Water Conservation Plan

for

San Jacinto River Authority
Highlands 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is to achieve lasting, long-term improvements in water use efficiencies using strategies to reduce the amount of water withdrawn from a particular source, and to ensure that the water withdrawn is used in an efficient manner.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 a Water Conservation and Drought Contingency Plan to the TCEQ and Texas Water Development Board (TWDB). SJRA was created by the Texas Legislature in 1937 to:

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

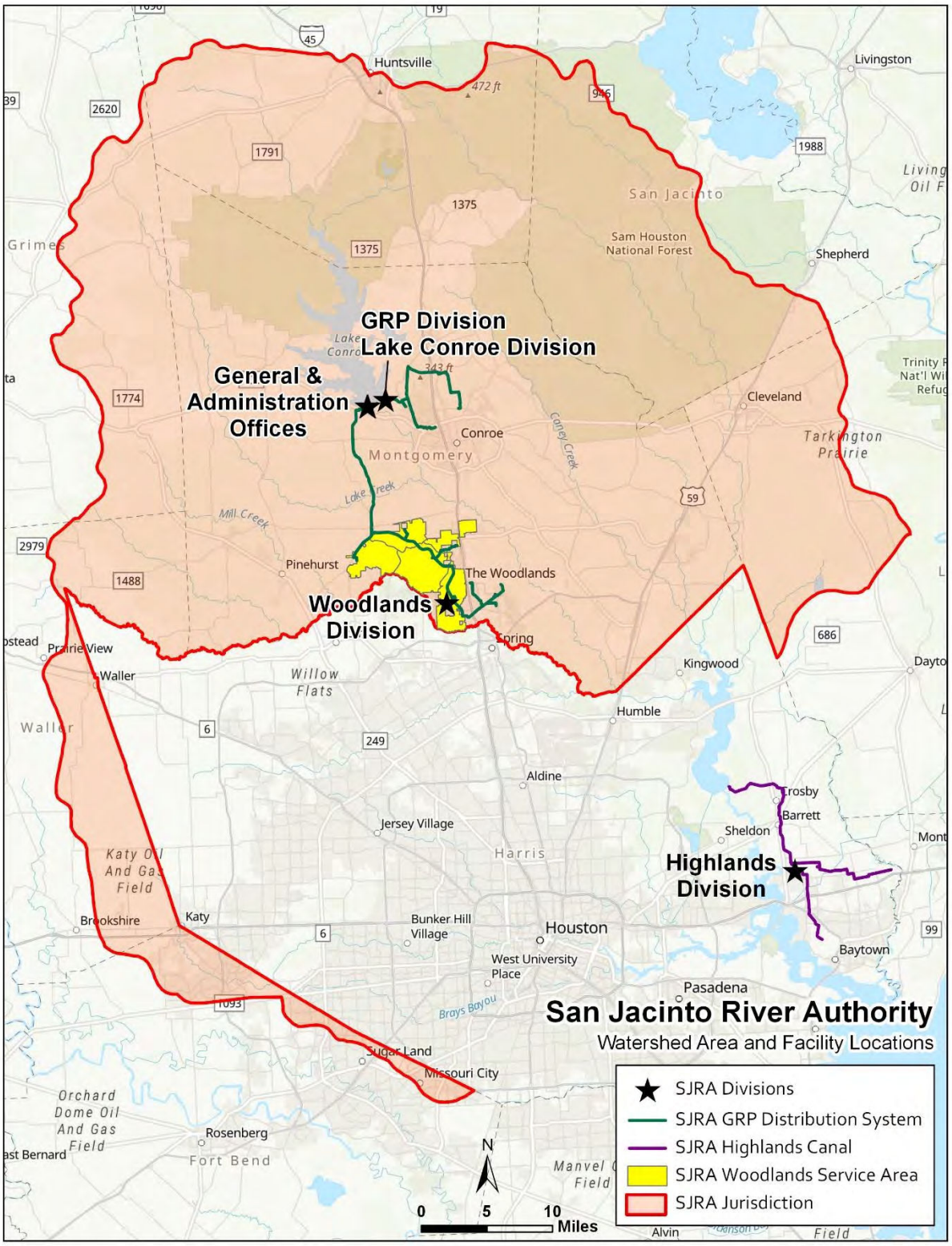

Figure 1-1. Watershed Area and Facility Locations

Section 2. Utility and Service Area Description

2.1 Utility Description

In 1945, SJRA purchased the Highlands Canal System. SJRA has since maintained, improved, and expanded this system which serves municipal, industrial, and agricultural/irrigation customers in southeast Harris County. SJRA's water rights serving the Highlands service area also allow for mining usage, however SJRA does not currently serve any mining customers in this service area. Water available for this system is obtained from the following:

SJRA obtained a 55,000 ac-ft/yr run-of-river right (Certificate of Adjudication (COA) 10-4964) from water stored in and diverted from Lake Houston. The Highlands Canal System transfers this water from Lake Houston to the approximately 1,400-acre Highlands Reservoir, which serves as a regulating/staging reservoir for the system, and then South and East to the Baytown and Cedar Bayou areas, respectively, via approximately 27 miles of canals. COA 10-4964 is currently permitted for multiple uses.

