

Water Conservation Plan

for

**San Jacinto River Authority
Lake Conroe Division**

Prepared by

San Jacinto River Authority

Adopted: April 25, 2024

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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 75th 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.¹

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is to achieve lasting, long-term improvements in water use efficiencies using strategies to reduce the amount of water withdrawn from a particular source, and to ensure that the water withdrawn is used in an efficient manner.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 Water Conservation and Drought Contingency Plans 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.”²

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

SJRA is governed by a Board of Directors. The General Manager oversees approximately 170 employees and all facilities across five divisions: Lake Conroe, Highlands, Groundwater Reduction Plan (GRP), Woodlands, and Flood Management. The following is provided as the Water Conservation Plan (including utility description, service area description, and customer data) for the Lake Conroe Division (the Division). The Division’s Drought Contingency Plan is provided under a separate cover.

¹ Senate Bill 1, 75th Legislature, Section 12.1272 of the Texas Water Code.

² House Bill No. 832, 45th Legislature, Regular Session, Austin, TX, 1937.

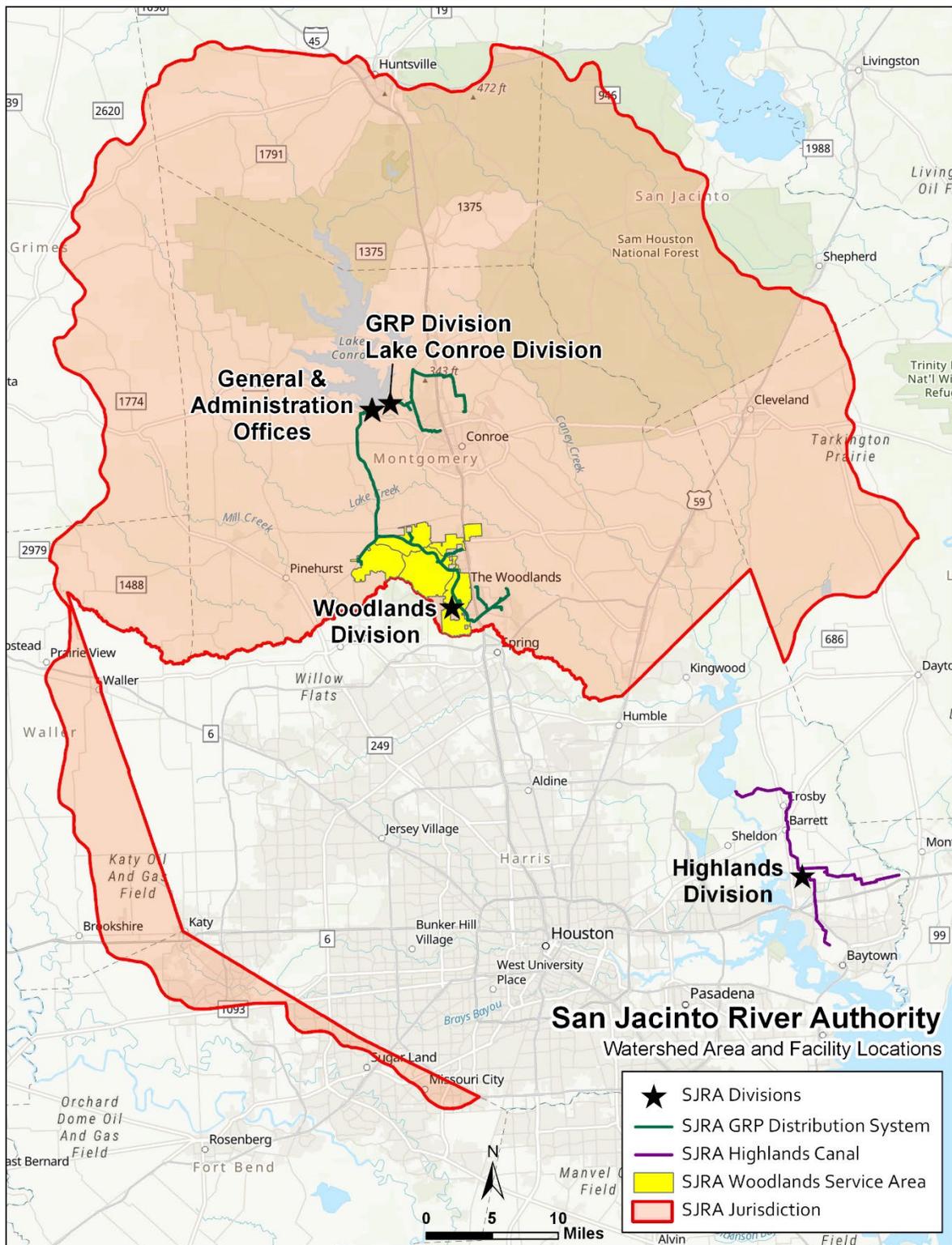


Figure 1-1. Watershed Area and Facility Locations

Section 2. Utility and Service Area Description

2.1 Utility Description

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/year) and the City of Houston owns two-thirds (66,667 ac-ft/yr) of the total 100,000 ac-ft/yr of permitted water rights from the lake under Certificate of Adjudication (COA) 10-4963. Lake Houston is owned by the City of Houston and the water rights for yield from the reservoir are shared by the City of Houston and SJRA. SJRA also holds an option contract for the purchase of the Houston portion of water in Lake Conroe.

The Lake Conroe water right is used by SJRA to meet the needs of customers in close proximity to the Lake, including its own GRP Division. In addition to the Division's raw water customers in the immediate vicinity of Lake Conroe, the reservoir also serves as a source of water for the participating members of the GRP Division after treatment and transmission by the GRP Division. The GRP began delivering water to its customers in June 2015. SJRA's water right for Lake Conroe (33,333 ac-ft/yr) is permitted for multiple uses.

2.2 Service Area Description

The approximately 2,453 square mile area of SJRA's jurisdiction within 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. A map of Lake Conroe, showing the location of the Division's customers, including golf courses/commercial irrigation customers, residential irrigators, a power generating facility (industrial), and SJRA's GRP Division surface water treatment plant (municipal), is provided below (Figure 2-1). Figure 2-1 also includes anticipated diversion locations (subject to change) for a new mining customer with whom SJRA is, as of March 2024, negotiating a raw water contract. These customers take their water directly from Lake Conroe. In 2023, there were approximately 23,633 ac-ft diverted by SJRA or its customers from Lake Conroe (Table 2-1). The Division does not own or operate wastewater infrastructure.

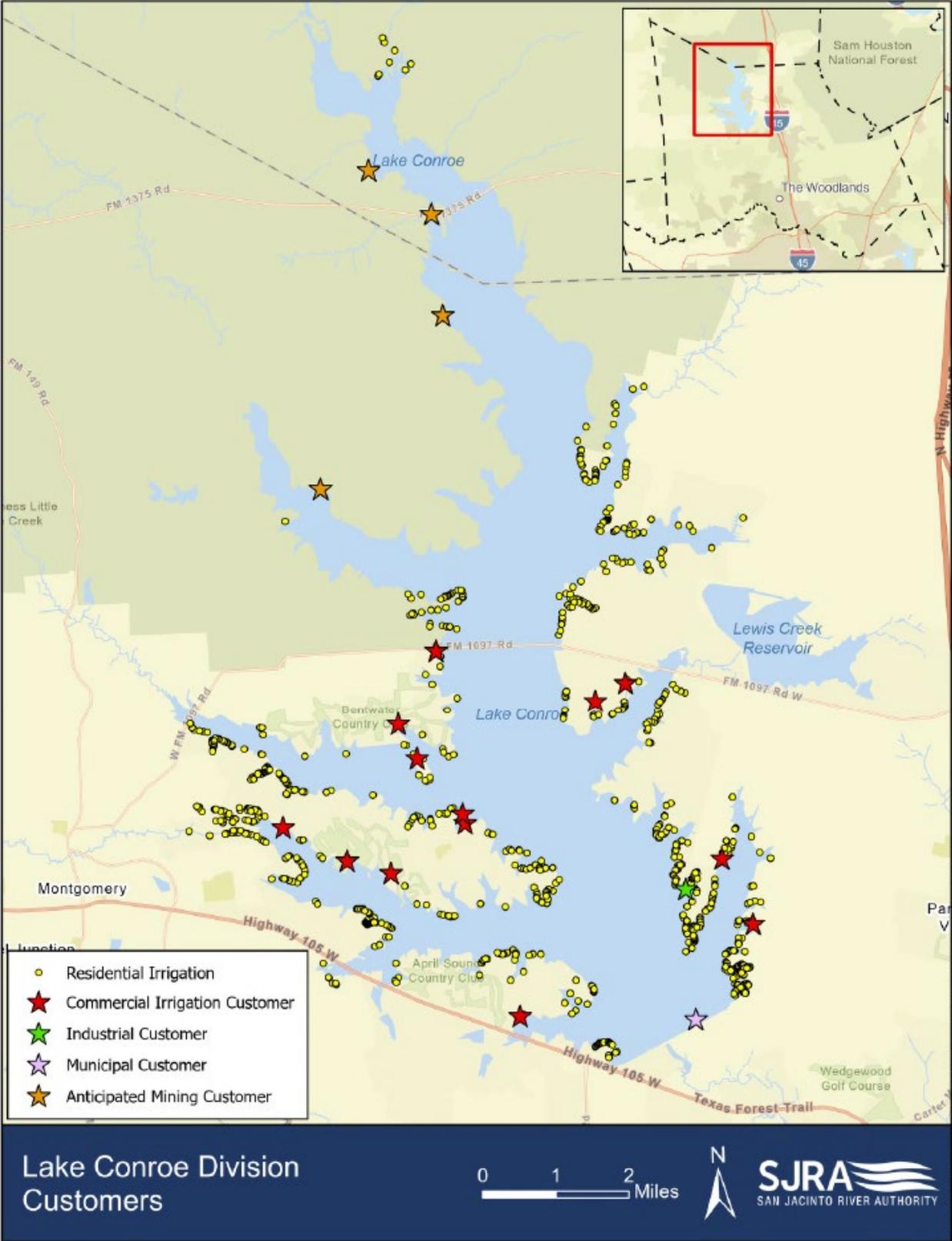


Figure 2-1. Lake Conroe Division Customers

Table 2-1. 2023 Surface Water Diversion

Municipal	15,730 ac-ft
Industrial	6,308 ac-ft
Irrigation	1,595 ac-ft
Total	23,633 ac-ft

The Division serves a power generating facility that uses surface water primarily for cooling (industrial) purposes. In 2023, there were approximately 6,308 ac-ft diverted from Lake Conroe to provide wholesale water to the power generating facility.

As of March 2024, SJRA is negotiating a contract with a mining customer to supply water for exploratory well drilling operations. When executed, this will be SJRA’s only raw water mining customer.

The SJRA maintains a number of commercial irrigation contracts, which allow nearby golf courses, resorts, and lakeside communities to pump water directly from Lake Conroe for landscape irrigation purposes. In 2023, there was approximately 646 ac-ft diverted for commercial irrigation uses. There are also private individual property owners who pump raw water directly from Lake Conroe for irrigation of their lakeside property. The Division estimates usage for these customers by applying an approach developed by Texas A&M’s Water Management Department which generates water budgets using a crop-specific coefficient for standard turf and incorporates irrigable area and environmental climate data. In 2023, the Division delivered an estimated 949 ac-ft of water for private irrigation use. The acreage irrigated by these commercial and private users varies, but is estimated at approximately 900 total acres.

Use of Lake Conroe as a municipal supply for the GRP Division began in June 2015. A majority of the GRP Participants continue to be served by groundwater, but some of the larger users also receive surface water. Therefore, a portion of the GRP Participants are served by a combination of treated surface water and treated groundwater, while other GRP Participants use groundwater exclusively. The GRP Participants’ population currently served by SJRA from Lake Conroe as of 2023 was estimated as 334,926.

Additional Lake Conroe Division raw water customer information can be found in Appendix A, the Water Utility Profiles.

