

# **Water Conservation Plan**

for

**San Jacinto River Authority  
Highlands Division**

Prepared by

**San Jacinto River Authority**

Adopted: March 27, 2014

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## Section 1. Introduction

In 1996, severe drought conditions affected every region of the State. Water systems throughout the State were forced to cope with water shortages or system capacity problems. In response to the 1996 drought, the 75<sup>th</sup> Texas Legislature enacted Senate Bill 1, which directed the State to take a regional approach to water planning. One of the provisions of the legislation required the Texas Commission on Environmental Quality (TCEQ) to adopt rules requiring wholesale and retail public water suppliers to develop water conservation and drought contingency plans.<sup>1</sup>

Water conservation and drought contingency plans work together to help Texans manage short-term and long-term water shortages. The goal of a water conservation plan is to achieve lasting, long-term improvements in water use efficiencies using strategies to reduce the amount of water withdrawn from a particular source, and to ensure that the water withdrawn is used in an efficient manner. Drought contingency plans are short-term in nature, using temporary supply and demand management measures in response to temporary and potentially recurring water shortages and other emergencies.

The San Jacinto River Authority (SJRA), as a water right holder and wholesale water supplier, is required to submit a Water Conservation and Drought Contingency Plan to the TCEQ and Texas Water Development Board (TWDB). SJRA was created by the Texas Legislature in 1937 to:

*“Provide water for domestic, municipal, commercial, industrial and mining purposes within and without the watershed of [the San Jacinto River], including water supplies for cities, towns and industries, and in connection therewith to construct or otherwise acquire water transportation, treatment and distribution facilities and supplemental sources of water.”<sup>2</sup>*

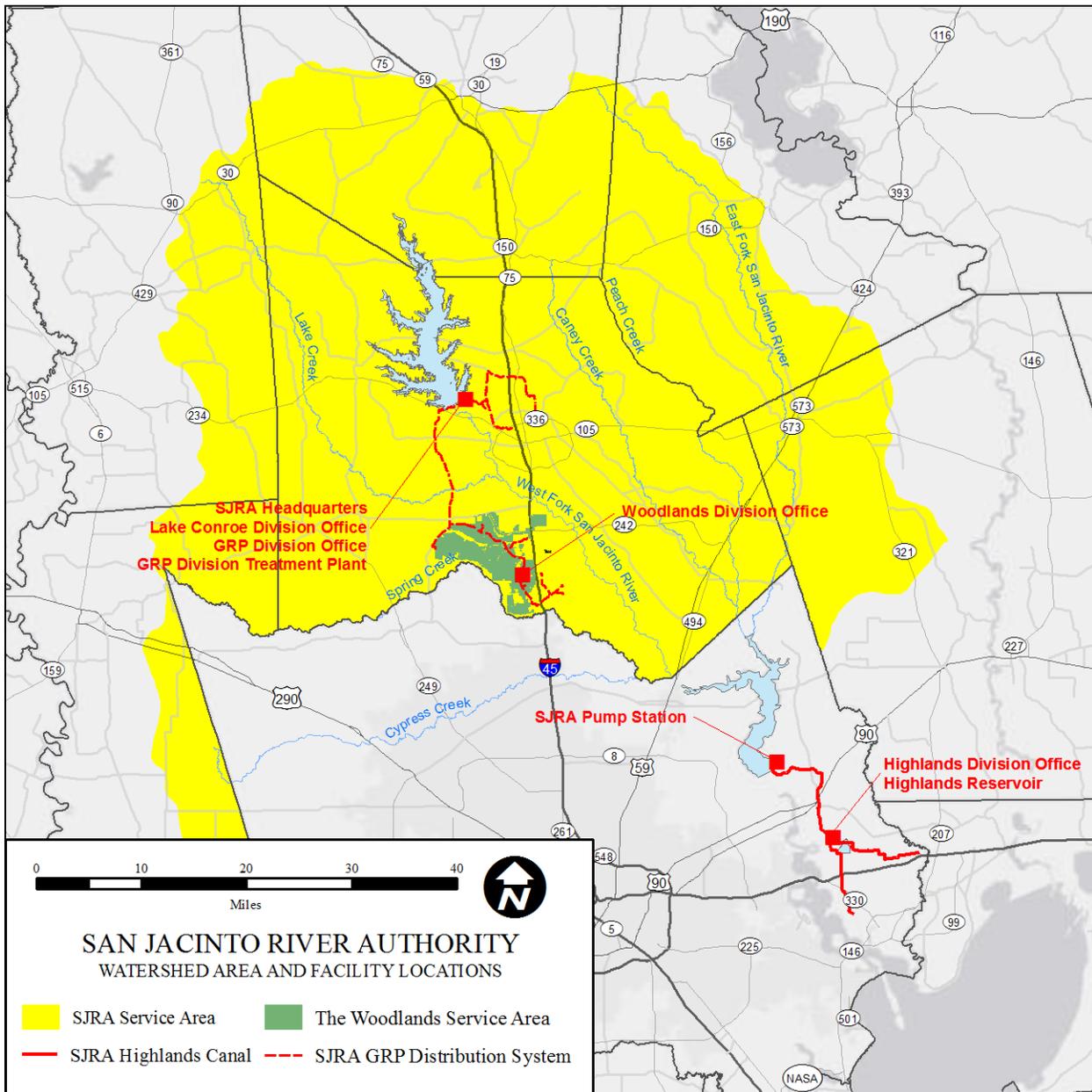
The SJRA service area includes all of Montgomery County and portions of Waller, Grimes, Walker, San Jacinto, and Liberty Counties (Figure 1-1). The SJRA also serves customers in the Houston area and is authorized to operate in east Harris County through an agreement with the City of Houston.

SJRA is governed by a seven-member board. The General Manager oversees approximately 145 employees and all facilities across four divisions: Lake Conroe, Highlands, Groundwater Reduction Plan (GRP), and The Woodlands Divisions. The following is provided as the Water Conservation Plan (including utility description, service area description, and customer data) for the Highlands System Division (the Division). The Division’s Drought Contingency Plan is provided under separate cover.

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<sup>1</sup> Senate Bill 1, 75th Legislature, Section 12.1272 of the Texas Water Code.

<sup>2</sup> House Bill No. 832, 45th Legislature, Regular Session, Austin, TX, 1937.



**Figure 1-1. Watershed Area and Facility Locations**

## **Section 2. Utility and Service Area Description**

### **2.1 Utility Description**

In 1945, SJRA purchased the Highlands Canal System, which serves municipal, industrial, and agricultural customers in southeast Harris County. Water available for this system is obtained from the following:

The SJRA obtained a 55,000 ac-ft/yr run-of-the-river right Certificate of Adjudication (COA) 10-4964 from water stored in and diverted from Lake Houston. Through 27 miles of canal, the Highlands Canal System conveys water to the 1,400-acre Highlands Reservoir, which serves as a regulating reservoir for the system, south to Baytown and east to the Cedar Bayou area.

In 1994, SJRA and the Devers Canal Rice Producers Association (DCRPA) purchased the bulk assets of Trinity Water Reserve, Inc. Those assets included the Devers Canal System, which covers parts of Liberty, Chambers, and Jefferson Counties, and Permit No. 5271, which authorizes a 58,500 ac-ft/yr diversion from the Trinity River at a point in south central Liberty County. The purchase arrangements included the transfer of 56,000 ac-ft/yr of water rights to SJRA. The remaining 2,500 ac-ft/yr of water rights was transferred to DCRPA. Permit No. 5271 was successfully amended to reflect the purchase arrangement. SJRA's 56,000 ac-ft/yr right is permitted for multiple uses. A portion of this water is also utilized to serve industrial customers in southwest Harris County. The water is conveyed through a canal system owned and operated by the Coastal Water Authority and diverted to the Highlands canal system south of Highlands Reservoir.

In 2003, SJRA purchased 30,000 ac-ft/yr of Trinity River water rights from the Chambers Liberty Counties Navigation District (CLCND) under Certificate of Adjudication No. 08-4279.

In 2004, SJRA was granted 14,944 ac-ft/yr of water rights associated with groundwater based effluent return flows from its three wastewater treatment plants in the San Jacinto River Basin (Permit 5809). A portion of this water is also utilized to serve customers in southeast Harris County.

In 2008, the SJRA was granted 14,100 ac-ft/yr of unappropriated firm yield (additional storage) of Lake Houston under Permit No. 5807.

In 2009 the SJRA was granted 40,000 ac-ft/yr of yield (additional run-of-river) from the San Jacinto River to be diverted at Lake Houston through Permit No. 5808. This supply is considered interruptible based on flow conditions within the San Jacinto River but may be utilized within SJRA's service area.