In 1994, SJRA and the Devers Canal Rice Producers Association (DCRPA) purchased the bulk assets of Trinity Water Reserve, Inc. Those assets included the Devers Canal System, which covers parts of Liberty, Chambers, and Jefferson Counties, as well as Permit No. 5271, which authorizes a 58,500 ac-ft/yr diversion from the Trinity River at a point in south central Liberty County. The purchase arrangements included the transfer of 56,000 ac-ft/yr of water rights to SJRA. The remaining 2,500 ac-ft/yr of water rights were transferred to DCRPA. Permit No. 5271 was successfully amended to reflect the purchase arrangement. SJRA's 56,000 ac-ft/yr right is permitted for multiple uses.

In 2003, SJRA purchased an additional 30,000 ac-ft/yr of Trinity River water rights from the Chambers Liberty Counties Navigation District (CLCND) under Certificate of Adjudication No. 08-4279. This certificate is permitted for multiple uses.

In 2004, SJRA was granted 14,944 ac-ft/yr of water rights associated with groundwater based effluent return flows from its three wastewater treatment plants in the San Jacinto River Basin (Permit 5809). This permit is available for multiple uses.

In 2008, SJRA was granted 14,100 ac-ft/yr of unappropriated firm yield (additional storage) of Lake Houston under Permit No. 5807. This permit is available for multiple uses.

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

In 2019, the SJRA was granted 11,200 ac-ft/yr of water rights associated with the conveyance of surface water-based return flows from treated surface water under Water Use Permit No. 13183.

SJRA operates Lake Conroe, one of two major surface water supply reservoirs located in the San Jacinto River Basin. Completed in 1973, Lake Conroe is owned by SJRA and the City of Houston. SJRA owns one-third (33,333 ac-ft/yr) and the City of Houston owns two-thirds (66,667 ac-ft/yr) of the total 100,000 ac-ft/yr permitted water rights from the lake under Certificate of Adjudication (COA) 10-4963. Lake Conroe's water right's availability to the Highlands Division is limited due to use/reservation of the lake as a supply for the SJRA Groundwater Reduction Plan (GRP) Division. Lake Houston, which is owned by the City of Houston, is the other surface water supply reservoir in the basin.

SJRA meets wholesale raw water needs in the Highlands Division service area through a combination of sources. Water from run-of-river COA 10-4964 and Permit 5808, along with Lake Houston reservoir yield from Permit 5807, and SJRA's reuse authorized under Permit 5809 is diverted at the southeast corner of Lake Houston via SJRA's Lake Houston Pump Station (LHPS) to supply the Highlands Canal System. Water from Permit 13183 would also be diverted from the LHPS, however SJRA has not yet updated the Lake Houston Accounting Plan to incorporate this water right. SJRA's water rights in the Trinity River as appropriated in Permit 5271 and COA 08-4279 are utilized via the Coastal Water Authority (CWA) Main Canal conveyance system and pumped to the Highlands Canal System at two locations south and east of the Highlands Reservoir. SJRA's portfolio of water supplies is summarized in Table 2-1 below.

Table 2-1. SJRA Water Rights Portfolio

Source*	Permitted Amount (ac-ft/yr)
Trinity River (COA 08-4279A)	30,000
Lake Conroe (COA 10-4963)	33,333
Lake Houston (COA 10-4964)	55,000
Trinity River (Permit 5271C)	56,000
Lake Houston (Permit 5807)	14,100
Lake Houston (Permit 5808)	40,000
Reuse (Permit 5809A)	14,944
Reuse (Permit 13183)	11,200
*Please note that not all water sources shown are available to all SJRA Divisions.	

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. The Division is a wholesale provider of surface water (via the Highlands Canal System) for industrial, agricultural/irrigation, and municipal uses, and also has the ability to provide for mining uses, although there are currently no mining customers served by the Division. The Highlands Division service area, per Agreement with City of Houston, covers approximately 201 square miles in Harris County east of the San Jacinto River. Figure 2-1 illustrates the

layout of the Highlands Canal System. SJRA also serves two customers via reuse (Permit 5809) in The Woodlands, Texas area. While these customers are not directly served by Highlands Division infrastructure, they are included with other Highlands Division customers in SJRA reporting and documentation.