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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.”³

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 Lake Conroe Division 5- and 10-year Water Conservation Target Goals

The Division does not have direct control over the demands that it serves, as the Division’s customers take water directly from the lake into their own systems. SJRA is not involved in the day-to-day operations of its customers; however, it is working with customers to encourage water-use reduction. While the Division does also serve as a supplier to other SJRA divisions, those divisions in turn act solely as wholesale providers and thus also are not in direct control of customer demands. The water conservation measures described below include those under the direct control of, and being implemented by, SJRA, as well as goals supported and encouraged by the Division for implementation by its customers. The SJRA Lake Conroe Division aims to achieve a reduction in surface water demand, for municipal and irrigation customers, of 2.5% over a 5-year period and 5% over a 10-year period. For municipal customers, this goal will be measured based on per capita demand. For irrigation customers, the goal will be measured based on per acre demand. The Division also aims to achieve a reduction in surface water demand, for industrial and mining customers, of 1% over a 5-year period and 2% over a 10-year period. For industrial and mining customers, this goal will be measured based on total demand. Due to the nature of industrial and mining operations, demand reductions are less feasible for those customers. As growth continues to occur in the region, these customers’ facilities and operations may expand, requiring additional water usage to maintain functionality. SJRA will apply the conservation methods described below, as applicable, to industrial and mining customers, and encourage those customers to conserve water where feasible in an effort to meet the water reduction goals set forth herein. Table 3-1 shows the average annual demand for each usage type for 2019 through 2023, as

³ TWC, Section 17.001 (23) (A) and (B).

well as the 5 and 10-year targets for each usage type. The Lake Conroe Division does not manage or control any water transmission lines and all diversions are made directly from Lake Conroe, but the Division encourages its customers to use best management practices to keep water loss below 10%, annually.

Table 3-1. Lake Conroe Division 5- and 10-year Water Conservation Target Goals

Usage Type	Unit of Measure	2019-2023 Average	% Reduction Goals (2029 / 2034)	5-Year (2029) Goal	10-Year (2034) Goal
Industrial	AC-FT/YR	5,624	1% / 2%	5,568	5,512
Municipal	GPCD*	40	2.5% / 5%	39	38
Irrigation	AC-FT/AC/YR	1.24	2.5% / 5%	1.21	1.18
Mining	AC-FT/YR	387**	1% / 2%	383	379

* Gallons Per Capita Per Day

** No mining customers prior to 2024. 387 acre-feet annually anticipated in 2025-2034 (smaller amount in 2024 due to partial year of demand).

All goals stated herein for purposes of water savings over a five-and ten-year horizon were developed considering potential savings that could be realized for each category of water use by implementing some of the conservation strategies contained herein. These goals reflect challenges associated with different water use types.

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;
- Contractual Requirements for Customer Water Conservation Plans;
- Customer Conservation Plan Guidance;
- Customer Reporting Requirements;
- Public Information and Education;
- Encouraging Customer Conservation Practices; and
- Implementation, Enforcement, Coordination with Regional Water Planning Group (RWPG), and Updating of the Plan.

There are two major water supply reservoirs (Lake Conroe and Lake Houston) in the San Jacinto River system, however, they are operated by separate entities therefore the Lake Conroe Division does not have a reservoir system operations plan.

3.2.1 Metering and Record Management

The municipal, industrial, irrigation, and mining customers of the Division are responsible for metering as required by their water supply 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. An example of the most recent contract language used by SJRA for raw water contracting is as follows. Language/requirements vary between different types of customers.

Buyer shall, at its expense, install and maintain 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 Points of Delivery, or at such other point as approved by the Authority, in such manner as will accurately meter the quantity of water delivered to Buyer hereunder.

Meters shall be read monthly by the employees or agents of Buyer, and the date, time and the amount of water taken each month shall be reported to the Authority monthly on or before the fifth (5th) business day of the following calendar month. Unless and until mutually agreed upon and confirmed in writing by the parties, Buyer agrees to provide such report to the Authority by electronic mail, which report shall include current totalizer readings as of the beginning of each billing month (i.e., the first calendar day of each month).

Subject to Buyer's reasonable security and safety requirements, the Authority 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 purpose of verifying the quantity of water delivered hereunder.

The metering equipment installed and maintained by Buyer hereunder shall be checked by representatives of Buyer and the Authority jointly on an annual basis during the month of March, and more often at the reasonable request of either party (an "Inspection Date"), for the purpose of determining its accuracy. In the event a representative is not designated by either party for the purpose of making such test or calibration, or such representative fails to appear, then the test and calibration made by the other party shall be binding upon the

party who fails to designate a representative or whose representative fails to appear. Any required test or 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 test shows a deviation of more than two percent (2%) from the manufacturer's tolerances, standards or specifications, such meter shall be promptly recalibrated, as nearly as practicable, to such manufacturer's tolerances, standards or specifications, and the volume of water delivered during one-half (1/2) of the period extending back to the immediately preceding Inspection Date shall be adjusted accordingly for the purposes of calculating the amount of water delivered.

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 an employee or agent of Buyer, but the reading, calibration and adjustment of such check meters shall be made only by the Authority. Should the Authority enter upon Buyer's premises for the purposes permitted above, the Authority shall exercise due care and diligence while on Buyer's premises, and Buyer's reasonable security and safety requirements shall be observed.

The data collected from the metering of customers allows 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 their points of delivery (Lake Conroe diversion locations). Also as described in the contracts, access to these meters will be given to SJRA by each customer for inspection purposes. Meters must be maintained by each customer to the level of accuracy specified in the customer's wholesale water supply contract with the Division. The Division has recently begun reading the meters of the majority of commercial irrigation customers at Lake Conroe in order to ensure timely and accurate monthly readings.

3.2.2 Leak Detection and Repair, and Minimization of Conveyance Losses

Lake Conroe is maintained by SJRA, including routine inspections for leaks and dam integrity. Those components of the system used to take water from the Lake into each customer's system are owned

and maintained by the customers. Customers are responsible for inspections for leaks and, when necessary, repairs. The Division encourages municipal, industrial, irrigation, and mining customers to take measures to reduce water loss (below 10%) 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 reuse supplies across its divisions. SJRA will continue to consider and evaluate opportunities for reuse as they develop, including with the industrial, municipal, irrigation, and mining customers of the Division.

The regional planning process overseen by the Texas Water Development Board outlines projected needs and available supplies across a 50-year planning horizon. The 2021 Region H Regional Water Plan (RWP) indicated projected increases of need for new supplies in Montgomery County from approximately 7,000 acre-feet/year in 2020 to approximately 170,000 acre-feet/year in 2070. Conservation and direct reuse strategies in the RWP only address approximately 14% of the county's needs by 2070, leaving a gap requiring additional supply development. Much of this need is proposed in the RWP to be met by SJRA through water management strategies including, but not limited to, indirect reuse of regional return flows, transfer of water from Lake Livingston to SJRA, groundwater from the Catahoula Aquifer, and aquifer storage and recovery. Accordingly, a water rights application for indirect reuse can help meet Montgomery County demands, as well as other SJRA service area needs (see Highlands Division Water Conservation Plan.)

SJRA's ongoing water supply planning efforts include both technical analyses as well as water rights authorization requests that meet long-term reuse needs. In particular, SJRA has developed a Raw Water Supply Master Plan ("RWSMP") which evaluates existing SJRA water supplies, future projected water demands in SJRA's service areas, and additional SJRA water supply needs based on the difference between those existing supplies and future demands. This analysis covers a 50-year planning period, and ultimately results in the recommendation of water supply strategies to accommodate future needs in SJRA's service areas. Based on water demand trends in Montgomery County, additional supplies in excess of potential water conservation savings are needed.

One of the strategies recommended by the RWSMP to meet future demands in the Montgomery County Service Area is indirect reuse of municipal return flows. Other alternative strategies considered include the development of groundwater supply from the Catahoula Aquifer, transfers from Lake Livingston, purchase of water from other wholesale providers, direct reuse, and aquifer storage and recovery, among others. Strategies are ranked based on multiple weighted criteria, including costs, schedule, legal, environmental considerations, scalability, and others. Of the strategies available to serve Montgomery

County customers, indirect reuse of municipal return flows is consistently among the highest ranked strategies after considering how to maximize conservation efforts. SJRA has determined it necessary and reasonable to pursue permitting of municipal return flows for use in Montgomery County or downstream.

3.2.4 Rate Structure

SJRA utilizes a non-promotional rate structure for contracts with municipal, industrial, irrigation, and mining customers; these rates are periodically reviewed and adjusted as necessary. SJRA also encourages customers to establish rate structures promoting conservation for sales to their wholesale and retail customers.

3.2.5 Contractual Requirements for Customer Water Conservation Plans

SJRA will enforce the terms of contracts with wholesale water supply municipal, industrial, irrigation, and mining 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.

The long-term water supply contracts with each customer were developed at different times and therefore the specific language in each contract may vary. An example of the most recent contract language used by SJRA for raw water contracting is as follows. Language/requirements may vary between different types of customers.:

Buyer shall not directly or indirectly resell or exchange any water purchased under this Contract, nor shall it transfer or assign this Contract, in whole or in part, without the express written consent of the Authority, which consent may be given or withheld in the sole discretion of the Authority, and any such attempted resale, exchange, transfer or assignment without such consent of the Authority shall be void. Upon consent by the Authority, any contract between Buyer and a third party for resell or exchange of water purchased under this Contract shall include a stipulation that said third party is subject to all requirements of Section 12.0 hereof related to Water Conservation and Drought Contingency Plans.

Buyer shall develop and implement water conservation and drought contingency plans to conserve water resources and to promote practices that will reduce loss or waste of water, improve efficiency in the use of water, or increase the recycling and reuse of water. The Authority's obligations pursuant to this Contract shall be subject to the Buyer preparing and implementing a water conservation plan and drought contingency plan that meets all requirements set forth herein. Buyer's water conservation plan and drought contingency plan shall be at least equal to or more stringent than that adopted by the Authority, and Buyer shall comply with all requirements of the TCEQ, Texas Water Development Board, and any other federal, state or local regulatory agency with jurisdiction. Buyer shall cooperate with and assist the Authority in its efforts to develop and implement plans, programs, and rules to develop water resources and to promote practices, techniques, and technologies that will reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in use of water, or increase the recycling and reuse of water. Upon execution of this Agreement, Buyer shall submit water conservation and drought contingency plans and Buyer shall forward its water conservation plan and drought contingency plan to the Authority for its review and approval within one hundred eighty (180) calendar days following the date the Authority adopts any revision to its existing water conservation and drought contingency plans.

Subject to Buyer's reasonable security and safety requirements, the Authority shall have access to enter the Buyer's facilities in order to inspect and verify that appropriate leak detection measures and all other obligations subject to this Contract are in place.

Upon written request from the Authority, Buyer shall report progress made in implementation of its water conservation and drought contingency plans on an annual basis on or before March 1st of each year during the term of this Contract. Buyer shall amend its water conservation and drought contingency plans to reflect revisions to the Authority's plans, programs, and rules within one hundred eighty (180) calendar days after notice from the Authority of the adoption of such revisions.

SJRA may periodically update this language, 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.

3.2.6 Customer Conservation Plan Guidance;

SJRA will provide to municipal, industrial, irrigation, and mining customers upon request, model water conservation plans as developed by TCEQ, meeting the contractual requirements described in Section 3.2.5 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. Customers can contact SJRA for information regarding the Division's Plans and contractual requirements.

3.2.7 Customer Reporting Requirements

In 2011, the 82nd 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, its 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 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.⁴ Further, SJRA may request that customers annually submit to SJRA a copy of all conservation plan reporting forms, if required by TCEQ, that are submitted to TCEQ.

3.2.8 Public Information and Education

SJRA provides and periodically updates information regarding conservation and efficient water use on the Authority website at <http://www.sjra.net/> and/or social media sites. SJRA also has the option to utilize a plethora of water conservation resources that the TWDB, American Water Works Association, and American Public Works Association originally created as components of their own public education campaigns. Individual pamphlets and educational messages provided from these or other entities can be selected for specialized water conservation needs as they arise.

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

⁴ TWDB et al. 2012. Guidance and Methodology for Reporting on Water Conservation and Water Use

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

Other public information approaches which SJRA has utilized in the past and may implement in the future include public tours of various facilities across all divisions, participation in local environmental events, classroom water conservation educational programs, and joint operation of a mobile teaching lab.

3.2.9 Encouraging Customer Conservation Practices

SJRA and the Division encourage their municipal, industrial, irrigation, and mining 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.texas.gov/>).

3.2.10 Implementation, Enforcement, Coordination with RWPG, and Updating of the Plan

The Water Resources and Flood Management Division Manager and/or designees will act as the administrator(s) of the Water Conservation Plan for the Lake Conroe Division. The administrator(s) will oversee the execution and implementation of all elements of the program and monitor the progress of the plan. Additionally, the administrator(s) will be responsible for submission of an annual report to the TCEQ and TWDB on the progress of, and any changes to, the water conservation plan. SJRA is responsible for maintaining adequate records for Plan compliance with TCEQ and TWDB.