SJRA operates Lake Conroe, one of two major surface water supply reservoirs located in the San Jacinto River Basin. Completed in 1973, Lake Conroe is owned by SJRA and the City of Houston. SJRA owns one-third (33,333 ac-ft/yr) and the City of Houston owns two-thirds (66,667 ac-ft/yr) of the total

100,000 ac-ft/yr permitted water rights from the lake under Certificate of Adjudication (COA) 10-4963. Lake Conroe's availability to the Highlands Division will be extremely limited due to use of the lake as a supply for the GRP Division. SJRA operates the Highlands Reservoir as a regulating reservoir. Lake Houston, which is owned by the City of Houston, is the other surface water supply reservoir in the basin. SJRA meets raw wholesale raw water needs in the Highlands Division surface area through a combination of sources. Water from run-of-river COA 10-4964 and Permit 10-5808, along with Lake Houston reservoir yield from Permit 10-5807, is diverted at Lake Houston to supply the Highlands Canal System. Additional rights in the Trinity River as appropriated in Permit 08-5271 are utilized via the CWA conveyance system as previously described. A portion of the reuse authorized under Permit 10-5809 has also been utilized by the Division. SJRA's supplies are summarized in Table 2-1 below.

**Table 2-1. SJRA System-Wide Water Portfolio**

<b>Source*</b>	<b>Permitted Amount (ac-ft/yr)</b>
Trinity River (COA 08-4279)	30,000
Lake Conroe (COA 10-4963)	33,333
Lake Houston (COA 10-4964)	55,000
Trinity River (Permit 08-5271)	56,000
Lake Houston (Permit 10-5807)	14,100
Lake Houston (Permit 10-5808)	40,000
Reuse (Permit 10-5809)	14,944

\*Please note that not all water sources shown are available to all SJRA Divisions.

## 2.2 Service Area Description

The approximately 2,314-square mile SJRA watershed area of the San Jacinto River Basin is bounded on the north and the east by the Trinity River Basin and the Trinity-San Jacinto Coastal Basin, on the west by the Brazos River Basin, and on the south by Harris County. The Division is a wholesale provider of surface water (via the Highlands canal system) for industrial, agricultural, and public water supply uses. Figure 2-1 illustrates the layout of the Highlands canal system.

Via the Highlands canal system, the Division is a wholesale provider of raw surface water to the Crosby MUD, Newport MUD, and Barrett Station (Figure 2-2), industrial customers in the Baytown and Cedar Bayou areas, and turf farms. In 2013, there were 68,493 ac-ft diverted from the system (Table 2-2). The Division does not own or operate wastewater infrastructure.

**Table 2-2. 2013 Surface Water Diversion**

Municipal	1,573 ac-ft
Industrial	66,699 ac-ft
Irrigation	221 ac-ft
Total	68,493 ac-ft

In 2013, total wholesale municipal supplies via the canal system were 1,573 ac-ft. The Baytown Industrial Complex/Cedar Bayou area in eastern Harris County is home to numerous industries to which the Division provides water. In 2013, there were 66,699 ac-ft diverted from the Canal System to provide wholesale raw water to the area. Water supplied by the Division to the Baytown and Cedar Bayou areas is used in the petroleum refining and chemical production industries to produce products such as petrochemicals, other chemicals, and refined products.

Wholesale raw water is also provided by the Division to the Cedar Bayou area in eastern Harris County to irrigate approximately 1,341 acres of grass farms. In 2013, there was 221 ac-ft diverted for irrigation uses. A full description of the Division's municipal, industrial, and agricultural/irrigation customer information can be found in Appendix A, the Water Utility Profile.

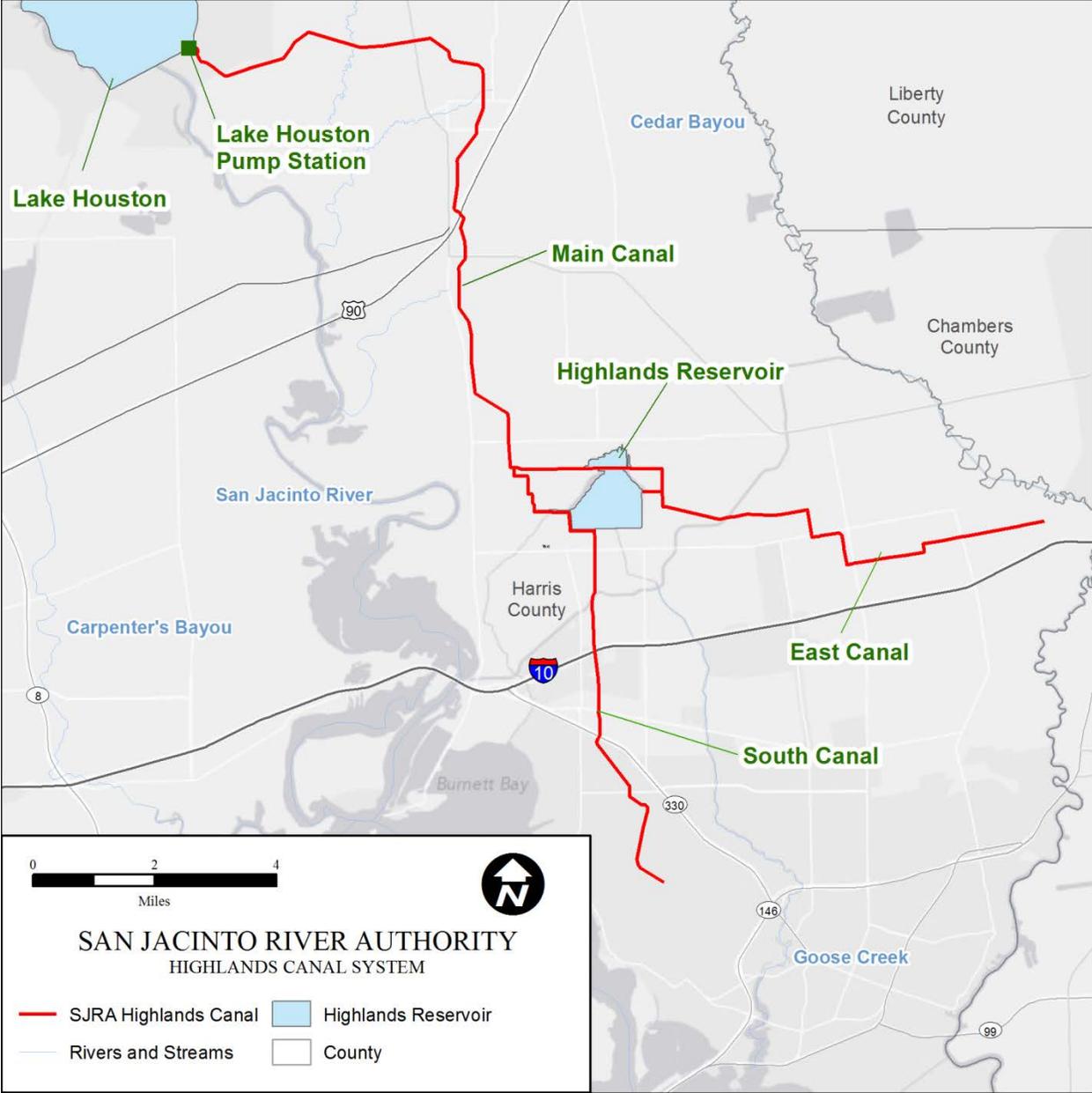
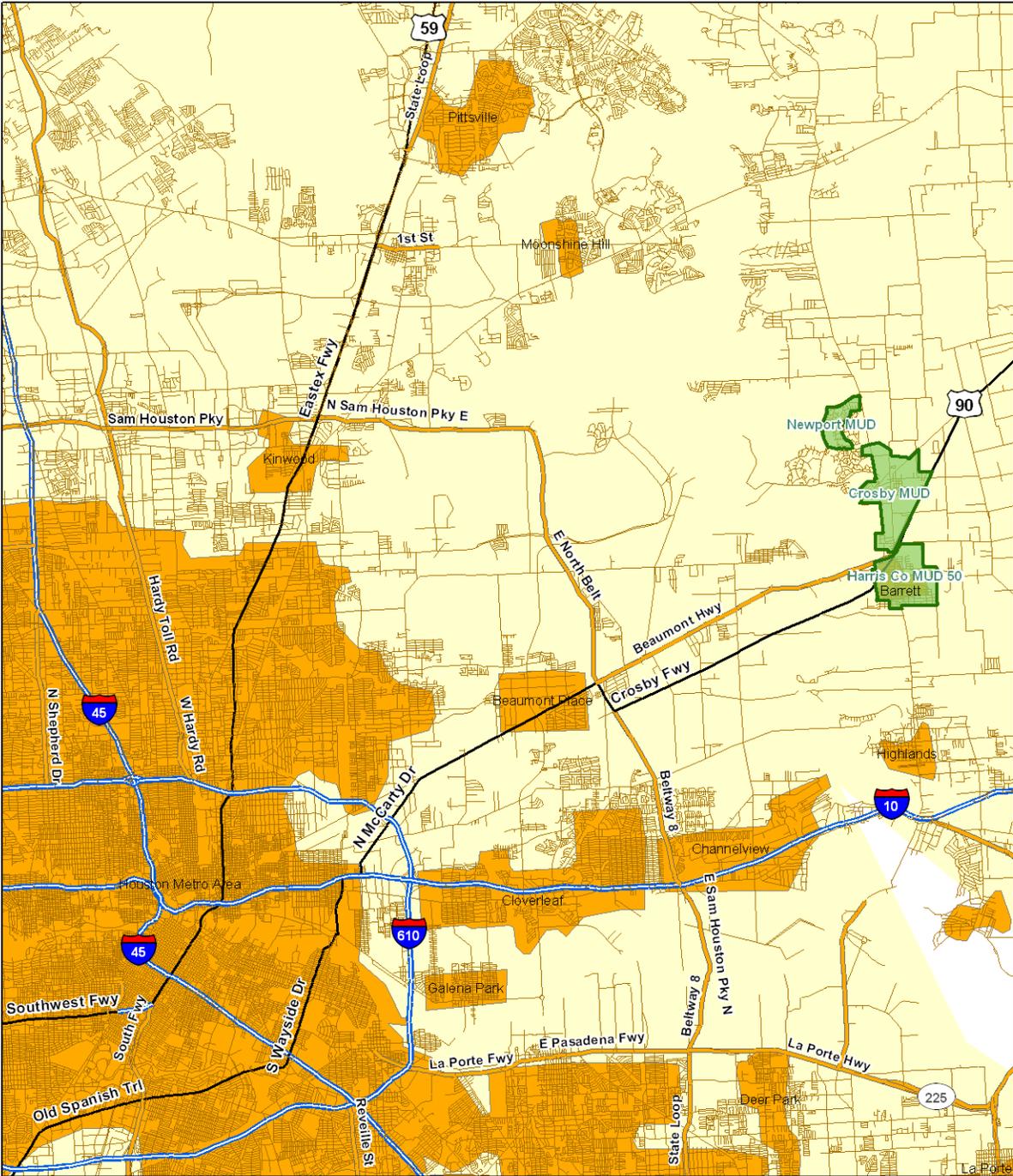


