

Sec. 46-125. - Introduction and objectives.

Water supply has traditionally been a key issue in the development of Texas. In recent years, the increasing population and economic development in region I have led to growing demands for water. At the same time, local and less-expensive sources of water supply are largely developed. Additional supplies to meet higher demands will be expensive and difficult to develop. Therefore, it is important that the city make efficient use of existing supplies in order to utilize these sources as long as possible. Such efforts will delay the need for new supplies, minimize the environmental impacts associated with developing new supplies, and delay the high cost of additional water supply development.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has created guidelines and requirements governing the development of water conservation and drought contingency pans for public water suppliers. The TCEQ guidelines and requirements for water suppliers are included in appendix A. The city has adopted this water conservation plan pursuant to TCEQ guidelines and requirements.

The objectives of the water conservation plan are as follows:

- To reduce water consumption;
- To reduce the loss and waste of water;
- To identify the level of water reuse;
- To improve efficiency in the use of water;
- To extend the life of current water supplies.

(Ord. No. 2009-10, § 1(Exh. A, § 1), 5-7-2009)

Sec. 46-126. - Texas Commission on Environmental Quality rules.

(1) *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 A. 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"A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the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. A water conservation plan may be a separate document identified as such or may be contained within another water management documents(s)"

According to TCEQ rules, water conservation plans for public water suppliers must have a certain minimum content (Section 3), and must have additional content for public water suppliers that are projected to supply 5,000 or more people in the next ten years (section 46-127), and may have additional optional content (section 46-129).

(Ord. No. 2009-10, § 1(Exh. A, § 2), 5-7-2009)

Sec. 46-127. - Minimum required water conservation plan content.

The minimum requirements in the Texas Administrative Code for water conservation plans for public drinking water suppliers covered in this report are as follows:

- §288.2(a)(1)(A)—Utility Profile—Section 46-127(1) and appendix C;
- §288.2(a)(1)(B)—Specification of Goals before May 1, 2009—Section 46-127(2);
- §288.2(a)(1)(C)—Specification of Goals After May 1, 2009—Section 46-127(2);

- §288.2(a)(1)(D)—Accurate Metering—Sections 46-127(3) and (4);
- §288.2(a)(1)(E)—Universal Metering—Section 46-127(4);
- §288.2(a)(1)(F)—Determination and Control of Unaccounted Water—Section 46-127(5);
- §288.2(a)(1)(G)—Public Education and Information Program—Section 46-127(6);
- §288.2(a)(1)(H)—Non-Promotional Water Rate Structure—Section 46-127(7);
- §288.2(a)(1)(I)—Reservoir System Operation Plan—Section 46-127(8);
- §288.2(a)(1)(J)—Means of Implementing and Enforcement—Section 46-127(9), appendix B;
- §288.2(a)(1)(K)—Coordination with Regional Water Planning Group—Section 46-127(10) and appendix D.

(1) *Utility profile.* Appendix C to this water conservation plan is a water utility profile for the City of Port Neches, based on the format recommended by the TCEQ. Table 3.1 summarizes key facts from the water utility profile.

(2) *Specification of water conservation goals.* Table 3.2 shows historical and projected per capita municipal water use for the city. Water use is shown in units of gallons per capita per day (gped). Per capita municipal water use is municipal water use divided by population. The per capita municipal water use includes industrial use.

Projected per capita municipal uses were obtained from the Texas Water Development Board (TWDB) and interpolated to match the appropriate years for the five-year and ten-year goals. The TWDB projections are applicable for a dry year, in which outdoor water use would be high. Per capita municipal water use in a year with normal or high precipitation during the summer should be less than projected.

(3) *Accurate metering of raw water supplies and treated water deliveries.* Raw water and treated water pumpage for all customers of city, including public water supply, is metered. Each meter has an accuracy of plus or minus five percent. The raw water and finished water meters are calibrated annually by qualified personnel to meet the state requirements set by TCEQ. The meters are repaired or replaced as needed.