SJRA will enforce the terms of contracts with wholesale water supply municipal, industrial, irrigation, and mining 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 TCEQ rules, the Division provides a copy of its water conservation plan to the Region H Regional Water Planning Group (RWPG). A copy of the transmittal letter is included in Appendix B.

Every five years, SJRA will examine the Division's Water Conservation Plan and revise as necessary. The Water Conservation Plan for the Division has been adopted by a resolution of the Board of Directors of SJRA. A copy of the resolution is included in Appendix B.

Appendix A

Water Utility Profiles

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San Jacinto River Authority – Lake Conroe Division

**TCEQ Form 20162: Profile and Water Conservation Plan
Requirements for Wholesale Public Water Supplies**

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Texas Commission on Environmental Quality

Water Availability Division

MC-160, P.O. Box 13087 Austin, Texas 78711-3087

Telephone (512) 239-4600, FAX (512) 239-2214

Utility Profile and Water Conservation Plan Requirements for Wholesale Public Water Suppliers

This form is provided to assist wholesale public water suppliers in water conservation plan development. 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 Availability Division at (512) 239-4600.

Water users can find best management practices (BMPs) at the Texas Water Development Board's website <http://www.twdb.texas.gov/conservation/BMPs/index.asp>. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name: San Jacinto River Authority - Lake Conroe Division

Address: P.O. Box 329 Conroe, Texas 77305

Telephone Number: (936) 588-3111 Fax: N/A

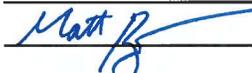
Water Right No.(s): COA 10-4963

Regional Water Planning Group: Region H

Person responsible for implementing conservation program: Matt Barrett, P.E. Phone: (936) 588-7177

Form Completed By: Matt Barrett, P.E.

Title: Water Resources and Flood Management Division Manager

Signature:  Date: 4 / 9 / 2024

A water conservation plan for wholesale public water suppliers must include the following requirements (as detailed in 30 TAC Section 288.5). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

Utility Profile

I. WHOLESALE SERVICE AREA POPULATION AND CUSTOMER DATA

A. Population and Service Area Data:

1. Service area size (in square miles):

(Please attach a copy of service-area map)

Approximately 1,077 square miles (Montgomery County). See Attachment A.

2. Current population of service area:

669,853 (Montgomery County; SJRA Lake Conroe Municipal customers population ~334,926)
669,853 (Montgomery County; SJRA GRP Participants are about 50%)

3. Current population served for:

a. Water - 669,853

b. Wastewater - N/A

4. Population served for previous five years:

<i>Year</i>	<i>Population</i>
2019	607,583
2020	626,351
2021	648,886
2022	653,383
2023	669,853

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

<i>Year</i>	<i>Population</i>
2020	626,351
2030	811,252
2040	1,019,278
2050	1,267,916
2060	1,576,135

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

Region H 2021 Regional Water Plan, Volume 2, "Region H Water User Group (WUG) Population".

B. Customer Data

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

<i>Wholesale Customer</i>	<i>Contracted Amount (Acre-feet)*</i>	<i>Previous Year Amount of Water Delivered (acre- feet)</i>
April Harbour Condominiums	4	5

Bella Vita Homeowners Association, Inc.	2	4
The Benthaven Island Association, Inc.	4	0 (rounded)
Bentwater Yacht & Country Club, LTD.(Grand Pines)	184	65
Bentwater Yacht & Country Club, LTD. (Weiskopf)	169	241
Entergy Texas, Inc.	7841	6308
The French Quarter on Lake Conroe Homeowners Association	2	0 (rounded)
SJRA GRP Division	N/A**	15,730
Lakeside Resort JV, LLC	163	169
Montgomery County MUD No. 100	250***	0
Point Aquarius Property Owners Association	10	1
Walden on Lake Conroe Community Improvement Association, Inc.	6	4
Walden on Lake Conroe (Golf and Country Club)	184	151
Walden's Townhouse Association	3	2
West Palm Villas Homeowner's Association	5	4
B&R Water Well Drilling, LLC	0 (rounded)	0
Ballard Water Well Company, LLC.	0 (rounded)	0 (rounded)
Residential Irrigation	N/A****	949

* Contract amounts rounded to nearest acre-foot.

** As an internal customer, GRP Division does not have a contract with the SJRA. Budgeted demand amount was 14,562 Acre-feet, and GRP reserved all remaining available SJRA water rights in Lake Conroe.

***Montgomery County MUD No. 100 canceled its contract as of July 1, 2023.

**** SJRA does not set contract amounts for residential irrigation, but rather charges a flat fee.

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 amounts for the previous five years (in acre feet):

<i>Year</i>	<i>Treated Water</i>	<i>Raw Water</i>
2023	0	23,633
2022	0	23,508
2021	0	18,568
2020	0	18,636
2019	0	18,913
Totals	0	103,258

B. Water Accounting Data

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

<i>Year</i>	2023	2022	2021	2020	2019
<i>Month</i>					
January	678	1519	1019	862	1329
February	723	1277	1929	682	890
March	1530	932	1046	836	988
April	1038	1948	1470	1113	1193
May	1162	1751	1111	1372	1530
June	2553	3016	1199	1751	1973
July	3641	3675	1557	2000	1842
August	4442	1910	2729	2841	2378
September	2896	2550	2430	1706	2190
October	1791	2687	1555	2681	2120
November	1852	1146	1380	1604	1608
December	1328	1098	1141	1187	870
Totals	23,633	23,508	18,568	18,636	18,913

2. Wholesale population served and total amount of water diverted for **municipal use** for the previous five years (in acre-feet):

<i>Year</i>	<i>Total Population Served</i>	<i>Total Annual Water Diverted for Municipal Use</i>
2023	334,926	15,730
2022	326,691	13,922
2021	318,261	13,811
2020	293,449	14,304
2019	270,037	11,760

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 requirements from such growth.

The SJRA GRP Division Surface Water Treatment Facility (SWTF) was constructed with a maximum production capacity of 30 MGD. The GRP was established to assist in reducing the groundwater reliance in Montgomery County, TX in coordination with Lone Star Groundwater Districts' (LSGCD) Groundwater Management Plan. In 2020, LSGCD removed the requirement for groundwater reduction, thus limiting the need to increase the production capacity of the SJRA SWTF. For this reason, SJRA's GRP will maintain the currently constructed 30 MGD SWTF for the foreseeable future.

III. WATER SUPPLY SYSTEM DATA

A. Projected Water Demands

List all current water supply sources and the amounts authorized (in acre feet) with each.

<i>Water Type</i>	<i>Source</i>	<i>Amount Authorized</i>
Surface Water	Lake Conroe (COA 10-4963)	33,333
Groundwater	N/A	0
Other	N/A	0

B. Treatment and Distribution System (if providing treated water) – (NOT APPLICABLE)

1. Design daily capacity of system (MGD):

2. Storage capacity (MGD):
 - a. Elevated

b. Ground

3. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks

IV. WASTEWATER SYSTEM DATA - (NOT APPLICABLE)

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. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and the receiving stream if wastewater is discharged.

B. Wastewater Data for Service Area (if applicable)

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

<i>Year</i>					
<i>Month</i>					
January	_____	_____	_____	_____	_____
February	_____	_____	_____	_____	_____
March	_____	_____	_____	_____	_____
April	_____	_____	_____	_____	_____
May	_____	_____	_____	_____	_____
June	_____	_____	_____	_____	_____
July	_____	_____	_____	_____	_____
August	_____	_____	_____	_____	_____
September	_____	_____	_____	_____	_____
October	_____	_____	_____	_____	_____
November	_____	_____	_____	_____	_____
December	_____	_____	_____	_____	_____
Totals	_____	_____	_____	_____	_____

Water Conservation Plan

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, Chapter 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.

A. Specific, Quantified 5 & 10-Year Targets

The water conservation plan must include specific, quantified 5-year and 10-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 water loss, and the basis for the development of these goals. Note that the goals established by a wholesale water supplier under this subparagraph are not enforceable. These goals must be updated during the 5-year review and submittal.

B. Measuring and Accounting for Diversions

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.

C. Record Management Program

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

D. 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.

E. 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 Title 30 TAC Chapter 288. 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.

F. 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 plan shall include optimization of water supplies as one of the significant goals of the plan.

G. Enforcement Procedure and 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.

H. 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).

I. Plan Review and Update

A wholesale water supplier shall review and update its water conservation plan, as appropriate based on an assessment of previous 5-year and 10-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 no 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.

V. ADDITIONAL CONSERVATION STRATEGIES

Any combination of the following strategies shall be selected by the water wholesaler, in addition to the minimum requirements of 30 TAC §288.5(1), if they are necessary in order to achieve the stated water conservation goals of the plan. The commission may require by commission order that any of the following strategies be implemented by the water supplier if the commission determines that the strategies are necessary in order for the conservation plan to be achieved:

1. 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;
2. A program to assist agricultural customers in the development of conservation, pollution prevention and abatement plans;
3. A program for reuse and/or recycling of wastewater and/or graywater;
4. Any other water conservation practice, method, or technique which the wholesaler shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

VI. WATER CONSERVATION PLANS SUBMITTED WITH A WATER RIGHT APPLICATION FOR NEW OR ADDITIONAL STATE WATER

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

1. support the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;
2. evaluates conservation as an alternative to the proposed appropriation; and
3. evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

Additionally, it shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.

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San Jacinto River Authority – Lake Conroe Division

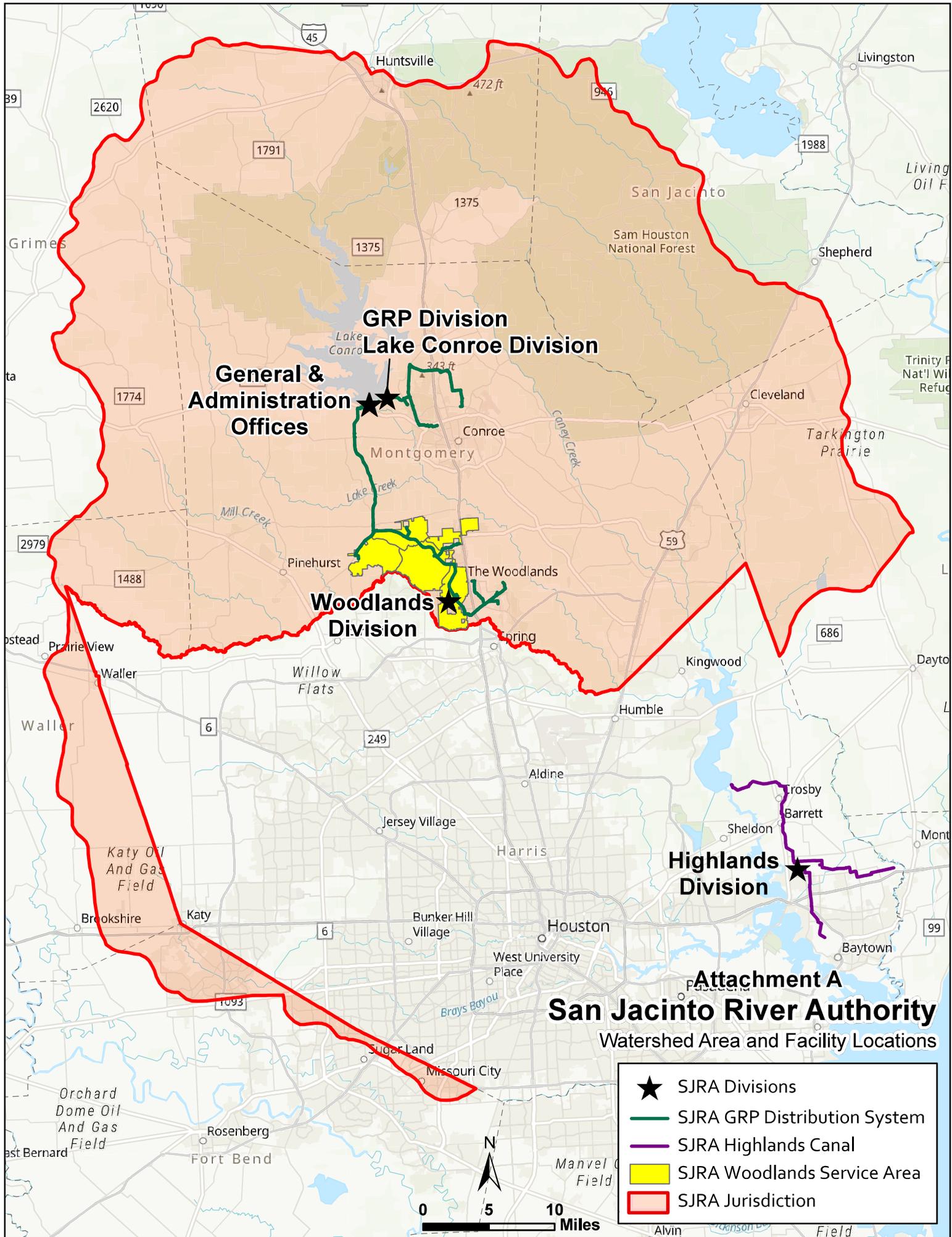
**Attachments to TCEQ Form
20162: Profile and Water Conservation Plan
Requirements for Wholesale Public Water Supplies**