Figure 2-1. Highlands Canal System Layout



Note:  
The TCEQ district data is not 100% accurate  
or complete, nor is it TCEQ certified or official data.

TCEQ District     City Limits

 1 inch equals 3 miles

**Figure 2-2. MUD District Boundaries**

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### Section 3. Water Conservation Plan

In the Texas Water Code, water conservation is defined as follows:

*“(A) The development of water resources; and,*

*“(B) Those practices, techniques, and technologies that will 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.”<sup>3</sup>*

Based upon these concepts of water conservation, the Division’s objective is to develop a water conservation plan that increases water use efficiency, thereby reducing water demands, without adversely affecting population and the economic growth potential of its customers.

#### 3.1 Highlands Division 5- and 10-year Water Conservation Target Goals

The Division does not have direct control over the demands that it serves. A large majority of the water is supplied to industrial customers. The Division is not involved in the day-to-day operations of its customers; however, it is working closely with customers to encourage water-use reduction. The water conservation measures described below include those under the direct control of, and being implemented by, the Division such as rate controls as well as goals supported and encouraged by the Division for implementation by its customers. The SJRA goal for the Division is to achieve a reduction in water demand of 1% per year.

#### 3.2 Water Conservation Methods

The Division’s water conservation plan includes the following water conservation methods. Each method is described in greater detail in the following subsections.

- Metering and Record Management;
- Leak Detection, Repair, and Minimization of Conveyance Losses;
- Recycling and Reuse;
- Rate Structure;
- Conservation Coordination;
- Conservation Stakeholder Group;
- Contractual Requirements for Customer Water Conservation Plans;

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<sup>3</sup> TWC, Section 17.001 (23) (A) and (B).

- Customer Conservation Plan Guidance;
- Customer Reporting Requirements;
- Public Information and Education;
- Awards and Recognition Program;
- Encouraging Customer Conservation Practices; and
- Implementation, Enforcement, Coordination with RWPG, and Updating of the Plan.

Each method is described in greater detail in the following subsections.

### **3.2.1 Metering and Record Management**

The customers of the Division are responsible for metering as required by their water sales contracts. The long-term water supply contracts with each customer were developed at different times and therefore the specific language in each contract may vary. The most recent contract language is as follows:

*“(a) Buyer has at its expense installed and will maintain and test the necessary measuring equipment, including venturi or other standard type water meters, totalizers and recording devices, with such metering equipment to be installed and maintained at the delivery point in such manner as will accurately meter the quantity of water delivered to Buyer hereunder. The Authority [SJRA] shall have access to and the right to inspect at all reasonable times Buyer’s measuring equipment, appliances and all pertinent records and data for the purposes of determining the quantity of water delivered hereunder. Any required testing and calibration of the metering equipment shall be done by the employees or agents of Buyer; provided, however, that the Authority shall be given not less than five (5) business days’ notice of such testing and calibration and shall be permitted to have one or more representatives present to observe such testing and calibration. If any such testing and calibration shows an error of more than two percent (2%), then the volume of water delivered in the forty-five (45) day period immediately preceding said calibration shall be corrected accordingly for payment purposes.*

*(b) The metering equipment installed, maintained and tested by Buyer hereunder shall be checked by representatives of Buyer and the Authority [SJRA] jointly at ninety (90) day periods (and more often at the reasonable request of either party) for the purpose of determining its accuracy. The Authority may, at its option and expense, install and operate one or more check meters, but unless otherwise agreed in writing by the parties, or unless Buyer’s measuring equipment is out of service or not registering*

*accurately, measurement for purposes of this Contract shall be made by Buyer's measuring equipment. All such check meters shall be of standard make and shall be subject at all reasonable times to inspection and examination by any employee or agent of Buyer, but the reading, calibration and adjustment of such check meters shall be made by the Authority.*

The data collected from the metering of customers allows the Division and SJRA to maintain a detailed record management system of water deliveries. As described in the contract language above, customers of the Division are responsible for installing and maintaining meters at the points of delivery (canal system diversions). Also as described in the contracts, access to these meters will be given to the Division by each customer for inspection purposes. Meters must be maintained by the customer to the level of accuracy specified in the customer's wholesale water supply contract with the Division.

### **3.2.2 Leak Detection, Repair, and Minimization of Conveyance Losses**

The Division is committed to conservation through monitoring and improvement of its delivery system. The Division, specifically, continues to make efforts to minimize losses through the canal system through various practices. The Division has undertaken a number of measures in implementing improvements, including physical inspection and evaluation of the full canal system, siphon inspections, hydraulic modeling and flow measurement, reservoir surveying, and establishment of a Capital Improvement Program (CIP). The Division encourages customers to take measures to reduce unaccounted-for water to prevent waste and facilitate achievement of the Water Conservation Plan demand reduction goals as specified above.

### **3.2.3 Recycling and Reuse**

SJRA utilizes a number of once-through reuse supplies across its divisions. Currently, the Division meets a portion of its needs through indirect reuse of effluent flows in the San Jacinto basin. The Division will continue to consider and evaluate opportunities for reuse as they develop.

### **3.2.4 Rate Structure**

SJRA utilizes a non-promotional rate structure for contracts with customers of the Division; these rates are periodically reviewed and adjusted as necessary. SJRA also encourages the Division's customers to establish rate structures promoting conservation for sales to their wholesale and retail customers.

### **3.2.5 Conservation Coordination**

The Highlands Division Manager and/or a designee will serve as conservation liaison and primary

point of contact for SJRA customers and State agencies regarding the development, monitoring, and implementation of the Division's Water Conservation Plan. The Division Manager and/or a designee will oversee the execution and implementation of all elements of the program and will be responsible for maintaining adequate records for program verification.