(4) *Metering of customer and public uses and meter testing, repair and replacement.* Water usage for all customers of city, not including public and governmental users, is metered. All meters in the city were replaced in 2005-2006 and were upgraded to a radio-read system. As part of water conservation, the city operates a meter replacement program that will replace every meter based on its usage identified life cycle. In addition, meters registering any unusual or questionable readings are tested and repaired to restore full functionality.

(5) *Determination and control of unaccounted water.* Unaccounted water is the difference between raw water drawn from the Lower Neches Valley Authority Canal and metered deliveries to customers. (This includes authorized but unmetered uses such as fire fighting and releases for flushing of lines). 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).
- Losses due to water main breaks and leaks in the water distribution system;
- Losses due to illegal connections;
- Firefighting;
- System maintenance/line flushing.

The city will conduct a water audit every five years using the format recommended by the Texas Water Development Board. The audit will divide water losses into apparent losses and real losses. Apparent water losses include water that was actually used, but not accounted for, such as customer meter errors or theft. Accounting for apparent losses increases the city's utility revenue, but does not reduce water usage. Real losses include leakage and overflows at the water treatment plant. Identifying and preventing real losses decreases a utility's costs and decrease water usage. The city will target real losses under this conservation strategy.

As shown in appendix C, unaccounted water for the city has varied from seven percent to 20 percent in the last five years. With the measures described in this plan, the city intends to maintain the unaccounted water below 18 percent in 2020 and subsequent years. If unaccounted water exceeds this goal, the city will implement a more intensive audit to determine the source(s) of water loss and reduce the unaccounted water.

(6) *Continuing public education and information campaign.* The continuing public education and information campaign on water conservation for the City of Port Neches includes the following elements:

• Promote the city's water conservation measures (presented in this section and sections 46-128 and 46-129);

• Include information of water conservation on water bills, or on mailouts at least twice per year. Inserts will include material developed by city staff and material obtained from the TWDB, TCEQ, and other sources;

• Encourage local media coverage of water conservation issues and the importance of water conservation;

• Notify local organizations, schools, and civic groups that city staff is available to make presentations on the importance of water conservation and ways to save water;

• Make water conservation brochures and other water conservation materials available to the public at the Port Neches Public Library and other public places;

• Make information on water conservation available online at www.ci.port-neches.tx.us and will include links to information on water conservation on the TWDB and TCEQ websites.

(7) *Nonpromotional water rate structure according to this section.* The city uses an ascending rate structure to promote water conservation. (See table 3.3)

(8) *Reservoir system operation plan.* The city does not have a reservoir and, therefore, a reservoir system operation plan is not applicable.

(9) *Implementation and enforcement of the water conservation plan.* Appendix B contains a copy of the ordinance approved by Port Neches City Council adopting this water conservation plan. The ordinance designates responsible officials to implement and enforce the water conservation plan.

(10) *Coordination with regional water planning group.* Appendix D includes a copy of a letter sent to the chair of the Region I Water Planning Group with this water conservation plan.

(Ord. No. 2009-10, § 1(Exh. A, § 3), 5-7-2009)

Sec. 46-128. - Additional required water conservation plan content.

The Texas Administrative Code also includes additional requirements for water conservation plans for public drinking water suppliers that serve a population of 5,000 people or more and/or a projected population of 5,000 people or more within the next ten years:

• §288.2(a)(2)(A)—Leak Detection, Repair, and Water Loss Accounting—Sections 46-127(5) and 46-128(1);

• §288.2(a)(2)(B)—Record Management System—Section 46-128(2);

• §288.2(a)(2)(C)—Requirement for Water Conservation Plans by Wholesale Customers—Section 46-128(3).

(1) *Leak detection and repair; pressure control.* Measures to control unaccounted water are part of the routine operations of the city. Data from the radio-read system is used to find and report signs of illegal connections so they can be addressed quickly. Crews and personnel look for and report evidence of leaks in the water distribution system. Maintenance crews respond quickly to repair leaks reported by the public and city personnel. The city spends $30,000.00 per year to repair and replace water distribution lines and uses two distribution line maintenance crews. Areas of the water distribution system in which numerous leaks and line breaks occur are targeted for replacement as funds are available.