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Attachment A

SJRA Service Area

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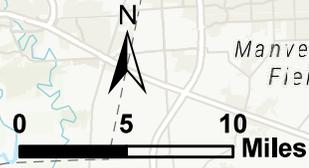
GRP Division
Lake Conroe Division
General & Administration Offices

Woodlands Division

Highlands Division

Attachment A
San Jacinto River Authority
 Watershed Area and Facility Locations

- ★ SJRA Divisions
- SJRA GRP Distribution System
- SJRA Highlands Canal
- SJRA Woodlands Service Area
- SJRA Jurisdiction

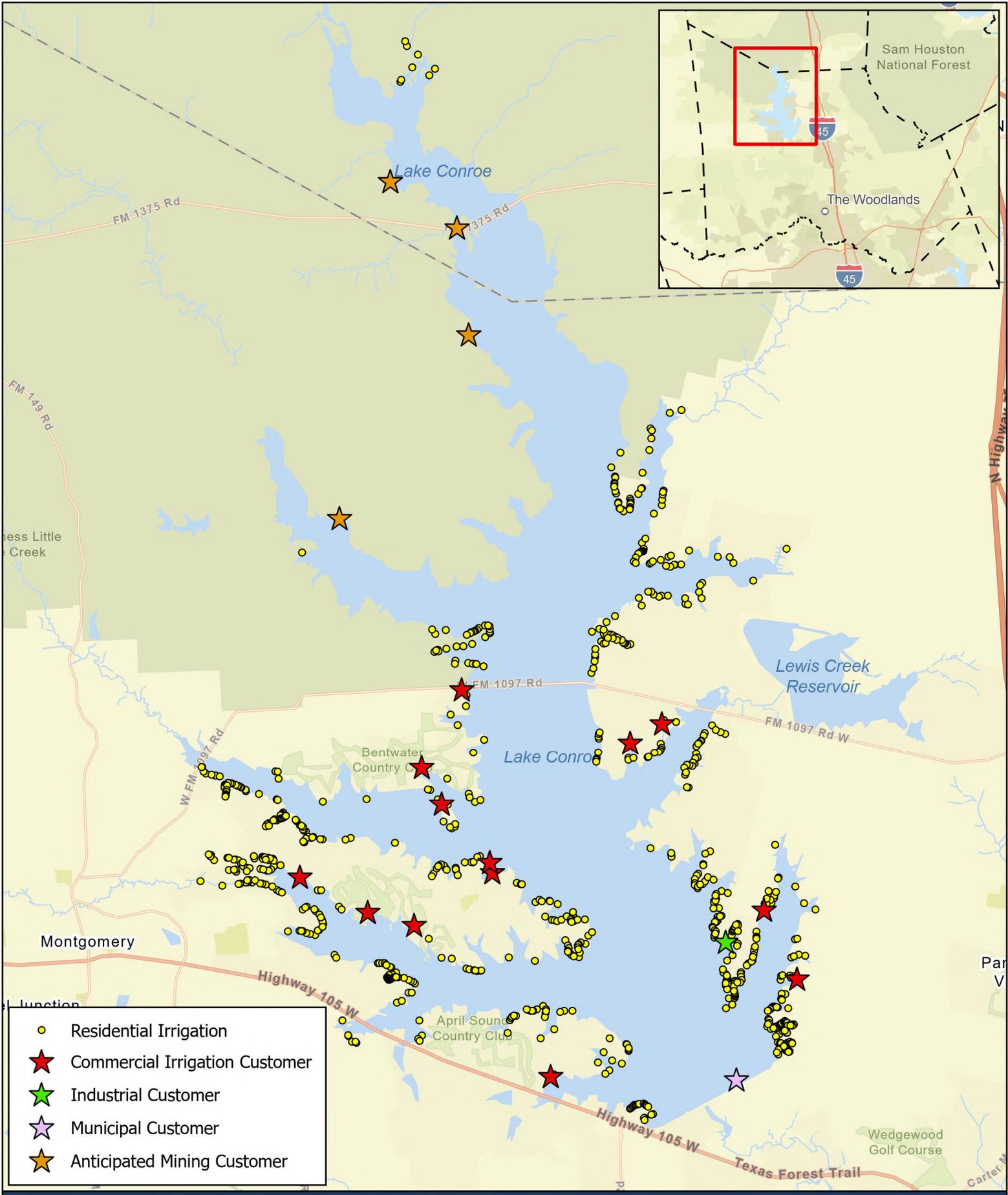


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Attachment B

Lake Conroe Division Customers

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Lake Conroe Division Customers



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San Jacinto River Authority – Lake Conroe Division
TCEQ Form 20839: Industrial Water Conservation Plan

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WATER CONSERVATION PLANS FOR INDUSTRIAL/MINING USES – SAN JACINTO RIVER AUTHORITY LAKE CONROE DIVISION

These Industrial/Mining Use Water Conservation Plans address the requirements of Rule 288.3 of the Texas Administrative Code (“TAC”) that a water conservation plan that addresses industrial and mining uses must provide the following information:

- (1) A description of the use of the water in the production process, including how the water is diverted and transported from the source(s) of supply, how the water is utilized in the production process, and the estimated quantity of water consumed in the production process and therefore unavailable for reuse, discharge, or other means of disposal;
 - (2) Specific, quantified five-year and ten-year targets for water savings and the basis for the development of such goals. The goals established by industrial or mining water users under this paragraph are not enforceable;
 - (3) A description of the device(s) and/or method(s) within an accuracy of plus or minus 5.0% to be used in order to measure and account for the amount of water diverted from the source of supply;
 - (4) Leak-detection, repair, and accounting for water loss in the water distribution system;
 - (5) Application of state-of-the-art equipment and/or process modifications to improve water use efficiency; and
 - (6) Any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan.
-

A. Description of Water Use

The San Jacinto River Authority’s (“SJRA’s”) Lake Conroe Division (the “Division”) has authorization under COA 10-4963, as amended, to divert and use water for industrial and mining purposes and to do so within the existing diversion rates authorized for Lake Conroe. In addition, SJRA has a pending water right application for reuse of discharged effluent that requests industrial/mining among other uses. Such uses include (for both existing and future operations), but are not necessarily limited to, electric power plant generation, hydraulic fracturing, and exploratory drilling. The Division has not historically diverted water for mining use prior to 2024 but anticipates doing so from 2024-2034, and potentially beyond, to satisfy a new prospective mining customer’s need. The total industrial/mining demand of Lake Conroe customers is not anticipated to exceed 10,000 acre-feet per year for the foreseeable future, and all water is anticipated to be consumed in the production process and thus unavailable for SJRA reuse, discharge, or other means of disposal. Water will be diverted from Lake Conroe and metered at customer-owned meters.

B. Conservation Goals

The water conservation goal for the Division’s industrial/mining customers is to reach quantifiable conservation targets and expand reuse options. The Division does not have direct control over the demand it serves but works with its industrial and mining customers

to reach these targets. The Division aims to achieve a reduction in water demand of 1% over a 5-year period, and 2% over a 10-year period for industrial and mining uses based on total demand. Though not a quantified goal, SJRA also desires to increase reuse water use where feasible for industrial/mining customers. In an attempt to meet these targets, the Division has developed the following recommendations for best management practices for its industrial/mining customers in order to keep water loss below 10% annually:

1. Maintaining an efficient delivery system that controls and limits conveyance losses.
2. Minimizing process losses.
3. Utilizing innovative technologies.
4. Continuing implementation of public information and education strategies.

C. Practices and Devices to Measure Diversions

Devices, such as meters, and methods will be installed and instituted to ensure that all diversions of water are measured and accurately accounted for. All diversions must be performed, monitored, and recorded in a manner that is consistent with each customer's raw water contract. These customer contracts require regular meter inspections/calibrations, and any test showing a deviation of more than 2% from manufacturer's tolerances, standards, or specifications requires recalibration.

D. Leak Detection, Repair and Water Loss Accounting.

The Division's water used for industrial and mining operation is taken directly from Lake Conroe and the Division does not own or operate any related water delivery infrastructure, which is the responsibility of each customer. The Division's customers are required, pursuant to existing water supply contracts, to develop and implement water conservation and drought contingency plans to conserve water resources and to promote practices that will reduce loss or waste of water, improve efficiency in the use of water, or increase the recycling and reuse of water. The customer water conservation and drought contingency plans shall be at least as stringent or more stringent than that adopted by the Authority, and the customers shall comply with all requirements of the TCEQ, Texas Water Development Board, and any other federal, state or local regulatory agency with jurisdiction. The Division encourages its customers to use best management practices to keep water loss below 10% annually.

E. Means to Improve Water Use Efficiency

Any additional water conservation practices, methods, and techniques that are feasible and appropriate to achieve the stated goals of the water conservation plan will be encouraged by SJRA. This includes, but is not limited to, the application of state-of-the-art equipment and-or process modifications to improve water use efficiency.



Texas Commission on Environmental Quality

Water Availability Division

MC-160, P.O. Box 13087 Austin, Texas 78711-3087

Telephone (512) 239-4600, FAX (512) 239-2214

Industrial Water Conservation Plan

This form is provided to assist entities in developing a water conservation plan for industrial 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 Availability Division at (512) 239-4600.

Additional resources such as best management practices (BMPs) are available on the Texas Water Development Board's website <http://www.twdb.texas.gov/conservation/BMPs/index.asp>. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name: San Jacinto River Authority - Lake Conroe Division

Address: P.O. Box 329 Conroe, Texas 77305

Telephone Number: (936) 588-3111 Fax: N/A

Form Completed By: Matt Barrett, P.E.

Title: Water Resources and Flood Management Division Manager

Signature:  Date: 4 / 9 / 2024

A water conservation plan for industrial use must include the following requirements (as detailed in 30 TAC Section 288.3). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Water Use

1. Annual diversion appropriated or requested (in acre-feet):

7,841 (contracted); 33,333 Acre-feet available to SJRA for industrial, municipal, irrigation, and mining uses under COA 10-4963.

2. Maximum diversion rate (cfs):

700 CFS is maximum diversion rate for all uses under COA 10-4963. It is estimated that the actual maximum diversion rate for 2023 was well below the permitted amount for all uses combined.

B. Water Sources

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

<i>Source</i>	<i>Water Right No.(s)</i>	<i>Current Use</i>	<i>Anticipated Use</i>
Surface Water	COA 10-4963	6,308	7,841 (contracted)
Groundwater	0	0	0
Purchased	0	0	0
Total	0	6,308	7,841

2. How was the surface water data and/or groundwater data provided in B(1) obtained?

Master meter ; Customer meter ; Estimated ; Other

3. Was purchased water raw or treated? Raw Water

If both, % raw ; % treated ; and Supplier(s)

C. Industrial Information

1. Major product(s) or service(s) produced by applicant:

Electric Power Generation Plant

2. North American Industry Classification System (NAICS):

22111

II. WATER USE AND CONSERVATION PRACTICES

A. Water Use in Industrial Processes

<i>Production Use</i>	<i>% Groundwater</i>	<i>% Surface Water</i>	<i>% Saline Water</i>	<i>% Treated Water</i>	<i>*Water Use (in acre-ft)</i>
Cooling, condensing, & refrigeration		100			
Processing, washing, transport					
Boiler feed					

Incorporated into product _____

Other _____

<i>Facility Use</i>	<i>% Groundwater</i>	<i>% Surface Water</i>	<i>% Saline Water</i>	<i>% Treated Water</i>	<i>*Water Use (in acre-ft)</i>
Cooling tower(s)		100			
Pond(s)		100			
Once through		100			
Sanitary & drinking water	100				
Irrigation & dust control					

* SJRA does not currently possess data regarding water use for specific industrial processes. Information in the above table reflects the information available to SJRA at this time.

1. Was fresh water recirculated at this facility? Yes No

2. Provide a detailed description of how the water will be utilized in the industrial process.

Industrial power generator. Stores water in permanent reservoir for use in power generation process and all captured water is returned to reservoir. Water level in reservoir is maintained with surface water purchased from SJRA. It is apparent that a significant amount of water is recirculated through this process each day.