### **3.2.6 Conservation Stakeholder Group**

SJRA will coordinate with customers in the Highlands Division service area regarding conservation practices and Water Conservation Plan implementation. Meetings may be held periodically at the discretion of the General Manager, Highlands Division manager, or a designated representative to discuss issues relevant to conservation and gather stakeholder input.

### **3.2.7 Contractual Requirements for Customer Water Conservation Plans**

SJRA will enforce the terms of contracts with wholesale water supply customers related to water conservation measures and Water Conservation Plan requirements. Additionally, SJRA will include in all water supply contracts entered into, renewed, or amended after the adoption of the Division's Water Conservation Plan a requirement that customers develop and implement water conservation plans as required by Title 30, Texas Administrative Code, Chapter 288 30 TAC §288). Per 30 TAC §288, any future contract, renewal, or amendment will also require that successive sales from SJRA customers to others include a contractual stipulation for water conservation requirements. At a minimum, customer conservation plans must comply with the requirements of 30 TAC §288.

SJRA requests that customer water conservation plans be consistent with the conservation goals of the Division, including a reduction in water demand in accordance with the per-capita goals reference above, and should be at least as stringent as the Division's Plan. Customers should submit to SJRA on an annual basis a summary of water conservation and drought contingency plan implementation. SJRA will include these requests as requirements in all water supply contracts entered into, renewed, or amended after the adoption of the Division's Water Conservation Plan.

SJRA may periodically update these criteria, as well as the Water Conservation and Drought Contingency Plans for the Division to meet legal requirements or address changing conditions; subsequent to such revisions, customers of the Division are requested to update their water conservation and drought contingency plans as applicable.

### **3.2.8 Customer Conservation Plan Guidance;**

SJRA will develop, and will provide to customers upon request, model water conservation plans meeting the contractual requirements described in Section 3.2.7 above for each customer type.

Additionally, SJRA will at customer request review draft customer water conservation and drought contingency plans for consistency with contractual requirements and the Division's Water Conservation and Drought Contingency Plans. SJRA will also hold one or more workshops providing information to water supply customers regarding the Plans and contractual requirements.

### **3.2.9 Customer Reporting Requirements**

In 2011, the 82<sup>nd</sup> Texas Legislature passed Senate Bill (SB) 181, which addressed the need for consistency in water use reporting by municipalities, water utilities, and others. Subsequently, TWDB and TCEQ developed detailed guidance and procedures for calculating and reporting water use, water loss, and other factors.

While SJRA is not directly impacted by these requirements as a wholesale provider, the Division and other divisions provide contractual water supply to a number of entities which are impacted by SB181. The broad range of water uses served by SJRA and the requirements of multiple State reporting programs creates a need for the consistent customer reporting. As such, SJRA will require customer water usage reports, including any values for per-capita water demand, to follow the procedures established by TWDB and TCEQ.<sup>4</sup> Water use reports should include data at the sector level (single family residential, multi-family residential, industrial, commercial, agricultural, etc.) and should additionally include estimated population served and calculated water loss. Further, SJRA will request that customers annually submit to SJRA a copy of all conservation plan reporting forms submitted to the TCEQ.

SJRA will also hold one or more workshops providing information to water supply customers on the reporting requirements discussed in this section.

### **3.2.10 Public Information and Education**

SJRA will use the resources of the TWDB, the American Water Works Association, and the American Public Works Association to assist in obtaining publications and materials for the public education program. Individual pamphlets and flyers provided from these entities would be selected for specialized water-conservation needs as they arise. SJRA also provides information on conservation and efficient water use on the Authority website at <http://www.sanjacintoriverauthority.com/>.

SJRA will provide, as needed, water conservation literature to customers of the Division. Through dialogue with its customers, the Division is committed to promoting improvements in industrial and municipal irrigation processes to achieve conservation.

SJRA, across all divisions, will make information available through its public information and

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<sup>4</sup> TWDB et al. 2012. Guidance and Methodology for Reporting on Water Conservation and Water Use

education program for plumbers and customers to use when purchasing and installing plumbing fixtures, water-using appliances, and watering equipment. Information regarding retrofit devices, such as low-flow shower heads or toilet dams that reduce water use by replacing or modifying existing fixtures or appliances, will also be provided.

### **3.2.11 Awards and Recognition Program**

SJRA will develop a program annually providing non-monetary recognition of customer efforts in implementing and promoting water conservation practices. Recognition of customers will include posting of articles describing customer achievements on the SJRA website. SJRA may additionally establish criteria regarding:

- Requirements for consideration for eligibility, including any nomination or application process and any minimum level of conservation required for consideration;
- The number of entities of each user type to be considered;
- Additional public notification or recognition measures; and
- Other criteria as deemed applicable by SJRA.

### **3.2.12 Encouraging Customer Conservation Practices**

All of SJRA's Divisions encourage their customers to consider implementing rules, measures, and emerging technologies that promote water conservation and efficient use. Recommended measures include, but are not limited to, the following:

- Prohibitions on wasting water;
- Time-of-day watering restrictions;
- Water conservation pricing structures;
- Landscape irrigation conservation, including integrating rainfall/freeze sensors into irrigation systems;
- Water reuse
- Rainwater harvesting
- Public education programs

Additional information on conservation practices for a wide range of water uses can be found at the TWDB website (<http://www.twdb.state.tx.us/>).

### **3.2.13 Implementation, Enforcement, Coordination with RWPG, and Updating of the Plan**

The Highlands Division Manager and/or designees will act as the administrators of the water conservation program. The administrators will oversee the execution and implementation of all elements

of the program and monitor the progress of the plan. Additionally, the administrators will be responsible for submission of an annual report to the TCEQ and TWDB on the progress, and any changes to, the water conservation plan. SJRA is responsible for maintaining adequate records for program verification.

SJRA will enforce the terms of contracts with wholesale water supply customers related to water conservation measures and Water Conservation Plan requirements.

The Division is located within the Region H Regional Water Planning Area. In accordance with the TCEQ rules, the Division provides a copy of its water conservation plan to the Region H Regional Water Planning Group. A copy of the transmittal letter is included in Appendix B.

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**Appendix A**  
**Water Utility Profiles**

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Texas Commission on Environmental Quality



PROFILE & WATER CONSERVATION PLAN REQUIREMENTS FOR WHOLESALE PUBLIC WATER SUPPLIERS

This form is provided to assist wholesale public water suppliers in water conservation plan development. Information from this form should be included within a wholesale public water supplier water conservation plan. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

Name of Entity: San Jacinto River Authority – Highlands Division
Address & Zip: SJRA General Administration PO Box 329 Conroe, TX 77305 Highlands Division PO Box 861 Highlands, TX 77562
Telephone Number: (936) 588.3111 (936) 843.3300
Form Completed by: Larry Gregory
Title: SJRA Highlands Division Manager
Signature: [Signature] Date: 3/27/2014
Name and Phone Number of Person/Department responsible for implementing a water conservation program: SJRA – Highlands Division, (936) 588.3300

PROFILE

I. WHOLESALE SERVICE AREA POPULATION AND CUSTOMER DATA

A. Population and Service Area Data

- 1. Service area size in square miles: 2,314 (SJRA primary service area. Highlands Division serves demands at discrete points through a nearby canal system). Please see Attachment A for canal layout.
2. Current population of service area: 12,479 (2013 estimate)
3. Current population served for:
a. water Same as Item #2.
b. wastewater 0

4. Population served for previous five years:

<u>Year</u>	<u>Population</u>
<u>2013</u>	<u>12,479</u>
<u>2012</u>	<u>12,365</u>
<u>2011</u>	<u>12,250</u>
<u>2010</u>	<u>12,136</u>
<u>2009</u>	<u>12,022</u>

5. Projected population for service area in the following decades:

<u>Year</u>	<u>Population</u>
<u>2010</u>	<u>12,136</u>
<u>2020</u>	<u>13,280</u>
<u>2030</u>	<u>13,793</u>
<u>2040</u>	<u>14,109</u>
<u>2050</u>	<u>14,413</u>

6. List source or method for the calculation of current and projected population:

Values for 2009-2013 estimated from data from Harris-Galveston Subsidence District Regional Groundwater Update study. Projected values were developed by the Harris-Galveston Subsidence District Regional Groundwater Update study.