To reduce real water losses, the city will maintain a proactive water loss program. As part of this program, the city will implement the following actions:

- Conduct regular inspections and soundings of water main fittings and connections;
- Conduct intermittent night-flow measurements;
- Reduce repair time on leaks by additional repair staff when needed;
- Limit surges in pressure;
- Reduce night-time pressure, where feasible, to reduce losses from background leaks;

(2) *Record management system.* As required by TAC title 30, part 1, chapter 288, subchapter A, rule 288.2(a)(2)(B), the record management system for the city records water pumped, water delivered, water sold, estimates for water losses, and allows for the separation of water sales and uses into residential and commercial categories.

(Ord. No. 2009-10, § 1(Exh. A, § 4), 5-7-2009)

Sec. 46-129. - Optional water conservation plan content.

TCEQ rules also list optional (not required) conservation strategies, which may be adopted by suppliers to achieve the stated goals of the plan. The following optional strategies are listed in the rules and included in this plan:

• §288.2(a)(3)(A)—Conservation Oriented Water Rates—Section 46-127(7);

• §288.2(a)(3)(B)—Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures—Section 46-129(1);

(1) *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 require 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 also required under federal law. These state and federal standards assure that all new construction and renovations in the city will use water-conserving fixtures.

In addition, federal rules requiring energy-conserving clothes washers by 2007 are expected to assure that new clothes washers in the city will be water-efficient.

———

Table 3.1
Summary of Water Utility Profile for the City of Port Neches

Water Service Area = 9 square miles

Miles of Distribution Pipe = Approx. 250 miles

Population:

Current Population = 12,480 in 2008

2000 Population—13,601

Projected 2050 Population = 18,159

Connections:

Current Connections = 5,240 in 2008

Total Increase in Connections in Last Five Years = 91

Information on Water Use for the Last Five Years

Year	Use (Million Gallons)	Est. Pop. *	Unaccounted Water	Per Capita Use	Peak to Avg. Ratio
2004	556.767	13,141	Unknown	116	1.30
2005	451.018	13,052	46.04	95	1.31
2006	448.587	12,776	31.77	96	1.47
2007	618.88	12,681	126.687	134	1.37
2008	621.179	12,480	107.936	136	1.44
* Source of population estimate is US Census					

Water Supply Source(s):

Lower Neches Valley Authority

Treatment and Distribution System:

Treatment Plant Capacity = 4.8168 million gallons per day

Elevated Storage = 1.2 million gallons

Ground Storage = 2.86 million gallons

Current Total Annual Wastewater Flow = 1,082.351 million gallons in 2008.

The TWDB projections include the impact of low-flow plumbing fixtures and water conservation measures that have been in effect since at least 2000, but do not include the effect of water conservation measures recommended in this plan. The impact of low-flow plumbing fixtures has been itemized to show the total amount of projected water conservation in the city. Table 3.2 shows the projected per capita water use after implementation of this water conservation plan.

Table 3.2

Per Capital Use Without Implementation of Water Conservation Measures Beyond Those in Effect in 2000 and Water Conservation Goals

Description	Highest Historical	Five Year Goal	Ten Year Goal	
	Year	GPCD	GPCD	GPCD
Per Capita Municipal Use	2008	136	130	125

The City of Port Neches water conservation goals include the following:

- Achieve by 2015 per capita municipal water use of 130 gped or less, as shown in Table 3.2.
- Achieve by 2020 per capita municipal water use of 125 gpcd or less.
- Implement and maintain a meter replacement program (Section 3.4).
- Maintain the level of unaccounted water in the system at less than 18 percent in 2020 and subsequent years. (Section 3.5).
- Raise public awareness of water conservation and encourage responsible public behavior though a public education and information program, as discussed in Section 3.6.

Table 3.3

Water User	Type/Volume	Volume Unit Charge ($1,000 gal.)
Single-Family	0-3,000 gallons	$9.00
	3,001—15,000 gallons	$2.25 per gallon
	More than 15,001 gallons	$2.37 per gallon

_____