Via the Highlands Canal System, the Division provides water to Crosby MUD and Newport MUD (Figure 2-2) and is currently reserving water for other municipal customers for future use. The Division also provides water to industrial customers in the Baytown and Cedar Bayou areas. Finally, the Division periodically provides water to agricultural/irrigation customers as well as short-term water customers of various types. The service area of the two MUDs currently receiving water from the Division is approximately 7.4 square miles. The Division does not currently serve any mining customers. In 2023, SJRA diverted a total of 87,289 ac-ft from the water rights serving the Highlands Division, and the Division's customers diverted a total of 89,436 ac-ft from the Highlands Canal System (Table 2-2). The Division does not own or operate wastewater infrastructure.

Table 2-2. 2023 Surface Water Diversion

Municipal	2,128 ac-ft
Industrial	86,779 ac-ft
Agricultural/Irrigation	529 ac-ft
Total	89,436 ac-ft

Values in Table 2-2 are based on customer usage by type, not SJRA diversions of its water rights. As noted above, in 2023 SJRA customers used more water than diverted due to rainfall capture, etc.

In 2023, total wholesale municipal use via the Highlands Canal System was 2,128 ac-ft. The Baytown Industrial Complex/Cedar Bayou area in eastern Harris County is home to numerous industries to which the Division provides water. In 2023, there was a total of 86,779 ac-ft diverted from the Highlands Canal System to provide wholesale raw water to the Division's industrial customers in those areas, as well as to multiple short-term customers for industrial use. Water supplied by the Division to its long-term customers in the Baytown and Cedar Bayou areas is used in petroleum refining and chemical production industries to produce products such as petrochemicals, other chemicals, and refined products.

Wholesale raw water is also provided by the Division to agricultural/irrigation customers in eastern Harris County as requested. In 2023, the Highlands Division served one irrigation customer. The two customers described above who are served by reuse water in The Woodlands, Texas area also utilized water for irrigation purposes. Between these three customers there was a total of 529 ac-ft diverted for agricultural/irrigation uses. A full report of the Division's municipal, industrial, and agricultural/irrigation customer information can be found in Appendix A, the Water Utility Profiles. As noted above, the Division does not currently serve any mining customers.