**B. Customers Data**

List (or attach) the names of all wholesale customers, amount of annual contract, and amount of the annual use for each for the previous year:

	<u>Wholesale Customer</u>	<u>Contracted Amount (acre-feet)</u>	<u>Previous Year Amount of Water Delivered (acre-feet)</u>
(1)	<u>Crosby MUD</u>	<u>1,120 (1 MGD)</u>	<u>583</u>
(2)	<u>Newport MUD</u>	<u>2,072 (1.85 MGD)</u>	<u>926</u>
(3)	<u>Harris Co. MUD 50</u>	<u>560 (0.5 MGD)</u>	<u>0</u>
(4)	<u>_____</u>	<u>_____</u>	<u>_____</u>
(5)	<u>_____</u>	<u>_____</u>	<u>_____</u>

## II. WATER USE DATA FOR SERVICE AREA

### A. Water Delivery

Indicate if the water provided under wholesale contracts is treated or raw water and the annual amount for each for previous year:

	Total amount delivered or sold for previous year (acre-feet)
Treated	<u>0</u>
Raw	<u>68,493</u>

### B. Water Accounting Data

- Total amount of water diverted at point of diversion(s) for previous five years (in acre-feet) for all water uses:

Year	2009	2010	2011	2012	2013
<b>January</b>	5,432	5,370	6,014	4,880	4,649
<b>February</b>	5,106	4,848	5,102	4,138	4,941
<b>March</b>	5,672	5,134	5,479	4,332	6,033
<b>April</b>	5,558	5,394	6,124	5,414	5,970
<b>May</b>	6,084	6,227	6,991	5,763	5,462
<b>June</b>	6,262	6,516	6,646	6,339	5,628
<b>July</b>	6,166	6,747	7,260	5,794	7,048
<b>August</b>	5,776	7,563	6,910	6,103	6,350
<b>September</b>	5,160	5,956	6,660	5,741	6,230
<b>October</b>	4,675	6,481	6,740	5,643	5,928
<b>November</b>	4,967	6,362	5,762	4,860	4,867
<b>December</b>	5,059	6,817	3,798	5,218	5,3858
<b>TOTAL</b>	65,917	73,413	73,486	64,225	68,493

- Wholesale population served and total amount of water diverted for **municipal use** for previous five years:

Year	Total Population Served	Total Annual Water Diverted for Municipal Use (acre feet)
2009	12,022	1,826
2010	12,136	1,176
2011	12,250	1,908
2012	12,365	1,401
2013	12,479	1,573

**C. Projected Water Demands**

If applicable, project and attach 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.

*Projected wholesale municipal demands are shown in the table below. These values were developed from data included in the Harris-Galveston Subsidence District Regional Groundwater Update.*

Year	Projected Highlands Division Wholesale Municipal Demand	
	MGD*	ac-ft
2014	1.41	1,575
2015	1.42	1,588
2016	1.43	1,606
2017	1.44	1,614
2018	1.45	1,627
2019	1.46	1,640
2020	1.48	1,658
2021	1.49	1,666
2022	1.50	1,679
2023	1.51	1,692

\*Millions of gallons per day.

**III. WATER SUPPLY SYSTEM DATA**

**A. Water Supply Sources**

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

	Source	Amount Authorized	
Surface Water:	<u>Lake Houston (4964)</u>	<u>55,000</u>	acre-feet
	<u>Lake Houston (5807)</u>	<u>14,100</u>	acre-feet
	<u>Lake Conroe (4963)</u>	<u>33,334</u>	acre-feet
	<u>Trinity River (5271)</u>	<u>56,000</u>	acre-feet
	<u>San Jacinto River (5808)</u>	<u>40,000</u>	acre-feet
Groundwater:	<u>N/A</u>		acre-feet
Other:	<u>GW-based Effluent Reuse (5809)</u>	<u>14,944</u>	acre-feet

**B. Treatment and Distribution System (if provide treated water) N/A – The Highlands Division system is raw water only.**

1. Design daily capacity of system: \_\_\_\_\_ MGD
2. Storage Capacity: Elevated \_\_\_\_\_ MGD, Ground \_\_\_\_\_ MGD
3. Please describe the water system and attach. Include the number of treatment plants, wells, and storage tanks. If possible, attach a sketch of the system layout.

**IV. WASTEWATER SYSTEM DATA N/A – The Highlands Division does not provide wastewater service.**

**A. Wastewater System Data (if applicable)**

1. Design capacity of wastewater treatment plant(s): \_\_\_\_\_ MGD
2. Briefly describe the wastewater system(s) of the area serviced by the wholesale public water supplier. 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. If possible, attach a sketch or map which locates the plant(s) and discharge points or disposal sites.

**B. Wastewater Data for Service Area (if applicable)**

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

<b>Year</b>			
<b>January</b>			
<b>February</b>			
<b>March</b>			
<b>April</b>			
<b>May</b>			
<b>June</b>			
<b>July</b>			
<b>August</b>			
<b>September</b>			
<b>October</b>			
<b>November</b>			
<b>December</b>			
<b>TOTAL</b>			

## **REQUIREMENTS FOR WATER CONSERVATION PLANS FOR WHOLESALE PUBLIC WATER SUPPLIERS**

**In addition to the description of the wholesaler's service area (profile from above), a water conservation plan for a wholesale public water supplier must include, at a minimum, additional information as required by Title 30, Texas Administrative Code, ' 288.5. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.**

### **Specific, Quantified 5 & 10-Year Targets**

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable unaccounted-for water, and the basis for the development of these goals. Note that the goals established by wholesale water suppliers under this subparagraph are not enforceable.

### **Metering Devices**

The water conservation plan must include a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply.

### **Record Management Program**

The water conservation plan must include a monitoring and record management program for determining water deliveries, sales, and losses.

### **Metering/Leak-Detection and Repair Program**

The water conservation plan must include a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system.

### **Reservoir Systems Operations Plan**

The water conservation plan must include 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. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan.

### **Contract Requirements for Successive Customer Conservation**

The water conservation plan must include a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, 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 of 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 Title 30 TAC Chapter 288.

### **Enforcement Procedure & Official Adoption**

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

### **Coordination with the Regional Water Planning Group(s)**

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

Example statement to be included within the water conservation plan:

*The service area of the \_\_\_\_\_ (name of water supplier) is located within the \_\_\_\_\_ (name of regional water planning area or areas) and \_\_\_\_\_ (name of water supplier) has provided a copy of this water conservation plan to the \_\_\_\_\_ (name of regional water planning group or groups).*

### **Plan Review and Update**

Beginning May 1, 2005, the wholesale water supplier 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. A wholesale water supplier 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. The revised plan must also include an implementation report.

### ***Best Management Practices Guide***

*On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

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

**If you have any questions on how to fill out this form or about the Wholesale Public Water Suppliers program, please contact us 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 A

### Definitions of Commonly Used Terms

**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.

**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.

**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.

**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.

**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.

**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.

**Public water supplier** – An individual or entity that supplies water to the public for human consumption.

**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.

**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.

**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.

**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).

**Water loss** - The difference between water diverted or treated and water delivered (sold). 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.