3. Estimate the quantity of water consumed in production processes and is therefore unavailable for reuse, discharge, or other means of disposal.

See quantities in section I.B.1 above. No water is returned to Lake Conroe.

4. Monthly water consumption for previous year (in acre-feet).

<i>Month</i>	<i>Diversion Amount</i>	<i>% of Water</i>	<i>Monthly</i>
--------------	-------------------------	-------------------	----------------

		<i>Returned (If Any)</i>	<i>Consumption</i>
January	0 (rounded)		0 (rounded)
February	0 (rounded)		0 (rounded)
March	545		545
April	84		84
May	0 (rounded)		0 (rounded)
June	832		832
July	1,225		1,225
August	1,590		1,590
September	801		801
October	97		97
November	695		695
December	438		438
Totals	6,308		6,308

5. Projected monthly water consumption for next year (in acre-feet).*

<i>Month</i>	<i>Diversion Amount</i>	<i>% of Water Returned (If Any)</i>	<i>Monthly Consumption</i>
January	280		280
February	210		210
March	293		293
April	449		449
May	193		193
June	969		969
July	1,373		1,373
August	1,246		1,246
September	878		878
October	570		570
November	439		439
December	354		354
Totals	7,254		7,254

* Projected monthly water consumption is average monthly water consumption for last 2 years.

B. *Specific and Quantified Conservation Goal*

Water conservation goals for the industrial 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(s):

% reused water

% of water not consumed and therefore returned

X Other (specify) *Reduction in total surface water use where feasible*

2. Provide specific, quantified 5-year and 10-year targets for water savings and the basis for development of such goals for this water use/facility.

The Division aims to achieve a reduction in surface water demand, for industrial and mining customers, of 1% over a 5-year period and 2% over a 10-year period. For industrial and mining customers, this goal will be measured based on total demand. Due to the nature of industrial and mining operations, demand reductions are less feasible for those customers. As growth continues to occur in the region, these customers' facilities and operations may expand, requiring additional water usage to maintain functionality. SJRA will apply the conservation methods described in the Lake Conroe Division Water Conservation Plan, as applicable, to industrial and mining customers, and encourage those customers to conserve water where feasible in an effort to meet the water reduction goals set forth therein.

Quantified 5-year and 10-year targets for water savings:

- a. 5-year goal: Reduction of 56 ac-ft per year
- b. 10-year goal: Reduction of 112 ac-ft per year

3. Describe the device(s) and/or method(s) used to measure and account for the amount of water diverted from the supply source, and verify the accuracy is within plus or minus 5%.

SJRA's Lake Conroe industrial customer contract requires the customer to install and maintain measuring equipment to track water usage from Lake Conroe. The contract requires inspection of the equipment on a bi-annual basis. The customer is responsible for meter calibration, and any test showing a deviation of more than 2% from manufacturer's tolerances, standards, or specifications requires recalibration. SJRA maintains records of customer monthly usage.

4. Provide a description of the leak-detection and repair, and water-loss accounting measures used.

Customer takes water directly from Lake Conroe and is responsible for any leak detection, repair, etc.

5. Describe the application of state-of-the-art equipment and/or process modifications used to improve water use efficiency.

SJRA is not familiar with customer's specific equipment, however customer recently constructed a new power generating plant with improved water use efficiency.

6. Describe any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan:

See Lake Conroe Division Water Conservation Plan.

III. Water Conservation Plans submitted with a Water Right Application for New or Additional State Water

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

1. support the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;
2. evaluates conservation as an alternative to the proposed appropriation; and
3. evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

Additionally, it shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.

San Jacinto River Authority – Lake Conroe Division

TCEQ Form 20840: Mining Water Conservation Plan

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Texas Commission on Environmental Quality

Water Availability Division

MC-160, P.O. Box 13087 Austin, Texas 78711-3087

Telephone (512) 239-4600, FAX (512) 239-2214

Mining Water Conservation Plan

This form is provided to assist entities in developing a water conservation plan for 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 Availability Division at (512) 239-4600.

Additional resources such as best management practices (BMPs) are available on the Texas Water Development Board's website <http://www.twdb.texas.gov/conservation/BMPs/index.asp>. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name: San Jacinto River Authority - Lake Conroe Division

Address: P.O. Box 329 Conroe, Texas 77305

Telephone Number: (936) 588-3111 Fax: N/A

Form Completed By: Matt Barrett, P.E.

Title: Water Resources and Flood Management Division Manager

Signature:  Date: 4 / 9 / 2024

A water conservation plan for mining use must include the following requirements (as detailed in 30 TAC Section 288.3). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Water Use

1. Annual diversion appropriated or requested (in acre-feet):

33,333 Acre-feet available to SJRA for industrial, municipal, irrigation, and mining uses under COA 10-4963. SJRA Lake Conroe Division had no mining customers in 2023.

2. Maximum diversion rate (cfs):

700 CFS is maximum diversion rate for all uses under COA 10-4963. It is estimated that the actual maximum diversion rate for 2023 was well below the permitted amount for all uses combined.

B. Water Sources

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

Source	Water Right No.(s)	Current Use	Anticipated Use
Surface Water	COA 10-4963	0	284 (2024), 387 per year (2025-2034)
Groundwater	N/A	0	0
Purchased	N/A	0	0
Total	N/A	0	284 (2024), 387 per year (2025-2034)

2. How was the surface water data and/or groundwater data provided in B(1) obtained?

Master meter ; Customer meter ; Estimated ; Other: No mining customers in 2023. Future uses based on draft new customer contract (as of March 2024).

3. Was purchased water raw or treated? NOT APPLICABLE. Future usage will be raw water.

If both, % raw ; % treated ; and Supplier(s)

C. Mining Information

1. Major product(s) or service(s) produced by applicant:

No mining customers in 2023. Oil/gas exploration drilling anticipated in 2024- 2034 and potentially beyond.

2. North American Industry Classification System (NAICS):

2111 – Oil and Gas Extraction

II. WATER USE AND CONSERVATION PRACTICES

A. Water Use in Mining Processes

Mining Use	% Groundwater	% Surface Water	% Saline Water	% Treated Water	Water Use (in acre- ft)
Hydraulic Fracturing		100			N/A*
Drilling	100				N/A*
Washing Sand/gravel					N/A

Dust Control	N/A
Oil Field Repressuring	N/A
Other	N/A

*** No mining customers in 2023. Anticipated 2024- 2034 SJRA supply to mining customer will be 100% surface water (though some groundwater- based reuse could potentially also be utilized). Prospective customer anticipates utilizing 100% or nearly 100% SJRA surface water for its hydraulic fracturing needs and 100% or nearly 100% private groundwater for its drilling needs, but this is subject to change.**

Facility Use	% Groundwater	% Surface Water	% Saline Water	% Treated Water	Water Use (in acre- ft)
Pond(s)					N/A
Sanitary & drinking water					N/A
Irrigation & dust control					N/A
Other					N/A

1. Was fresh water recirculated at this facility? N/A Yes No

2. Provide a detailed description of how the water will be utilized in the mining process.

No mining customers in 2023. For 2024- 2034 it is anticipated that water will be utilized by a customer to develop wells for the purpose of oil and gas exploration. Water will be utilized for drilling and completions operations. It will primarily be used to hydraulically stimulate the wells.

3. Estimate the quantity of water consumed in production and mining processes and is therefore unavailable for reuse, discharge, or other means of disposal.

No mining customers in 2023. For 2024- 2034 it is anticipated that water will be utilized by a customer to develop wells for the purpose of oil and gas exploration. All water delivered will be consumed on wells drilled and completed by the prospective mining customer. A portion of the water could be available for reuse, but otherwise will be disposed of at an approved disposal site.

4. Monthly water consumption for previous year (in acre- feet). No mining customers in 2023.

Month	Diversion Amount	% of Water Returned (If Any)	Monthly Consumption
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	0	0	0
June	0	0	0
July	0	0	0
August	0	0	0
September	0	0	0
October	0	0	0
November	0	0	0
December	0	0	0
Totals	0	0	0

5. Projected monthly water consumption for next year (in acre- feet).

Month	Diversion Amount*	% of Water Returned (If Any)	Monthly Consumption*
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	47	0	47
June	47	0	47
July	47	0	47
August	0	0	0
September	0	0	0
October	47	0	47
November	47	0	47
December	47	0	47
Totals	284	0	284

* Values rounded to the nearest acre- foot.

B. Specific and Quantified Conservation Goal

Water conservation goals for the 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(s):

% reused water

% of water not consumed and therefore returned

Other (specify) **Reduction in total surface water use where feasible**

2. Provide specific, quantified 5- year and 10- year targets for water savings and the basis for development of such goals for this water use/facility.

The Division aims to achieve a reduction in surface water demand, for industrial and mining customers, of 1% over a 5- year period and 2% over a 10- year period. For industrial and mining customers, this goal will be measured based on total demand. Due to the nature of industrial and mining operations, demand reductions are less feasible for those customers. As growth continues to occur in the region, these customers' facilities and operations may expand, requiring additional water usage to maintain functionality. SJRA will apply the conservation methods described in the Lake Conroe Division Water Conservation Plan, as applicable, to industrial and mining customers, and encourage those customers to conserve water where feasible in an effort to meet the water reduction goals set forth therein.

Quantified 5- year and 10- year targets for water savings:

a. 5- year goal: Reduction of 4 ac- ft per year

b. 10- year goal: Reduction of 8 ac- ft per year

3. Describe the device(s) and/or method(s) used to measure and account for the amount of water diverted from the supply source, and verify the accuracy is within plus or minus 5%.

Draft (as of March 2024) mining customer contract requires the customer to install and maintain measuring equipment to track water usage from Lake Conroe. The contract requires inspection of the equipment on an annual basis. The customer will be responsible for meter calibration, and any test showing a deviation of more than 2% from manufacturer's tolerances, standards, or specifications will require recalibration.

4. Provide a description of the leak- detection and repair, and water- loss accounting measures used.

Electronic pressure measurements and inlet/outlet material balance will be used by the prospective customer to detect leaks.

5. Describe the application of state- of- the- art equipment and/or process modifications used to improve water use efficiency.

Equipment used on site by the prospective customer will be the latest technology for hydraulic fracturing and treatment, including redundant systems to prevent inefficient use if something fails. Additionally, the customer will be using recent chemical technology to reduce the water required to effectively treat the wells.

- 6. Describe any other water conservation practice, method, or technique which the user shows to be appropriate for achieving the stated goal or goals of the water conservation plan:**

See Lake Conroe Division Water Conservation Plan.

III. Water Conservation Plans submitted with a Water Right Application for New or Additional State Water

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

- 1. support the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;**
- 2. evaluates conservation as an alternative to the proposed appropriation; and**
- 3. evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.**

Additionally, it shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.

San Jacinto River Authority – Lake Conroe Division

**TCEQ Form 10244: System Inventory and Water Conservation Plan for
Agricultural Water Suppliers Providing Water to More than One User**

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Texas Commission on Environmental Quality

Water Availability Division

MC-160, P.O. Box 13087 Austin, Texas 78711-3087

Telephone (512) 239-4600, FAX (512) 239-2214

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 developing a water conservation plan for agricultural water suppliers providing water to more than one user. 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 Availability Division at (512) 239-4600.

Additional resources such as best management practices (BMPs) are available on the Texas Water Development Board's website <http://www.twdb.texas.gov/conservation/BMPs/index.asp>. The practices are broken out into sectors such as Agriculture, Commercial and Institutional, Industrial, Municipal and Wholesale. BMPs are voluntary measures that water users use to develop the required components of Title 30, Texas Administrative Code, Chapter 288. BMPs can also be implemented in addition to the rule requirements to achieve water conservation goals.

Contact Information

Name: San Jacinto River Authority - Lake Conroe Division

Address: P.O Box 329 Conroe, Texas 77305

Telephone Number: (936) 588-3111 Fax: N/A

Form Completed By: Matt Barrett, P.E.

Title: Water Resources and Flood Management Division Manager

Signature:  Date: 4 / 9 / 2024

A water conservation plan for agriculture use (for a system providing agricultural water to more than one user) must include the following requirements (as detailed in 30 TAC Section 288.4). If the plan does not provide information for each requirement, you must include in the plan an explanation of why the requirement is not applicable.

I. BACKGROUND DATA

A. Structural Facilities (Supplier's water storage, conveyance, and delivery structures)

1. Description of service area:

Irrigation use for golf courses/commercial properties and residential properties around the perimeter of Lake Conroe.