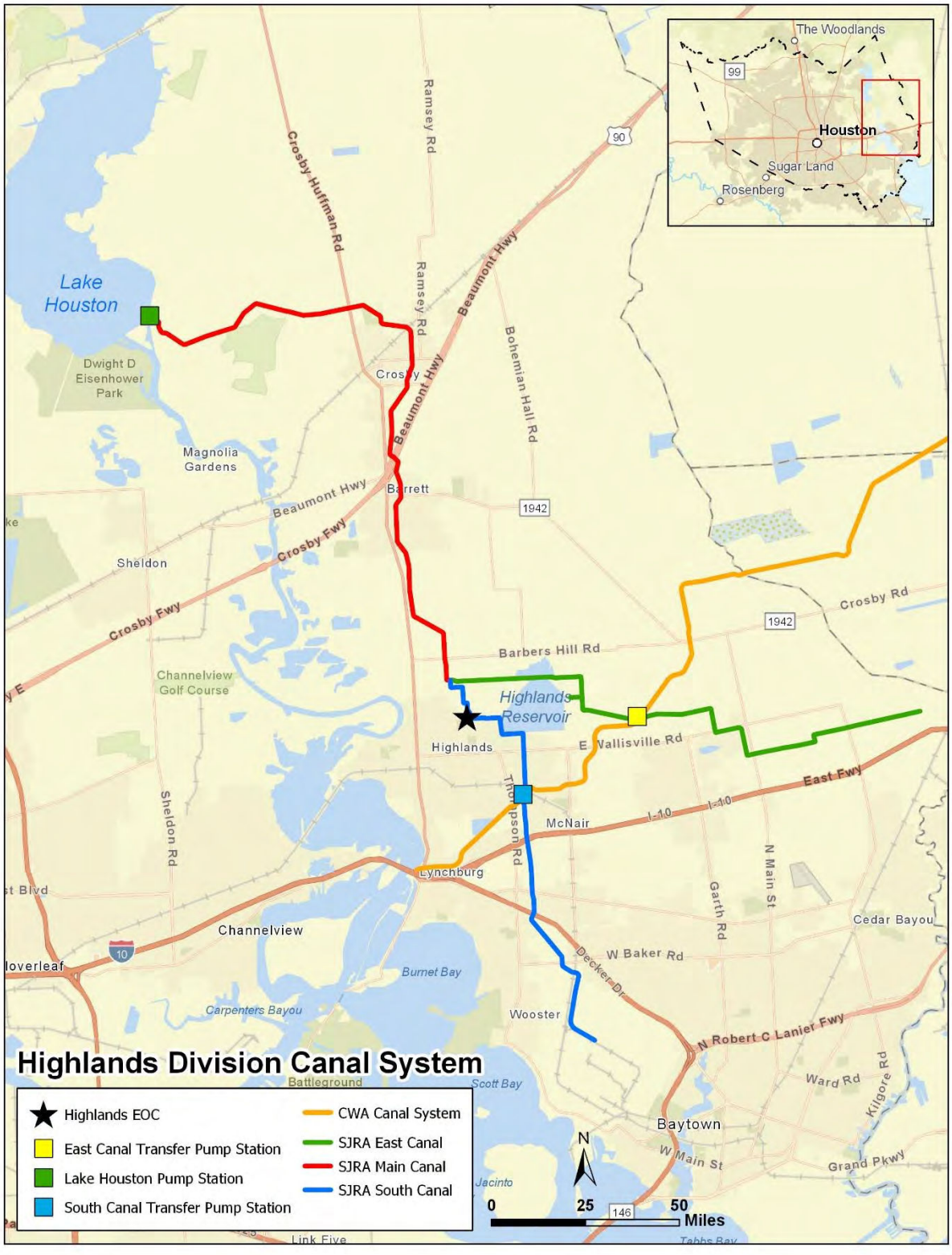

Figure 2-1. Highlands Canal System Layout

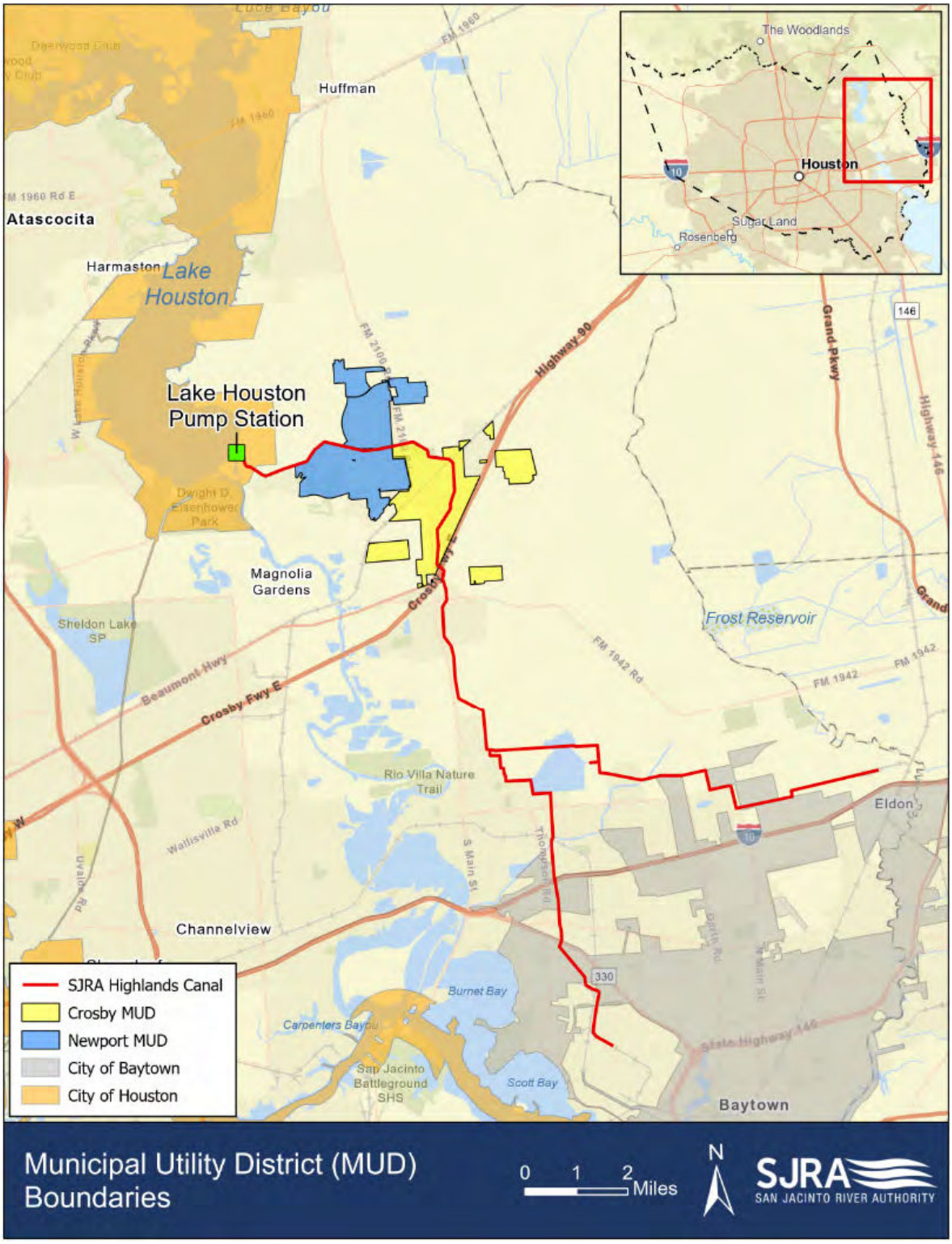

Figure 2-2. Municipal Utility District (MUD) Boundaries

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Section 3. Water Conservation Plan

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

"(A) The development of water resources; and,

"(B) Those practices, techniques, and technologies that will reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses."[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 Highlands Division 5- and 10-year Water Conservation Target Goals

The Division does not have direct control over the demands that it serves. A large majority of the water is supplied to industrial customers. SJRA is not involved in the day-to-day operations of its customers. 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 Highlands 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 well as the 5 and 10-year targets for each usage type. The Highlands Division manages an open canal transmission system and all diversions are made directly from that system. The Division encourages its customers to use best management practices to keep water

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

loss below 10%, annually.

Table 3-1. 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	0.37	2.5% / 5%	0.36	0.35
Mining**	AC-FT/YR	0	1% / 2%	N/A	N/A

***** Gallons Per Capita Per Day

** The Highlands Division does not currently have any mining customers.

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 and 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 Highlands Division does not

have a reservoir system operations plan. The Division also operates the Highlands Reservoir, a regulating/staging reservoir, which is not directly connected to Lake Conroe.

3.2.1 Metering and Record Management

The municipal, industrial, irrigation, and mining customers of the Division are/will be 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 the 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. Also as described in the contracts, access to these meters will be given to the Division by each customer for inspection purposes. Meters must be maintained by each customer to the level of accuracy specified in the customer's wholesale water supply contract with the Division.

3.2.2 Leak Detection and Repair, and Minimization of Conveyance Losses