**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.

San Jacinto River Authority – Highlands Division

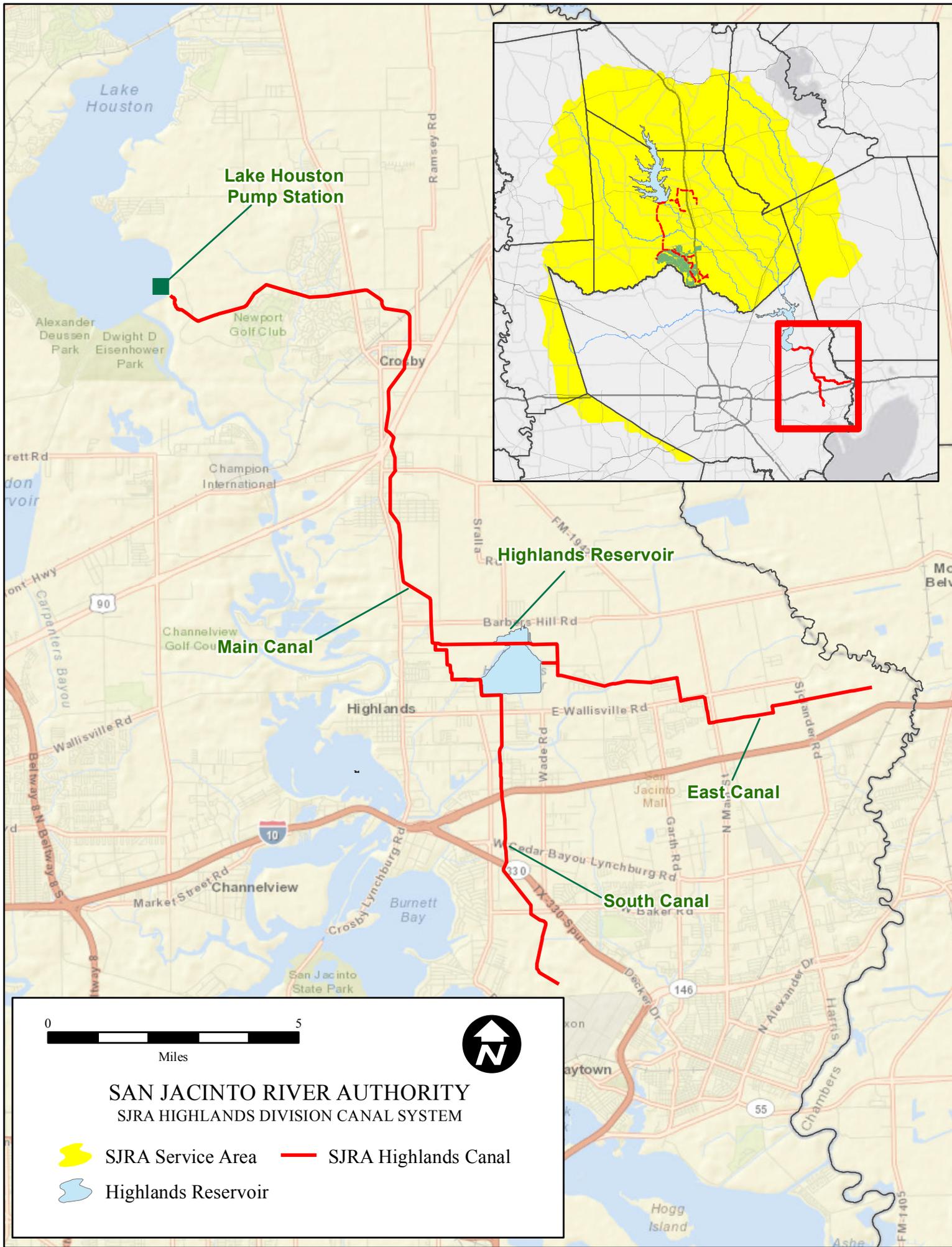
Attachments to TCEQ Form 20162:  
Profile & Water Conservation Plan  
Requirements for Wholesale Public Water  
Suppliers

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# Attachment A

SJRA Highlands Division Service Area

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Texas Commission on Environmental Quality

INDUSTRIAL/MINING WATER CONSERVATION PLAN

This form is provided to assist entities in conservation plan development for industrial/mining water use. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

Name: San Jacinto River Authority - Highlands Division
Address: SJRA General Administration Highlands Division
PO Box 329 PO Box 861
Conroe, TX 77305 Highlands, TX 77562
Telephone Number: (936) 588.3111 Fax: (936) 588.3043
Form Completed by: Larry Gregory
Title: SJRA Highlands Division Manager
Signature: [Signature] Date: March 27, 2014

NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Water use

- 1. Annual diversion appropriated or requested (in acre-feet): 173,377 (Lk. Houston, Lk. Conroe, Trinity River, Effluent Reuse)
2. Maximum diversion rate (cfs): 783

B. Water sources Lake Conroe, Lake Houston, Trinity River Diversion, Reuse

- 1. Please indicate the maximum or average annual amounts of water currently used and anticipated to be used (in acre-feet) for industrial/mining purposes:

Table with 3 columns: Source (List water right numbers), Current Use, Anticipated Use. Rows include 4964 (Lk. Houston) Surface water, 4963 (Lk. Conroe) Surface water, and 5271 (Trinity) Surface water.

<u>5807 (Lk. Houston) Surface Water</u>	<u>13,522</u>	<u>13,522</u>
<u>5808 (San Jacinto) Surface Water</u>	<u>15,562</u>	<u>15,562</u>
<u>5809 (GW Effluent) Reuse</u>	<u>3,692</u>	<u>3,692</u>
<b><u>TOTAL</u></b>	<b><u>66,699</u></b>	<b><u>66,699</u></b>

2. How was the surface water data provided above (B1) obtained?

Master meter \_\_\_\_; Customer meter X;

If both, % raw \_\_\_\_\_, % treated \_\_\_\_\_.

Supplier(s): \_\_\_\_\_

3. Was purchased water raw X\* or treated \_\_\_\_\_?

If both, % raw \_\_\_\_\_, % treated \_\_\_\_\_.

Supplier(s): \_\_\_\_\_

*\*Raw water from Lake Conroe.*

4. How was the groundwater data provided above (B1) obtained? **N/A\***

Master meter \_\_\_\_; Customer meter \_\_\_\_; Estimated \_\_\_\_; Other \_\_\_\_

If other, identify source: \_\_\_\_\_

*\*Division does not utilize groundwater.*

5. What is the rate and cost of purchased water?

\$0.3400 per 1,000 gallons as of January 1, 2014. Short term contract rates may be up to four times the raw water rate above.

C. Industrial/Mining Information

1. Major product or service produced by applicant:

Petroleum Refining and Chemical Production

2. Major Standard Industrial Classification Code(SIC):  
2911 (Petroleum Refining & related chemical production), 2821 (Plastics Material and Synthetic Resins), 2822 (Synthetic Rubber), 2874 (Phosphatic Fertilizers)
- North American Industry Classification System (NAICS):  
324110 (Petroleum Refining & related chemical production), 325192, 325312
- 
3. Total number of employees at facility: various

**II. WATER USE AND CONSERVATION PRACTICES**

A. Water Use in Industrial or Mining Process:\*

<b>Production Use</b>	<b>% Groundwater</b>	<b>% Surface Water</b>	<b>% Saline Water</b>	<b>% Treated Water</b>	<b>Water Use (In Acre-Feet)</b>
Cooling, condensing, & refrigeration	0	100	0	0	
Processing, washing, transport	0	100	0	0	
Boiler feed	0	100	0	0	
Incorporated into product	0	100	0	0	
Other	0	100	0	0	

Facility Use	% Groundwater	% Surface Water	% Saline Water	% Treated Water	Water Use (In Acre-Feet)
Cooling tower(s)	0	100	0	0	
Pond(s)	0	100	0	0	
Once through	0	100	0	0	
Sanitary & drinking water	0	100	0	0	
Irrigation & dust control	0	100	0	0	
Other	0	100	0	0	

*\*Data regarding water use for specific industrial processes is not available. Results in table reflect available information available to SJRA at this time.*

1. Was fresh water recirculated at this facility? • Yes • No
2. Was electric power generated at this facility (for in-plant use or for sale)?  
• Yes • No
3. Description of the above use(s) of water (e.g., if water is being used for cooling, indicate the cooling system: tower, pond, etc.):  
Various cooling and petroleum/chemical processing
4. Describe or illustrate how surface water is diverted and delivered to the point(s) of use, the location of the diversion(s) and points of use, and how diversions are measured:  
Plants (buyer) installs and maintains pump intake at diversion point and pumps water to its facility. Diversions measured by customer-installed and maintained meters, verified/inspected on at an agreed upon frequency by the SJRA.

5. Monthly water demand for previous year (in acre-feet):

	<b><u>Diversions</u></b>	<b>Percent of Return Flow</b>	<b>Monthly Demand</b>
<b>January</b>	Lake Houston, Trinity River	0	4,543
<b>February</b>	Lake Houston, Trinity River	0	4,898
<b>March</b>	Lake Houston, Trinity River	0	5,908
<b>April</b>	Lake Houston, Trinity River	0	5,846
<b>May</b>	Lake Houston, Trinity River	0	5,282
<b>June</b>	Lake Houston, Trinity River	0	5,406
<b>July</b>	Lake Houston, Trinity River	0	6,798
<b>August</b>	Lake Houston, Trinity River	0	6,108
<b>September</b>	Lake Houston, Trinity River	0	6,063
<b>October</b>	Lake Houston, Trinity River	0	5,759
<b>November</b>	Lake Houston, Trinity River	0	4,748
<b>December</b>	Lake Houston, Trinity River	0	5,337
<b>TOTAL</b>	Lake Houston, Trinity River	0	66,699

6. Projected monthly water demand for next year (in acre-feet):

	<b><u>Diversions</u></b>	<b>Return Flow</b>	<b>Monthly Demand</b>
<b>January</b>	Lake Houston, Trinity River	0	4,543
<b>February</b>	Lake Houston, Trinity River	0	4,898
<b>March</b>	Lake Houston, Trinity River	0	5,908
<b>April</b>	Lake Houston, Trinity River	0	5,846
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<b>August</b>	Lake Houston, Trinity River	0	6,108
<b>September</b>	Lake Houston, Trinity River	0	6,063
<b>October</b>	Lake Houston, Trinity River	0	5,759
<b>November</b>	Lake Houston, Trinity River	0	4,748
<b>December</b>	Lake Houston, Trinity River	0	5,337
<b>TOTAL</b>	Lake Houston, Trinity River	0	66,699

B. Specific and Quantified Conservation Goal

Water conservation goals for the industrial and mining sector are generally established either for (1) the amount of water recycled, (2) the amount of water reused, or (3) the amount of water not lost or consumed, and therefore is available for return flow.