2. Total miles of main canals and pipelines:

N/A

3. Total miles of lateral canals and pipelines:

N/A

4. Description of canal construction:

- a. Miles of unlined canals - N/A
- b. Miles of lined canals - N/A
- c. Miles of enclosed pipelines - N/A
- d. Other

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

N/A

6. Reservoir capacity, if applicable:

417,605 acre-feet

7. Description of pumps and pumping stations:

The Lake Conroe Division does not operate any pumps or pumping stations to serve its customers. Customers operate and maintain their own pumps and related equipment.

8. Description of meters and/or measuring devices:

Metering equipment is installed and maintained by each non-residential customer, as required by contract, at or near the point of delivery from Lake Conroe. For residential irrigation SJRA estimates usage using a method developed by the Texas A&M University Water Management Department which generates a water budget using a crop specific coefficient for standard turf and incorporates irrigable area and environmental climate data.

9. Description of customer gates and measuring devices:

See item 8 above.

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

N/A

B. Management Practices

1. Total water available to district (in acre-feet/year): 33,333

- a. Maximum water rights allocation to district: 33,333 Acre-feet/year
- b. Water right number(s): COA 10-4963
- c. Other water contracted to be delivered by district: The SJRA GRP Division has 66,667 acre-feet/year contracted reservation with the City of Houston.

2. Average annual water diverted by district (in acre-feet/year): 21,903
3. Average annual water delivered to customers (in acre-feet/year): 21,903
4. Delivery efficiency (percentage): ~100
5. Historical diversion and deliveries for the previous three years (in acre-feet/year):

<i>Year</i>	<i>Total Water Diverted Annually*</i>	<i>Irrigation Water Delivered Annually</i>	<i>Municipal Water Delivered Annually</i>	<i>Total Water Delivered Annually*</i>	<i>Estimated Delivery Efficiency (%)</i>
2023	23,633	1,595	15,730	23,633	100
2022	23,508	1,386	13,922	23,508	100
2021	18,568	840	13,811	18,568	100
Average	21,903	1,274	14,488	21,903	100

* Totals include industrial diversion/delivery in addition to irrigation and municipal.

6. Description of practices and/or devices used to account for water deliveries:

See item 8 under section A above.

7. Water pricing policy:

SJRA has a system wide raw water rate (\$0.5800/1,000 gals in 2024). The rate for short-term raw water contracts is 4 times the standard rate. The rate for reservation of raw water is 25% of the standard rate. Customers whose usage exceeds their contract demand quantity are charged at 2 times the standard rate for the overage amount.

8. Operating rules and policies which encourage water conservation (if a separate document, include it as an attachment to the Water Conservation Plan):

SJRA Lake Conroe raw water contracts require customers to develop a water conservation plan at least as stringent as the Lake Conroe Division Water Conservation Plan.

9. Provide specific, quantified 5-year and 10-year targets for water savings or system efficiency below, including maximum allowable losses for the storage and distribution system. Water savings may be represented in acre-feet or in water use efficiency.

The SJRA Lake Conroe Division aims to achieve a reduction in surface water demand, for irrigation and municipal customers, of 2.5% over a 5-year period, and 5% over a 10-year period. For municipal customers, this goal will be measured based on per capita demand. For irrigation customers, the goal will be measured based on per acre demand.

Quantified 5-year and 10-year targets for water savings and water loss:

5-year goal:

Water savings in acre-feet 0.03 ac-ft/acre per year (approximately 10,000 gallons per acre).
or water use efficiency %

Water loss

10-year goal:

Water savings in acre-feet 0.06 ac-ft/acre per year (approximately 20,000 gallons per acre).
or water use efficiency %

Water loss

10. 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:

Commercial irrigation customer contracts require the customers to install and maintain measuring equipment to track water usage from Lake Conroe. The contracts require inspection of the equipment on an annual basis. The customers are responsible for meter calibration, and any test showing a deviation of more than 2% from manufacturer's tolerances, standards, or specifications requires recalibration. SJRA now reads the majority of these meters to help ensure accuracy and timely reporting, while some commercial irrigation customers self-report their meter readings. SJRA maintains records of customer monthly usage.

For residential irrigation SJRA estimates usage using a method developed by the Texas A&M University Water Management Department which generates a water budget using a crop specific coefficient for standard turf and incorporates irrigable area and environmental climate data.

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

See answer to item 10 above.

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

Lake Conroe Division customers divert directly from Lake Conroe. SJRA requires customers to install their meters within close proximity to the lake to minimize chances for leaks upstream of meters. The Division encourages municipal, industrial, irrigation, and mining customers to take measures to reduce water loss (below 10%) to prevent waste and facilitate achievement of the Water Conservation Plan demand reduction goals.

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

Not Applicable (No farming customers).

14. Describe any other water conservation practice, method, or technique which the supplier shows to be appropriate for achieving conservation (if applicable):

None identified in addition to the above. See Lake Conroe Division Water Conservation Plan.

C. User profile

1. Total number of acres or square miles in service area:

Approximately 1,077 square miles (Montgomery County)

2. Average number of acres irrigated annually: Approximately 900
3. Projected number of acres to be irrigated in 10 years: Approximately 900
4. Number of active customers taking delivery of water by the system: 805 (12 commercial irrigation customers, remaining are residential irrigation customers).
5. Total irrigation water delivered annually (in acre-feet): 1,595
6. Types of crops grown by customers:
N/A
7. Types of irrigation systems used by customers:
Landscape irrigation systems (pumps, sprinklers, etc.)
8. Types of drainage systems used by customers:
Gravity/sheet flow/natural runoff
9. Any additional relevant information on irrigation customers:
None
10. List of municipal customers and number of acre-feet allocated annually:
1, SJRA GRP Division - 14,488 Acre-feet usage (average 2021-2023); 14,562 Acre-feet allocated (non-leap year; additional reserved).
11. List of industrial and other large customers and number of acre-feet allocated annually:
1, Entergy Texas - 7,254 Acre-feet usage (average 2022-2023); 7,841 Acre-feet allocated (non-leap year)

D. Additional Requirements

In addition to the above information, please attach the following as required by Title 30, Texas Administrative Code, §288.4(3).

1. 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 Chapter 288. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of 30 TAC Chapter 288.
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 Group(s) in order to ensure consistency with the appropriate approved regional water plan(s).

II. Water Conservation Plans submitted with a Water Right Application for New or Additional State Water

Water Conservation Plans submitted with a water right application for New or Additional State Water must include data and information which:

1. support the applicant's proposed use of water with consideration of the water conservation goals of the water conservation plan;
2. evaluates conservation as an alternative to the proposed appropriation; and
3. evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

Additionally, it shall be the burden of proof of the applicant to demonstrate that no feasible alternative to the proposed appropriation exists and that the requested amount of appropriation is necessary and reasonable for the proposed use.

Appendix B

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

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RESOLUTION NO. 2024-R-13

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, East Canal Transfer Pump Station, South Canal Transfer Pump Station, Highlands Reservoir, and the 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, 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"), owns and operates a surface water treatment facility and transmission system that withdraws 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 various Water Conservation Plans and Drought Contingency Plans (collectively, the "Plans") 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 Plans; Now, Therefore,

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

Section 1: The Plans, as previously adopted and amended by the Authority, are hereby repealed and rescinded in their 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.

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 25th day of April, 2024.



President, Board of Directors



Secretary, Board of Directors

(SEAL)



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April 25, 2024

Mark Evans, Chair
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 Mr. Evans:

Please find enclosed one (1) copy of the revised Water Conservation and Drought Contingency Plans for the San Jacinto River Authority's Lake Conroe, GRP, Woodlands, and Highlands Divisions. San Jacinto River Authority's Board of Directors adopted the enclosed plans on April 25, 2024. These revisions have been completed to meet the regulatory requirement to update and submit the Plans to TCEQ and TWDB by May 1, 2024. Electronic versions of the Plans are available on San Jacinto River Authority's website at <http://www.sjra.net/about/wc-dcp/>.

If you have any questions, please do not hesitate to contact me at (936) 588-3111 or mbarrett@sjra.net.

Sincerely,

A handwritten signature in blue ink that reads "Matt Barrett". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Matt Barrett, P.E.
Water Resources and Flood Management Division Manager
San Jacinto River Authority

Cc: Aubrey A. Spear, P.E.
Ed Shackelford, P.E.
Chris Meeks
Richard Tramm
Bret Raley

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Appendix C

Lake Conroe Division TCEQ Form 20645 - Water Conservation Implementation Report Form and Summary of Updates/Revisions to Water Conservation Plan

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Texas Commission on Environmental Quality

Water Availability Division
MC-160, P.O. Box 13087 Austin, Texas 78711-3087
Telephone (512) 239-4600, FAX (512) 239-2214

WATER CONSERVATION IMPLEMENTATION REPORT FORM AND SUMMARY OF UPDATES/REVISIONS TO WATER CONSERVATION PLAN

(Texas Water Code §11.1271(b) and Title 30 Texas Administrative Code §288.30(1) to (4))

Please note, this form replaces the following forms: TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers)

This Form is applicable to the following entities:

1. Water Right Holders of 1,000 acre-feet or more for municipal, industrial, and other non-irrigation uses.
2. Water Right Holders of 10,000 acre-feet or more for irrigation uses.

The above noted entities are required by rule to submit updates to their water conservation plan(s) and water conservation implementation report(s) every five years beginning May 1, 2009. See 30 Texas Administrative Code (TAC) §288.30(1) to (4). Entities must also submit any revisions to their water conservation plan within 90 days of adoption when the plans are revised in between the five-year submittal deadlines. This form may be used for the five-year submittal or when revisions are made to the water conservation plans in the interim periods between five-year submittals. Please complete the form as directed below.

1. Water Right Holder Name: San Jacinto River Authority
2. Water Right Permit or Certificate Nos. 4963-A

3. Please Indicate by placing an 'X' next to all that Apply to your Entity:

Water Right Holder of 1,000 acre-feet or more for non-irrigation uses

- Municipal Water Use by Public Water Supplier Pursuant to SJRA GRP Division
(municipal drinking water provider)
- Wholesale Public Water Supplier
- Industrial Use
- Mining Use
- Agriculture Non-Irrigation

Water Right Holder of 10,000 acre-feet or more for irrigation uses

- Individually-Operated Irrigation System
- Agricultural Water Suppliers Providing Water to More Than One User

Water Conservation Implementation Reports/Annual Reports

4. Water Conservation Annual Reports for the previous five years were submitted to the Texas Water Development Board (TWDB) for each of the uses indicated above as required by 30 TAC §288.30(10)(C)? Yes No

TCEQ no longer requires submittal of the information contained in the detailed implementation report previously required in Forms TCEQ-20645 (Non-Public Water Suppliers) and TCEQ-20646 (Public Water Suppliers). However, the Entity must be up-to-date on its Annual Report Submittals to the TWDB.

Water Conservation Plans

5. For the five-year submittal (or for revisions between the five-year submittals), attach your updated or revised Water Conservation Plan for each of the uses indicated in Section 3, above. Every updated or revised water conservation plan submitted must contain each of the minimum requirements found in the TCEQ rules and must be duly adopted by the entity submitting the water conservation plan. Please include evidence that each water conservation plan submitted has been adopted.
- Rules on minimum requirements for Water Conservation Plans can be found in 30 TAC Chapter 288. http://texreg.sos.state.tx.us/public/readtac%24ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288
 - Forms which include the minimum requirements and other useful information are also available to assist you. Visit the TCEQ webpage for Water Conservation Plans and Reports. https://www.tceq.texas.gov/permitting/water_rights/wr_technical-resources/conserve.html

Call 512-239-4600 or email to wcp@tceq.texas.gov for assistance with the requirements for your water conservation plan(s) and report(s).

6. For each Water Conservation Plan submitted, list dates and descriptions of the conservation measures implemented, and the actual amount of water saved.

The SJRA Lake Conroe Division (the Division) does not have direct control over the demands that it serves, as the Division's customers take water directly from the lake into their own systems. The Division is not involved in the day-to-day operations of its customers. While the Division does also serve as a supplier to other SJRA divisions, those divisions, in turn, ultimately act solely as wholesale providers and thus also are not in direct control of customer demands. SJRA provides public education on water conservation and contractually requires customers of the Division to adopt water conservation plans which meet or exceed the requirements of the Division's water conservation plan. SJRA also provides the Texas Water Development Board with annual reports showing conservation measures implemented along with commensurate savings.

7. For each Water Conservation Plan submitted, state whether the five and ten-year targets for water savings and water loss were met in your *previous* water conservation plan.

Yes No

If the targets were not met, please provide an explanation as to why any of the targets were not met, including any progress on that particular target.