The Division is committed to conservation through monitoring and improvement of its delivery system. The Division, specifically, continues to make efforts to minimize losses through its canal system through various practices. The Division 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. The Division has also initiated the use of 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. 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. Currently, the 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, in the San Jacinto River Basin. The Division 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) identified needs for water beyond existing supply to serve manufacturing demand in the Trinity - San Jacinto Coastal Basin in Harris County of over 20,000 acre-feet per year in decades 2030 through 2070. The RWP recommended an indirect reuse strategy by SJRA to serve this demand (Appendix DB of the 2021 Region H RWP). Accordingly, a water rights application for indirect reuse can help meet Highlands Service Area demands, as well as other SJRA service area needs (see Lake Conroe 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 coordination with SJRA Highlands Division existing customers, as well as the identification of potential new customers to be served by SJRA in the Highlands Service Area, it is projected that substantial additional water supply may be needed in excess of existing supplies and water conservation capabilities, as well as potentially in excess of previous RWP projections. The majority of SJRA's current demand in the Highlands Service Area is industrial, providing minimal opportunity for water conservation as industrial facilities often operate in an "on/off" capacity.

The RWSMP considers numerous alternatives for additional water supply in the Highlands Service Area, including use of SJRA's water rights in the Trinity River Basin, transfers from Lake Livingston, and purchase of water from other wholesale providers, among others. Strategies are ranked based on multiple weighted criteria, including costs, schedule, legal, environmental considerations, scalability, and others. Indirect reuse is a highly ranked strategy to meet these supply needs. SJRA has determined it necessary and reasonable to pursue permitting of municipal return flows for use in its Highlands Service Area.

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 requires 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 Highlands 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 the 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 – Highlands 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 – Highlands Division
Address:	P.O. Box 329 Conroe, Texas 77305
Telephone Number:	(936) 588-3111 Fax: N/A
Water Right No.(s):	COA 08-4279A, COA 10-4964, Permit 5271C, Permit 5807, Permit5808, Permit 5809A, Permit 13183
Regional Water Planning Group:	Region H
Person responsible for implementing conservation program:	Matt Barrett, P.E. Phone: (936) 588- 3111
Form Completed By:	Matt Barrett, P.E
Title:	Water Resources and Flood Management Division Manager
Signature:	Matt B 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 201 square miles. See Attachment A.