1. Water conservation goal (water use efficiency measure):

Type of goal to be used:

- Percent of water reused
- Percent of water not consumed, and therefore returned as flow
- Other (specify) Maintain efficient delivery system that controls conveyance losses, minimize process losses, utilize innovative technologies, continue methods of public information, education and awareness.

2. Provide the specific and quantified five-year and ten-year targets for water savings and the basis for development of such goals for this water use/facility:

Goal of reduction in demand of 1% per year across all SJRA divisions. Maintain efficient delivery system that controls conveyance losses, minimize process losses, utilize innovative technologies, continue methods of public information, education and awareness, and incorporate re-use and recycling strategies

3. Describe the methods and/or device within an accuracy of plus or minus 5% used to measure and account for the amount of water diverted from the source of supply:

Customer-installed water meters

4. Leak-detection, repair, and water-loss accounting measures used:  
Maintain efficient delivery system that controls conveyance losses to a practical level. Continue to inspect Authority-owned system for leaks and, when necessary, repair. Perform other routine maintenance, such as clearance of vegetation, to minimize conveyance losses.

5. Equipment and/or process modifications used to improve water use efficiency:  
Customer-specific. SJRA not involved in specific process modifications made by customers.

6. Other conservation techniques used:

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**III. WASTEWATER USE CHARACTERISTICS** N/A - \*Division does not supply wastewater service.

A. Check the type(s) of wastewater disposal system(s) used at this facility:

- On-site wastewater plant
- Septic tank(s)
- Injection well(s)
- City or regional wastewater system
- Other (Please identify) \_\_\_\_\_

B. What quantity of fresh water was consumed, and therefore not returned to a wastewater treatment system (public or private), or to a water course (including loss to product, evaporation, injection, etc.)?

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**IV. ADDITIONAL COMMENTS/INFORMATION**

Please provide any additional information that may indicate the present and future water needs at this facility, and any water problems.

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***Best Management Practices Guide***

*On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

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

**If you have any questions on how to fill out this form or about the Industrial/Mining Water Conservation program, please contact us 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.

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**Texas Commission on Environmental Quality**

**SYSTEM INVENTORY AND WATER CONSERVATION PLAN  
FOR AGRICULTURAL WATER SUPPLIERS  
PROVIDING WATER TO MORE THAN ONE USER**

This form is provided to assist entities in conservation plan development for agricultural water suppliers providing water to more than one user individually-operated irrigation systems. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

**Name:** San Jacinto River Authority – Highlands Division

---

**Address:** SJRA General Administration      Highlands Division  
PO Box 329      PO Box 861  
Conroe, TX 77305      Highlands, TX 77562

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**Telephone Number:** (936) 588.3111      Fax: (936) 588.3043

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**Form Completed By:** Larry Gregory      Title: SJRA Highlands  
Signature: *Larry Gregory*      Division Manager

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Date: *March 27, 2014*

**NOTE:** If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.

**I. STRUCTURAL FACILITIES**

A. Description of service area: Agricultural lands in the Crosby and Baytown area.  
\_\_\_\_\_  
\_\_\_\_\_

B. Total miles of main canals and pipelines: 27

C. Total miles of lateral canals and pipelines: 0

D. Reservoir capacity, if applicable: 3,800 acre-feet

E. Description of pumps and pumping stations:  
Pump #1: 2-speed, 28-30 MGD at low, 34-36 MGD at high; Pumps #2 and 3: 5-speed, 24-34 MGD; and Pump #4: 30 MGD.

F. Description of meters and/or measuring devices:  
Leeds and Northrup flowmeters with Honeywell Mini Trend QX recorder.

G. Description of customer gates and measuring devices: 20" gate into a small canal, customer pumps water from the canal through a meter.

H. Description of canal construction:

- a. Miles of unlined canals: 27
- b. Miles of lined canals: \_\_\_\_\_
- c. Miles of enclosed pipelines: \_\_\_\_\_
- d. Other: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I. Description of canal conditions and recent or planned improvements:

Canal system originally constructed in 1940s with various modifications, improvements, and repairs since that time. CIP in place to identify/repair problem locations in canal system.

J. Description of any other structural facilities not covered above:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## II. MANAGEMENT PRACTICES

A. Total water available to district (in acre-feet/year): 55,000\*

*\*Note: SJRA's water right 10-4964 includes a multi-purpose right which allows for irrigation use. Agricultural use comprises less than 1.4% of the total water use for this permit. The only agricultural users include several small turf grass farmers that receive untreated water from SJRA through the Highlands System. The responses in this section are attributable to this irrigation use only.*

- 1. Maximum water rights allocation to district: 55,000 (See Item A above)
  - a. Water rights number(s): 10-4964
  - b. Other water contracted to be delivered by district: Permit 5271, Permit 5809, 10-4963
- 2. Average annual water diverted by district (in acre-feet/year): 372
- 3. Average annual water delivered to customers (in a-f/yr.): 372

4. Delivery efficiency (percentage): 100
5. Historical diversions and deliveries:

Year	Annual Rainfall (in./yr.)	Total Annual Water Diverted (acre-feet)	Annual Irrigation Water Delivered (acre-feet)	Annual Municipal Water Delivered (acre-feet)	Annual Other Water Delivered (acre-feet)	Total Annual Water Delivered (acre-feet)	Estimated Delivery Efficiency (percentage)
2011	23.15	73,486	738	1,908	70,840	73,486	100*
2012	38.15	64,225	158	1,401	62,666	64,225	100*
2013	37.44	68,493	221	1,573	66,699	68,493	100*
Average	32.91	68,735	372	1,627	66,735	68,735	100*

*\*Additional runoff enters Lake Houston reservoir from upstream drainage area and Authority records indicate amounts delivered actually exceed amounts diverted.*

6. Practices and/or devices used to account for water deliveries:  
Customer water meters.  


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7. Water pricing policy:  
\$0.3400 per 1,000 gallons as of January 1, 2014 for irrigation customers.  
Short term contract rates may be up to four times the raw water rate above.

8. Operating rules and policies which encourage water conservation:  
Water pricing policy  


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9. Other management practices and services provided by the district:  
Canal system is routinely inspected for leaks and, when necessary, repaired.  
Capital improvement program initiated to identify & repair leaking or problem areas in system (siphons already evaluated/prioritized). Other routine maintenance, such as clearance of vegetation, is preformed to minimize conveyance losses.  


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**III. USER PROFILE**

- 1. Total number of acres in service area: Approx. 1,350
- 2. Average number of acres irrigated annually: Varies
- 3. Projected number of acres to be irrigated in 10 years: Varies
- 4. Number of active irrigation customers: 6
- 5. Total irrigation water delivered annually (in acre-feet): 221 (2013)

6. Types of crops grown by customers:  
Grass  
\_\_\_\_\_  
\_\_\_\_\_

7. Types of irrigation systems used by customer:  
Mechanical  
\_\_\_\_\_  
\_\_\_\_\_

8. Types of drainage systems used by customers:  
Gravity/sheet flow  
\_\_\_\_\_  
\_\_\_\_\_

9. Further description of irrigation customers:  
Turf farms  
\_\_\_\_\_  
\_\_\_\_\_

10. List of municipal customers and number of acre-feet allocated annually:  
Not applicable – see Wholesale PWS profile.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. List of industrial and other large customers and number of acre-feet allocated annually:  
Not applicable – see Industrial profile.  
\_\_\_\_\_  
\_\_\_\_\_

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12. Additional information about water users:

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IV. Describe **specific and quantified five-year and ten-year targets for water savings** including maximum allowable losses for the storage and distribution system:

Goal of reduction in demand of 1% per year across all SJRA divisions. Maintain efficient delivery system that controls conveyances losses to a practical level. Encourage best management practices that reduce the unnecessary loss of water. Continue methods of public information, education and awareness.

V. Describe the practice(s) and/or device(s) which will be utilized to measure and account for the amount of water diverted from the source(s) of supply:

Flowmeter at pump station and flowmeters at each diversion.

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VI. Describe the monitoring and record management program for water deliveries, sales, and losses:

Record water pumped daily and record water delivered through customer meters monthly.