*The 5-year and 10-year goals set in the Division's 2019 WCP were met based on 2023 water usage.

8. For each five-year submittal, does each water conservation plan submitted contain *updated* five and ten-year targets for water savings and water loss?
Yes No

If yes, please identify where in the water conservation plan the updated targets are located (page, section).

Section 3.1 of the updated Lake Conroe Division WCP ("Lake Conroe Division 5- and 10-year Water Conservation Target Goals").

Targets were updated as part of this 5-year update.

9. In the box below (or in an attachment titled "Summary of Updates or Revisions to Water Conservation Plans), please identify any other revisions/updates made to each water conservation plan that is being updated or revised. Please specify the water conservation plan being updated and the location within the plan of the newly adopted updates or revisions.

The entire Lake Conroe Division WCP was reviewed and updated where appropriate, including attachments/forms. Industrial and mining were previously covered by one form (TCEQ Form 10213), but now are on two different forms (TCEQ Forms 20839 and 20840). We also added a cover letter ahead of the industrial and mining forms (regarding those two use types) that was not previously included.

10. Form Completed by (Point of Contact): Matt Barrett
(If different than name listed above, owner and contact may be different individual(s)/entities)

Contact Person Title/Position: Matt Barrett, Water Resources and Flood Management Division Manager

Contact Address: 1577 Dam Site Road, Conroe, Texas 77304

Contact Phone Number: 936-588-7177 Contact Email Address: mbarrett@sjra.net

Signature: 

Date: 3/28/2024

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Appendix D

**Supplement to San Jacinto River Authority Lake Conroe and Highlands
Division Water Conservation Plans To Address TAC § 288.7**

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**Supplement to San Jacinto River Authority Lake Conroe and Highlands
Division Water Conservation Plans To Address TAC § 288.7**

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Water Conservation Plans Submitted with a Water Right Application for New or Additional State Water

This supplement to the San Jacinto River Authority's ("SJRA's") Water Conservation Plans ("WCPs") addresses the requirement of Rule 288.7 of the Texas Administrative Code ("TAC") that a water conservation plan submitted with an application for a new or additional appropriation of water must include data and information which:

1. Supports the applicant's proposed use of water with consideration of the water conservation goals of the WCP;
2. Evaluates conservation as an alternative to the proposed appropriation;
and
3. Evaluates any other feasible alternative to new water development including, but not limited to, waste prevention, recycling and reuse, water transfer and marketing, regionalization, and optimum water management practices and procedures.

I. Applicant's Proposed Use of Water (30 TAC § 288.7(a)(1)).

A. Lake Conroe

The SJRA Lake Conroe Division provides wholesale raw water to industrial, municipal, and irrigation customers in SJRA's Montgomery County service area. As of March 2024, SJRA is negotiating a raw water contract with a mining customer at Lake Conroe. When executed, this will be SJRA's only raw water mining customer. Montgomery County is one of the fastest growing counties in the United States. The 2021 Region H Regional Water Plan estimates the Montgomery County population to grow from 627,917 in 2020, to 1,946,063 in 2070. In order to ensure adequate water supply to meet future demands in Montgomery County, SJRA has evaluated, promoted and pursued water conservation measures. This section describes SJRA's conservation activities related to its Lake Conroe Division.

The SJRA Lake Conroe Division Water Conservation Plan (the "LC WCP") includes a variety of conservation measures that are actively implemented. These measures go above and beyond the minimum requirements for conservation plans for a wholesale provider. In accordance with 30 TAC § 288.5, the minimum requirements are:

- (a) A description of the wholesaler's service area, including population and customer data, water use data, water supply system data, and wastewater data;
- (b) 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 water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;
- (c) 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;
- (d) A monitoring and record management program for determining water deliveries, sales, and losses;

- (e) A program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;
- (f) 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 applicable provisions of this chapter;
- (g) 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 plans;
- (h) A means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating consistency with the appropriate approved regional water plans.

The SJRA LC WCP meets all applicable minimum requirements and specifies other conservation activities that are undertaken to achieve water conservation and efficiency. These other measures include:

- SJRA customers are required to comply with the LC WCP and SJRA makes available model water conservation plans as developed by TCEQ. SJRA also offers to, at customer request, review draft customer water conservation plans for consistency with water supply contractual requirements and the LC WCP (furthermore such customers' water conservation plans must be at least as stringent as the LC WCP).
- Annual water usage reporting and tracking of customer water use.
- Reuse and recycling of wastewater – SJRA is currently pursuing TCEQ authorization to reuse wastewater in the San Jacinto River Basin.
- Public information and education, including use of regular website/social media postings regarding watering and conservation of resources.
- SJRA encourages various conservation practices including:
 - 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;
- And public education programs. (LC WCP at 3.2.9).
- Rate structure – the majority of SJRA customers pay a higher rate for water taken in excess of their contractual demand quantities.
 - SJRA encourages the Division’s customers to establish rate structures promoting conservation for sales to their wholesale and retail customers (LC WCP at 3.2.4).
- SJRA encourages the Division’s customers to take measures to reduce water loss (below 10%) to prevent waste and facilitate achievement of the Water Conservation Plan demand reduction goals (LC WCP at 3.2.2).
- Leak detection and repair on SJRA owned infrastructure, including the Lake Conroe dam. (LC WCP at 3.2.2).

B. Highlands

The SJRA Highlands Division provides wholesale raw water to industrial, municipal, and irrigation customers in SJRA’s Highlands service area in east Harris County, as well as to two reuse customers in Montgomery County. Highlands Division customer demand is primarily industrial, making it difficult to implement water conservation measures. However, SJRA has evaluated, promoted, and pursued water conservation measures as part of its water supply portfolio to help meet Highlands Division demands. This section describes SJRA’s conservation activities related to its Highlands Division, and the resulting water savings.

The SJRA Highlands Division Water Conservation Plan (the “HD WCP”) includes a variety of conservation measures that are actively implemented. These measures go above and beyond the minimum requirements for conservation plans for a wholesale provider. In accordance with 30 TAC § 288.5, the minimum requirements are:

- (a) A description of the wholesaler’s service area, including population and customer data, water use data, water supply system data, and wastewater data;
- (b) 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 water loss, and the basis for the development of these goals. The goals established by wholesale water suppliers under this subparagraph are not enforceable;
- (c) 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;
- (d) A monitoring and record management program for determining water deliveries, sales, and losses;

(e) A program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system;

(f) 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 applicable provisions of this chapter;

(g) 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 plans;

(h) A means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating consistency with the appropriate approved regional water plans.

The SJRA HD WCP meets all applicable minimum requirements and specifies other conservation activities that are undertaken to achieve water conservation and efficiency. These other measures include:

- SJRA customers are required to comply with the HD WCP and SJRA makes available model water conservation plans as developed by TCEQ. SJRA also offers to, at customer request, review draft customer water conservation plans for consistency with water supply contractual requirements and the HD WCP (furthermore such customers' water conservation plans must be at least as stringent as the HD WCP).
- Annual water usage reporting and tracking of customer water use.
- Reuse and recycling of wastewater – SJRA is currently pursuing TCEQ authorization to reuse wastewater in the San Jacinto River Basin.
- Public information and education, including use of regular website/social media postings regarding watering and conservation of resources.
- SJRA encourages various conservation practices including:
 - 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;
- And public education programs. (HD WCP at 3.2.9).
- Rate structure – the majority of SJRA customers pay a higher rate for water taken in excess of their contractual demand quantities
 - SJRA encourages the Division’s customers to establish rate structures promoting conservation for sales to their wholesale and retail customers (HD WCP at 3.2.4).
- SJRA encourages the Division’s customers to take measures to reduce water loss (below 10%) to prevent waste and facilitate achievement of the Water Conservation Plan demand reduction goals (HD WCP at 3.2.2).
- Leak detection and repair, and minimization of conveyance losses on its Highlands Canal System infrastructure. (HD WCP at 3.2.2).
 - SJRA is committed to conservation through monitoring and improvement of its delivery system. SJRA, specifically, continues to make efforts to minimize losses through its canal system through various practices. SJRA has undertaken a number of measures in implementing system improvements, including routine inspections and evaluations of the Highlands Canal System, hydraulic modeling and flow measurement, and establishment and implementation of a 10-Year Project Plan. SJRA utilizes computerized maintenance management system (CMMS) software to assist in the management, scheduling, and recording of identified maintenance activities. Supervisory control and data acquisition (SCADA) infrastructure has been added to the Highlands Canal System to monitor canal flows, levels, and numerous controls and data at the raw water pump stations.

II. Conservation as an Alternative to the Requested Appropriation (30 TAC § 288.7(a)(2)).

The 2021 Region H Regional Water Plan (“RWP”) and the 2022 State Water Plan (“SWP”) include recommended conservation and water loss reduction strategies for customers of SJRA and other water users in Harris and Montgomery Counties. After application of the recommended demand reduction strategies (i.e., by implementing the conservation strategies), the RWP and SWP still indicate a need for additional supply in Harris and Montgomery Counties to meet future water needs. It is clear based upon the data detailed below, that conservation alone cannot meet projected water needs.

As a wholesale provider, SJRA does not have direct control over the demand it serves and the various SJRA divisions are not involved in the day-to-day operations of their customers. Even so, SJRA is taking proactive steps to enhance conservation, and by doing so, reduce demand in the future.

SJRA’s Lake Conroe Division only provides surface water, but its customers’ demands may be met by a combination of surface and groundwater sources. The SJRA Lake

Conroe Division aims to achieve a reduction in surface water demand, for municipal and irrigation customers, of 2.5% over a 5-year period (by 2029) and 5% over a 10-year period (by 2034). For municipal customers, this goal will be measured based on per capita demand. For irrigation customers, the goal will be measured based on per acre demand. The Division also aims to achieve a reduction in surface water demand, for industrial and mining customers, of 1% over a 5-year period (by 2029) and 2% over a 10-year period (by 2034). For industrial and mining customers, this goal will be measured based on total demand. Due to the nature of industrial and mining operations, demand reductions are less feasible for those customers. As growth continues to occur in the region, these customers' facilities and operations may expand, requiring additional water usage to maintain functionality. SJRA will apply the conservation methods described in the LC WCP, as applicable, to industrial and mining customers, and encourage those customers to conserve water where feasible in an effort to meet the water reduction goals set forth therein. Table 1 below shows the average annual demand for each usage type for 2019 through 2023, as well as the 5 and 10-year targets for each usage type. (LC WCP at 3.1).

Table 1. Lake Conroe Division 5- and 10-year Water Conservation Target Goals

Usage Type	Unit of Measure	2019-2023 Average	% Reduction Goals (2029 / 2034)	5-Year (2029) Goal	10-Year (2034) Goal
Industrial	AC-FT/YR	5,624	1% / 2%	5,568	5,512
Municipal	GPCD*	40	2.5% / 5%	39	38
Irrigation	AC-FT/AC/YR	1.24	2.5% / 5%	1.21	1.18
Mining	AC-FT/YR	387**	1% / 2%	383	379

* Gallons Per Capita Per Day

** No mining customers prior to 2024. 387 acre-feet annually anticipated in 2025-2034 (smaller amount in 2024 due to partial year of demand).

SJRA's Highlands Division only provides surface water, but its customers' demands may be met by a combination of surface and groundwater sources. The SJRA Highlands Division aims to achieve a reduction in surface water demand, for municipal and irrigation customers, of 2.5% over a 5-year period (by 2029) and 5% over a 10-year period (by 2034). For municipal customers, this goal will be measured based on per capita demand. For irrigation customers, the goal will be measured based on per acre demand. The Division also aims to achieve a reduction in surface water demand, for industrial and mining customers, of 1% over a 5-year period (by 2029) and 2% over a 10-year period (by 2034). For industrial and mining customers, this goal will be measured based on total demand. Due to the nature of industrial and mining operations, demand reductions are less feasible for those customers. As growth continues to occur in the region, these customers' facilities and operations may expand, requiring additional water usage to maintain functionality. SJRA will apply the conservation methods described in the HD WCP, as applicable, to industrial and mining customers, and encourage those customers to conserve water where feasible in an effort to meet the water reduction goals set forth therein. Table 2 below shows the average annual

demand for each usage type for 2019 through 2023, as well as the 5 and 10-year targets for each usage type. (HD WCP at 3.1).