2. Current population of service area:

   Approximately 45,000 in SJRA's Highlands Service area (east of the San Jacinto River in Harris County; does not include population served by other entities). Not all of these are currently served by SJRA.

3. Current population served for:

   a. Water: Approximately 14,004

   b. Wastewater 0

4. Population served for previous five years:

Year	*Population*
2019	~13,475
2020	~13,900
2021	~12,437
2022	~13,341
2023	~14,004

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

Year	*Population*
2020	38,369
2030	61,251
2040	80,712
2050	82,718
2060	88,027

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

   Previous 5 years' populations are estimates of the population of Newport and Crosby MUDs (Municipal customers currently taking water from SJRA). Projected populations are based on information from SJRA's Raw Water Supply Master Planning consultant. This data was adapted from data used in Region H regional water planning efforts.

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:

Wholesale Customer	*Contracted Amount (Acre-feet)***	*Previous Year Amount of Water Delivered (acre-feet)*
Newport MUD	2,072	1,532
Crosby MUD	1,120	595
M. Walker Farms, LTD	153	23
Woodlands Development Corp.	220	220
Club Corp Service Center	530	286
Long-Term Industrial Customers*	96,461	86,779
RT Ellis	N/A (SJRA Contractor)	1.92
Crosby Fair and Rodeo	.03	.03
Noble Building and Development	N/A (SJRA Contractor)	.02
Robinson Water Well	.02	.02

* As some of SJRA's industrial contracts are confidential, we have not included individual long-term industrial customers. We have included short term industrial customers. SJRA has submitted our industrial contracts to TCEQ previously. SJRA also provides small amounts of water to short-term industrial customers from time to time.

** List does not include customers who are only reserving water for future use. Contracted amounts also do not include amounts reserved for future use.

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):

Year	*Treated Water*	*Raw Water*
2019	0	76,538
2020	0	75,977
2021	0	81,386
2022	0	83,164
2023	0	89,436
Totals	0	406,501

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:

Year	*2019**	*2020**	*2021**	*2022**	*2023**
Month					
January	6,142	6,347	6,466	6,546	7,038
February	5,263	5,784	4,899	5,952	6,139
March	6,224	6,483	6,371	6,814	7,281
April	6,019	5,963	6,992	6,318	7,036
May	6,780	6,441	7,276	7,029	7,552
June	6,652	6,645	7,133	7,517	7,918
July	7,501	6,878	7,362	7,834	8,152
August	6,921	5,843	7,164	7,855	8,382
September	6,292	6,656	6,970	7,186	7,635
October	6,325	6,644	7,208	7,176	7,543
November	6,063	6,665	6,643	6,470	7,252
December	6,356	5,629	6,901	6,467	7,507
Totals	76,538	75,977	81,386	83,164	89,436

* These values are based on diversion of SJRA water rights, whereas the values provided under II.A. above were based on customer usage. Diversions and customer usage do not match due to rainfall capture, etc.

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

Year	*Total Population Served*	*Total Annual Water Diverted for Municipal Use*
2019	~13,475	1,388
2020	~13,900	1,645
2021	~12,437	1,665
2022	~13,341	2,013
2023	~14,004	2,128

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.

See Section I.A.5 above for population projections. Based on draft results of an ongoing update to SJRA's Raw Water Supply Master Plan (RWSMP), as well as SJRA projections, total Highlands service area demands could exceed 120,000 acre-feet per year by 2034. SJRA can provide the updated RWSMP upon completion if desired by TCEQ.

III. WATER SUPPLY SYSTEM DATA

A. Projected Water Demands

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

Water Type	*Source*	*Amount Authorized*
Surface Water	See table below	See table below
Groundwater	N/A	0
Other	N/A	0

Source	**Permitted Amount (ac-ft/yr)**
Trinity River (COA 08-4279A)	30,000
Lake Houston (COA 10-4964)	55,000
Trinity River (Permit 5271C)	56,000
Lake Houston (Permit 5807)	14,100
Lake Houston (Permit 5808)	40,000
Reuse (Permit 5809A)	14,944
Reuse (Permit 13183)	11,200

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):