VII. Describe any methods that will be used for water loss control, leak detection, and repair:

Maintain efficient delivery system that controls conveyance losses to a practical level. Capital improvement program initiated to identify & repair leaking or problem areas in system (siphons already evaluated/prioritized). Continue to routinely inspect for leaks and, when necessary, repair. Perform other routine maintenance, such as clearance of vegetation, to minimize conveyance losses.

VIII. Describe any program for customer assistance in the development of on-farm water conservation and pollution prevention measures:

Continue methods of public information, education, and awareness. SJRA will provide appropriate literature, as needed, to customers of the canal system.

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IX. Describe any other water conservation practice, method, or technique which the supplier

shows to be appropriate for achieving conservation (if applicable):  
Encourage best management practices that reduce the unnecessary loss of water. Through its contracts with agricultural uses, SRJA includes language that requires water conservation. Techniques such as laser leveling, irrigation system design, and other field delivery methods are encouraged through dialogue with these users.

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X. Additional requirements:

1. There must be 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 30 TAC ' 288; if the customer intends to resell the water, then the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter.
2. Evidence of official adoption of the water conservation plan and goals, by ordinance, rule, resolution, or tariff, indicating that the plan reflects official policy of the supplier.
3. Documentation of coordination with the Regional Water Planning Groups in order to insure consistency with the appropriate approved regional water plans.

### ***Best Management Practices Guide***

*On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

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

**If you have any questions on how to fill out this form or about the Water Conservation program, please contact us 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.

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**Appendix B**  
**Resolutions Passed by SJRA**  
**Transmittal Letter to Region H RWPG**

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**RESOLUTION ADOPTING REVISED WATER CONSERVATION PLANS AND DROUGHT CONTINGENCY PLANS; AUTHORIZING THE IMPLEMENTATION OF SUCH REVISED PLANS; REPEALING AND RESCINDING ALL PRIOR PLANS; AND CONTAINING OTHER PROVISIONS RELATING TO THE SUBJECT**

**WHEREAS, the San Jacinto River Authority (the "Authority") has water rights issued by the Texas Commission on Environmental Quality and its predecessor agencies (collectively, the "TCEQ") to divert water from the San Jacinto River and Trinity River basins; and**

**WHEREAS, the Authority, by and through its Highlands Division, owns and operates water supply and distribution systems and facilities, including the Lake Houston Pump Station, Highlands Reservoir, and Highlands Canal System, in order to sell and deliver water out of such rights to certain customers generally located in eastern Harris County; and**

**WHEREAS, the Authority also owns an interest in Lake Conroe Dam and Reservoir, located in Montgomery and Walker Counties ("Lake Conroe") upstream on the San Jacinto River from the Lake Houston Reservoir, and holds certain contract rights and water rights issued by the TCEQ to divert or release and use water from Lake Conroe; and**

**WHEREAS, the Authority, by and through its Lake Conroe Division, operates Lake Conroe and sells water out of such rights to customers located in Montgomery County, generally in close proximity to Lake Conroe; and**

**WHEREAS, the Authority, by and through its Woodlands Division, owns and operates an extensive water supply and distribution system and facilities for providing regional, wholesale services to customers in the area of The Woodlands; and**

**WHEREAS, the Authority, by and through its Groundwater Reduction Plan Division (the "GRP Division"), is presently in the process of constructing a surface water treatment facility and transmission system that will withdraw water from Lake Conroe for treatment, distribution and sale to its Woodlands Division and certain other customers; and**

**WHEREAS, in connection with the management of such facilities, systems and operations, the Authority has previously adopted a Water Conservation and Drought Contingency Plan (the "Plan") in accordance with the requirements of Chapter 11, Texas Water Code, as amended, and the rules of the TCEQ under Chapter 288 of Title 30, Texas Administrative Code, as amended; and**

**WHEREAS, the Board of Directors of the Authority has determined that it is in the public interest to revise and replace the Plan; Now, Therefore,**

**BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE SAN JACINTO RIVER AUTHORITY, THAT:**

**Section 1:** The Plan, as previously adopted and amended by the Authority, is hereby repealed and rescinded in its entirety.

**Section 2:** The Board of Directors of the Authority hereby approves and adopts the revised water conservation and drought contingency plans, each dated as of the date hereof, titled as follows: *Water Conservation Plan for San Jacinto River Authority Highlands Division; Drought Contingency Plan for San Jacinto River Authority Highlands Division; Water Conservation Plan for San Jacinto River Authority Lake Conroe Division; Drought Contingency Plan for San Jacinto River Authority Lake Conroe Division; Water Conservation Plan for San Jacinto River Authority Woodlands Division; Drought Contingency Plan for San Jacinto River Authority Woodlands Division; Water Conservation Plan for San Jacinto River Authority GRP Division; and Drought Contingency Plan for San Jacinto River Authority GRP Division* (collectively, the "Revised Plans").

**Section 3:** The Revised Plans, together with any amendments thereto which may be made from time to time, shall be maintained on file in the official records of the Authority and filed, as appropriate, with the TCEQ, the Texas Water Development Board and any other agencies with jurisdiction.

**Section 4:** It shall be the policy of the Authority that the programs and procedures set forth in the Revised Plans be implemented immediately. The General Manager of the Authority shall report to the Board of Directors of the Authority and other interested agencies annually on the implementation and effectiveness of the Revised Plans in accordance with the procedures set forth in the Revised Plans.

**Section 5:** The General Manager of the Authority is hereby designated as the official responsible for implementation of the Revised Plans in accordance with the guidelines set forth in the Revised Plans.

**Section 6:** It shall be the policy of the Authority to support and assist its wholesale and retail customers in (1) designating their pre-assigned officials as having the responsibility and authority to implement the Revised Plans, (2) allowing for enforcement of the Revised Plans, and (3) providing civil penalties for noncompliance with the Revised Plans.

**Section 7:** It shall be the policy of the Authority that the *Water Conservation Plan for San Jacinto River Authority GRP Division* and the *Drought Contingency Plan for San Jacinto River Authority GRP Division* establish minimum requirements which shall be adopted, respectively, in a water conservation plan and a drought contingency by each participant in the Authority's Groundwater Reduction Plan. The General Manager of the Authority and the GRP Administrator are hereby authorized and directed to take such actions as are deemed necessary and appropriate to ensure that the participants in the Authority's Groundwater Reduction Plan (the "Participants") adopt water conservation plans and drought contingency plans that are reasonably determined to meet or exceed such minimum requirements. Further, it shall be the policy of the Authority to support and assist the Participants in (1) adopting such water conservation plans and drought contingency plans, and (2) implementing and enforcing such water conservation plans and drought contingency plans.

Section 8: This Resolution shall be and remain in full force and effect from and after the date of its passage and approval.

PASSED AND APPROVED this 27th day of March, 2014.



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President, Board of Directors



\_\_\_\_\_  
Secretary, Board of Directors

(SEAL)



# San Jacinto River Authority

ADMINISTRATIVE OFFICE  
P.O. Box 329 • Conroe, Texas 77305  
(T) 936.588.3111 • (F) 936.588.3043

March 31, 2014

Region H Water Planning Group  
c/o San Jacinto River Authority  
P. O. Box 329  
Conroe, Texas 77305

Re: Water Conservation and Drought Contingency Plans

Dear Region H;

Please find enclosed one (1) copy of the revised Water Conservation and Drought Contingency Plans for the Lake Conroe, GRP, Woodlands and Highlands Divisions of San Jacinto River Authority. The Woodlands Division is the wholesale provider of water to the eleven municipal utility districts (MUDs) that comprise The Woodlands. The Woodlands Joint Powers Agency is the retail provider of water to these MUDs and will submit its Water Conservation and Drought Contingency Plans separately. These revisions have been initiated to meet the regulatory requirement to update and submit the plans by May 1, 2014.

If you have any questions, please do not hesitate to contact us.

Sincerely,

Ronald D. Kelling, P.E.  
Deputy General Manager  
San Jacinto River Authority

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LAKE CONROE DIVISION  
P.O. Box 329  
Conroe, Texas 77305  
(T) 936.588.1111  
(F) 936.588.1114

GRP DIVISION  
P.O. Box 329  
Conroe, Texas 77305  
(T) 936.588.1662  
(F) 936.588.7182

WOODLANDS DIVISION  
P.O. Box 7537  
The Woodlands, Texas 77387  
(T) 281.367.9511  
(F) 281.362.4385

HIGHLANDS DIVISION  
P.O. Box 861  
Highlands, Texas 77562  
(T) 281.843.3300  
(F) 281.426.2877