Table 2. Highlands Division 5- and 10-year Water Conservation Target Goals

Usage Type	Unit of Measure	2019-2023 Average	% Reduction Goals (2029 / 2034)	5-Year (2029) Goal	10-Year (2034) Goal
Industrial	AC-FT/YR	79,160	1% / 2%	78,368	77,577
Municipal	GPCD*	117	2.5% / 5%	114	111
Irrigation	AC-FT/AC/YR	0.4	2.5% / 5%	0.39	0.38
Mining**	AC-FT/YR	0	1% / 2%	N/A	N/A

* Gallons Per Capita Per Day

Additionally, both the Highlands and Lake Conroe Divisions will continue to encourage customers to use best management practices to keep water loss below 10% annually.

SJRA also utilizes a number of reuse supplies across its divisions. Currently, the Highlands Division meets a portion of its needs through indirect reuse of effluent flows from the Woodlands, Texas via SJRA’s Woodlands Division wastewater treatment plants. Both the Lake Conroe and Highlands Divisions will continue to consider and evaluate opportunities for reuse as they develop.

Conservation and reuse are integral parts of SJRA’s plan to meet projected water demands, however, in light of SJRA’s projected total demand for water by 2070, conservation alone cannot provide enough water to address all demands. The 2021 Region H RWP indicated projected increases of need for new supplies in Montgomery County up to 170,000 acre-feet in 2070. Conservation and direct reuse strategies can only address approximately 25,000 acre-feet per year of this increase (LC WCP at 3.2.3). Thus, conservation is simply one part of the portfolio of strategies being pursued by SJRA. SJRA’s Raw Water Supply Master Plan considers numerous alternatives for additional water supply in the Highlands and Montgomery County service areas. Strategies are ranked based on multiple weighted criteria, including costs, schedule, legal, environmental considerations, and others. Indirect reuse is a highly ranked strategy to meet these supply needs. Thus, SJRA has determined it necessary and reasonable to pursue permitting of municipal return flows for use across its service areas.

III. Analysis of Other Feasible Alternatives (30 TAC § 288.7(a)(3)).

A. Consideration of Water Supply Alternatives by SJRA

SJRA considers multiple potential project alternatives to meet water needs in Montgomery and Harris Counties. SJRA evaluates potential strategies based on multiple factors including but not necessarily limited to:

- Cost;
- Legal obstacles, based on permitting and contracting requirements to implement the project;
- Expected environmental impacts;
- Risk of project yield being reduced by regulatory or environmental constraints;
- Schedule to develop the strategy;
- Diversification of SJRA's existing water supply portfolio; and
- Scalability, i.e., the ability of a project to be implemented by smaller stakeholders in partnership with SJRA.

Water supply planning is a dynamic and continuous process. SJRA has evaluated several strategies in addition to those recommended in the 2022 SWP, which are included in the strategy descriptions below. Some preferred strategies discussed below may be recommended for inclusion in the 2026 Region H RWP and 2027 SWP. The strategies described in Table 3 are discussed in more detail below.

Table 3. Water Supply Alternatives Evaluated by SJRA

Strategy Name	Recommended as SJRA Strategy in RWP and SWP	Waste Prevention	Recycling and Reuse	Water Transfer and Marketing	Regionalization	Optimum Management
Advanced Municipal Conservation	Yes*	Yes				Yes
Aquifer Storage & Recovery	Yes					Yes
Bedias Reservoir				Yes	Yes	
Catahoula Aquifer Supplies	Yes					
Direct Reuse, Non-Potable	Yes*		Yes			
East Texas Water Transfer				Yes	Yes	
Lake Columbia Transfer				Yes	Yes	
Lake Creek Reservoir					Yes	
Lake Creek Scalping					Yes	
Lake Livingston Transfer	Yes			Yes	Yes	
Purchase Additional Canal Capacity from Trinity Basin				Yes		Yes
Purchase Groundwater				Yes	Yes	
Purchase Surface Water				Yes		
Regional Return Flows	Yes		Yes		Yes	
Seawater Desalination					Yes	

**Recommended in the 2021 RWP and 2022 SWP as a strategy to be implemented directly by some SJRA customers and other water users in the SJRA service area but not necessarily directly implemented by SJRA.*

B. Water Supply Alternatives Evaluated by SJRA and Recommended in the 2021 Region H RWP and 2022 SWP

Advanced Municipal Conservation

Description: Implementation of measures to reduce per-capita demand of water users in Montgomery County.

Performance against evaluation criteria: Conservation has fairly low costs to implement, short lead times, minimal environmental impacts, and is scalable (can be implemented at multiple levels). However, the near-term and long-term efficacy of conservation programs is uncertain as SJRA is not able to directly implement necessary measures. This strategy would be up to individual stakeholders to implement at a local level.

Aquifer Storage and Recovery (ASR)

Description: Use of underground storage to increase the firm yield of interruptible water supplies.

Performance against evaluation criteria: For the ASR alternative, environmental issues, permitting requirements, and timeline are all considered moderate compared to other potential projects. However, the option includes a relatively high planning-level cost per acre-foot and risk of yield loss via unrecoverable injected water which are concerns that make ASR a less preferred alternative.

Catahoula Aquifer Supplies

Description: Development of alternative groundwater supplies from a somewhat brackish groundwater formation.

Performance against evaluation criteria: This strategy has a lower unit cost than Regional Return Flows but has a higher unit cost than ASR. However, the long-term reliability of the yield of this supply is uncertain. Overall, development of Catahoula Aquifer Supplies is a favorable option to meet needs in Montgomery County, but this strategy alone is not sufficient to meet projected shortages in supply.

Direct Reuse (Non-Potable)

Description: Use of treated wastewater effluent by stakeholders in Montgomery County to meet non-potable demands such as golf course irrigation. This strategy would be implemented at the end user level and not by SJRA.

Performance against evaluation criteria: Non-potable direct reuse performs well against most evaluation criteria, although cost per acre-foot is relatively high. This strategy would be up to individual stakeholders to implement at a local level. Direct reuse for non-potable municipal irrigation uses was recommended in the 2021 Region H RWP for implementation by utilities within the County-Other, Montgomery Water User Group.

Lake Livingston Transfer

Description: Transfer of water supplies in the Trinity River Basin to either the Montgomery County or Highlands Service Areas.

Performance against evaluation criteria: For use in the Highlands service area, supplies from Lake Livingston could be transferred through existing transmission infrastructure, making this a relatively low-cost option for the Highlands. However, transmission costs to serve needs in Montgomery County are expected to be high. Permitting requirements for use in the Highlands service area are moderate, with an exempt IBT required for use within the Trinity-San Jacinto Coastal Basin. Additional permitting would be required to make the supply available to users in the San Jacinto River Basin. Overall, the Lake Livingston Transfer is a favorable supply option for the Highlands service area but not for Montgomery County.

Regional Return Flows

Description: Development of a water use permit for indirect reuse of surface water and groundwater-based return flows of treated wastewater in the San Jacinto River Basin.

Performance against evaluation criteria: This strategy is the lowest cost alternative, as it provides raw water supply though permitting that would rely upon other infrastructure to perfect it as a source of supply. While not scalable, as it requires SJRA to complete permitting, this project performs moderately well in all other criteria. Due to low cost, short implementation timeline, and limited environmental impact, this is a preferred alternative by SJRA.

C. Other Water Supply Alternatives Evaluated by SJRA

Bedias Reservoir

Description: Development of a new reservoir on Bedias Creek in the Trinity River Basin.

Performance against evaluation criteria: Bedias Reservoir is not a recommended strategy due to a long development schedule, substantial environmental and legal obstacles, and moderately high risk to yield reliability.

East Texas Water Transfer

Description: Transfer of raw water through canal or pipeline conveyance from the Neches or Sabine River Basins under long-term contracts for use.

Performance against evaluation criteria: The East Texas Water Transfer is expected to face substantial legal and environmental hurdles. However, the potential to use existing transmission infrastructure makes this a viable option for supply to the Highlands service area, though not as preferred as Regional Return Flows. Costs of transmission make this a less favorable option to serve Montgomery County.

Lake Columbia Transfer

Description: Participation in development of a new reservoir in the Neches River Basin.

Performance against evaluation criteria: The combined cost of a share of new reservoir construction and transmission to the SJRA service areas make this a relatively expensive alternative. Additionally, this alternative requires a long development timeline, significant permitting requirements, and environmental considerations associated with a new reservoir.

Lake Creek Reservoir

Description: Development of a new reservoir in the upper portion of the Lake Creek Basin.

Performance against evaluation criteria: Lake Creek Reservoir would require a lead time of 15 to 30 years to develop and presents a high cost for construction of a reservoir and transmission system. There is potential yield risk due to sedimentation and requirements related to environmental flows, and this project cannot easily be scaled down to water user demands. After evaluation, this strategy is not recommended.

Lake Creek Scalping

Description: Development of a project to divert available water supplies from Lake Creek and potentially add storage to produce an additional firm supply of water.

Performance against evaluation criteria: Lake Creek Scalping would require substantial permitting effort and is anticipated to have a very high cost that makes this a non-preferred option for additional supplies.

Purchase Additional Canal Capacity from Trinity River Basin

Description: Increase conveyance agreement with Coastal Water Authority to allow for additional conveyance of water diverted under SJRA water rights in the Trinity River Basin.

Performance against evaluation criteria: This alternative is anticipated to have relatively low cost, minimal permitting requirements, and a short implementation timeline, as it requires only contract negotiations but no new infrastructure. This is likely to be a preferred strategy but may not be sufficient by itself to meet all future needs in that associated service area.

Purchase Groundwater

Description: Purchase of groundwater from areas outside of the San Jacinto River Basin and transmission to SJRA service areas.

Performance against evaluation criteria: This alternative performs well for several evaluation criteria but is expected to be cost-prohibitive and thus has not been recommended.

Purchase Surface Water

Description: Purchase of additional surface water under long-term contracts from various rights holders in the Trinity River Basin.

Performance against evaluation criteria: Purchase of already-permitted surface water for use in the permitted basin would pose minimal permitting requirements. However, the cost of water purchase could be high. Overall, the purchase of surface water is a favorable alternative for supply for the Highlands service area but is not necessarily preferred over Regional Return Flows. Potential supplies identified for purchase are located far from Montgomery County, making this a less-preferred option for meeting needs in Montgomery County due to the high combined cost of water purchase and transmission.

Seawater Desalination

Description: Treatment to remove solids from Galveston Bay water, plus transmission to the Highlands and/or Montgomery County Service Area.

Performance against evaluation criteria: This alternative presents significant challenges to implement by SJRA. In particular, seawater desalination has a high unit cost. This strategy is also a large-scale project that would be difficult to implement at the stakeholder level. Transmission requirements to serve needs in Montgomery County could also pose environmental hurdles.

D. Water Supply Projects for SJRA Recommended in the 2021 RWP and 2022 SWP

The SWP recommended multiple water management strategies and associated projects, including indirect reuse of Regional Return Flows, through which SJRA can meet supply shortages. Strategies that are recommended for implementation by SJRA and the Region H Water Planning Group are part of a suite of strategies to meet water needs in Harris and Montgomery Counties. As such, other recommended strategies are not alternatives to the proposed authorization for use of return flows, but rather complement this proposed supply. Each of these strategies is scheduled for implementation based on the projected water needs and the time to implement the strategy, including considerations for planning and permitting.

Three strategies for SJRA in the 2021 Region H RWP and 2022 SWP require development of additional surface water:

- New/Expanded Contract with the Trinity River Authority (“TRA”), which requires the Lake Livingston to SJRA Transfer project to convey purchased water from TRA
- SJRA GRP – Participant Surface Water, which also requires the Lake Livingston to SJRA Transfer project
- SJRA Aquifer Storage and Recovery, which requires development of additional surface water supplies from Lake Conroe and Lake Creek

Two strategies for SJRA in the 2021 Region H RWP and 2022 SWP involve development of additional groundwater supplies:

- SJRA Catahoula Aquifer Supplies
- SJRA GRP – Groundwater Offset

Finally, three reuse strategies were recommended for SJRA in the 2021 Region H RWP and 2022 SWP:

- SJRA Reuse Supplies for Manufacturing, which meets a portion of projected needs with supply from an existing indirect reuse permit
- New/Expanded Contract with SJRA – Regional Return Flows
- SJRA Reuse Supplies for Manufacturing – Regional Return Flows

The proposed appropriation of surface water and groundwater-based return flows of treated wastewater represents the source recommended for the two SJRA strategies labelled “Regional Return Flows.”

E. Summary of Alternatives Evaluation and Recommendation of Regional Return Flows

The reuse supply from “Regional Return Flows,” which represents the source for which SJRA is seeking a new authorization, is a preferred strategy by SJRA. Water users in the SJRA service area are projected to have substantial need remaining after implementation of demand reduction strategies, and this source is a lower cost option than the development of additional surface water supplies, which require substantial infrastructure for intake and conveyance.