Year					
Month					
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 – Highlands 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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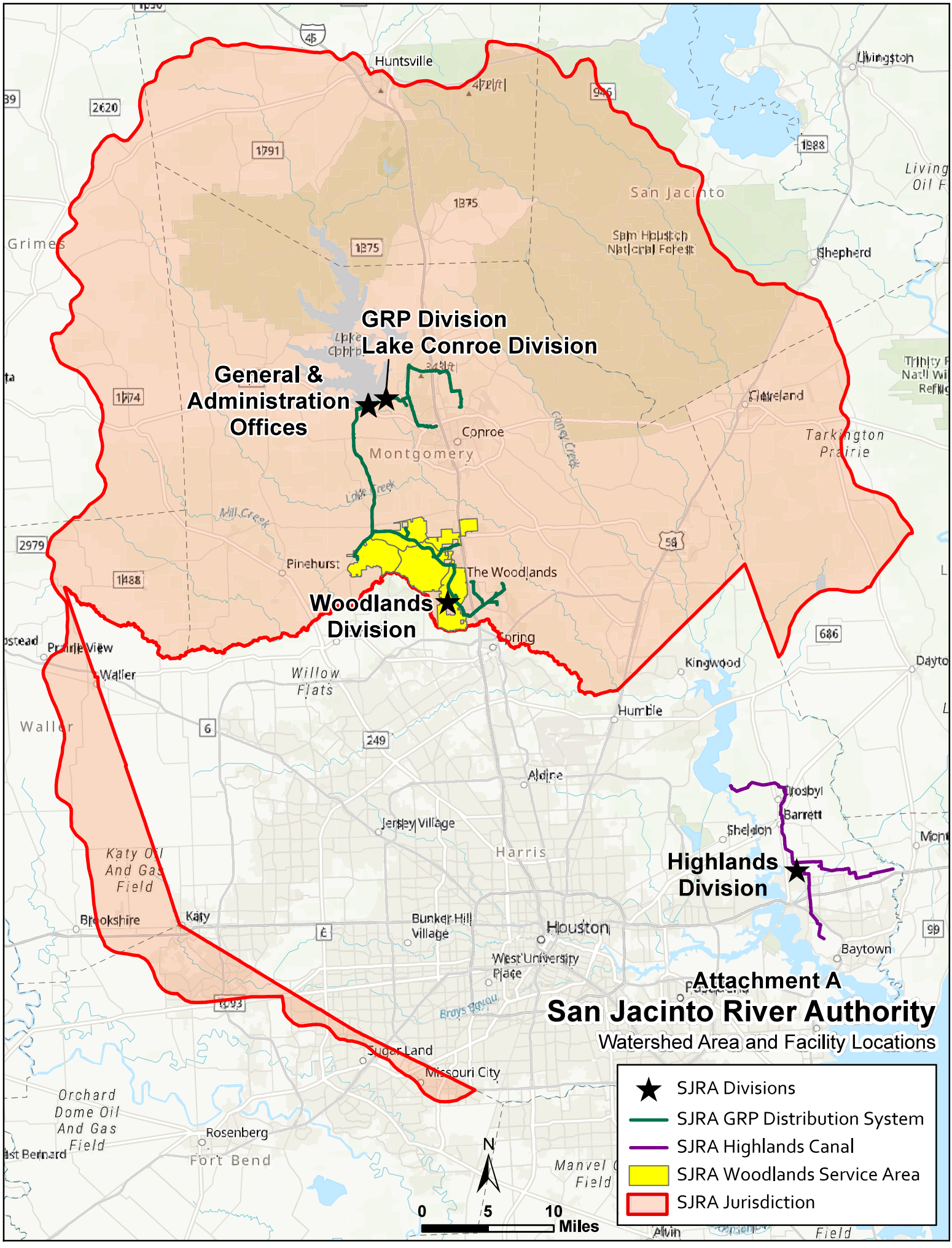
GRP Division
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General &
Administration
Offices
Woodlands
Division
Highlands
Division
Huntsville
Conroe
Montgomery
Pinehurst
The Woodlands
Spring
Humble
Kingwood
Aldine
Jersey Village
Harris
Houston
Bunker Hill
Village
West University
Place
Baytown
Crosby
Barrett
Sheldon
Katy
Brookshire
Sugar Land
Missouri City
Rosenberg
Fort Bend
Waller
Prairie View
Willow
Flats
Katy Oil
And Gas
Field
Orchard
Dome Oil
And Gas
Field
Tarkington
Prairie
San Jacinto
Grimes
Shepherd
Cleveland
Alvin
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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Miles

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Attachment B

Highlands Division Canal System

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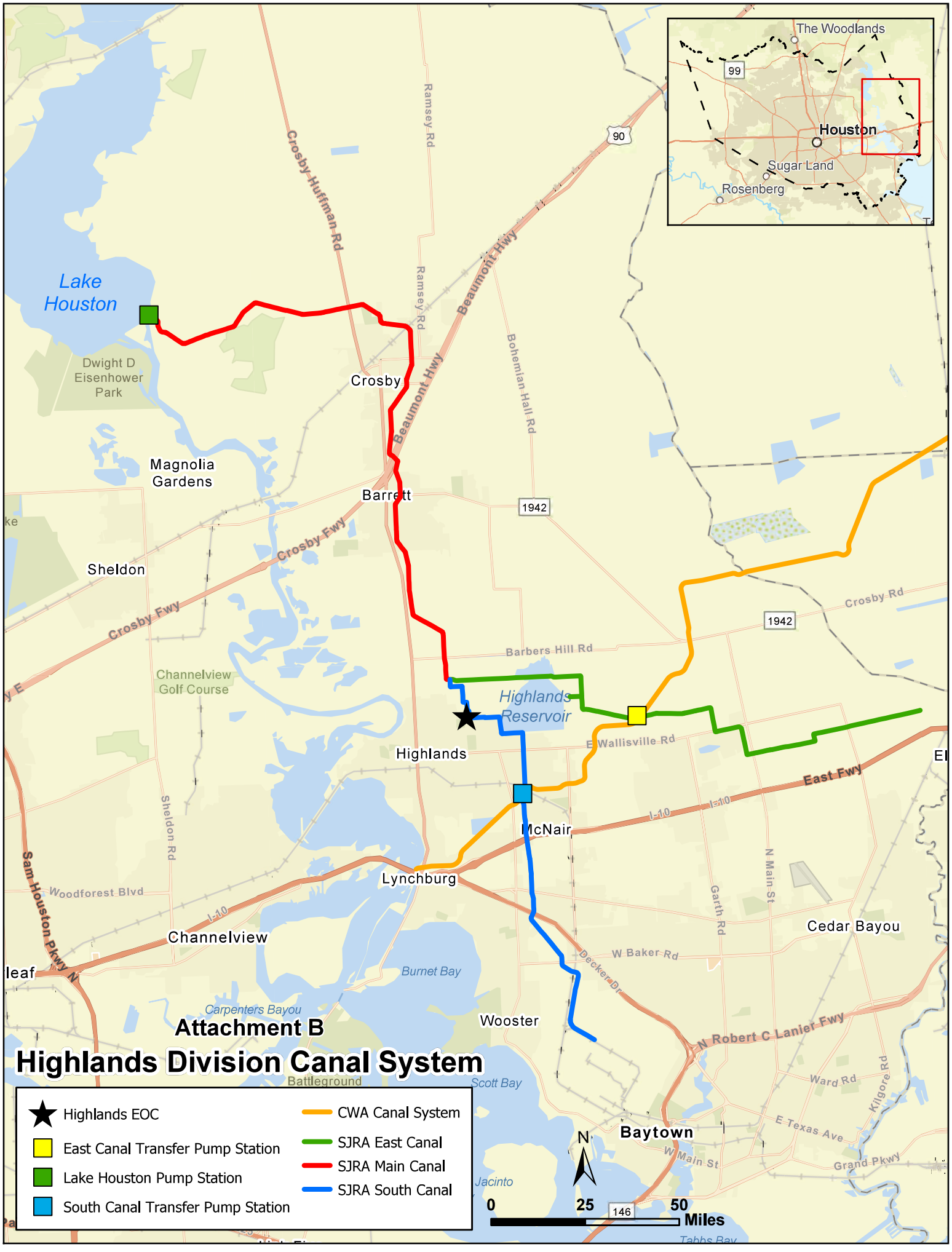
Attachment B
Highlands Division Canal System
Highlands EOC
East Canal Transfer Pump Station
Lake Houston Pump Station
South Canal Transfer Pump Station
CWA Canal System
SJRA East Canal
SJRA Main Canal
SJRA South Canal
Lake Houston
Dwight D Eisenhower Park
Crosby
Magnolia Gardens
Barrett
Sheldon
Channelview Golf Course
Highlands
Highlands Reservoir
McNair
Lynchburg
Channelview
Cedar Bayou
Wooster
Baytown
Burnet Bay
Carpenters Bayou
Battleground
Scott Bay
Jacinto
Crosby-Huffman Rd
Ramsey Rd
Beaumont Hwy
Bohemian Hall Rd
Crosby Fwy
Barbers Hill Rd
E Wallisville Rd
East Fwy
I-10
Sheldon Rd
Sam Houston Pkwy N
Woodforest Blvd
W Baker Rd
Decker Dr
N Robert C Lanier Fwy
Garth Rd
N Main St
Ward Rd
Kilgore Rd
E Texas Ave
W Main St
Grand Pkwy
Crosby Rd
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The Woodlands
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San Jacinto River Authority – Highlands Division

TCEQ Form 20839: Industrial Water Conservation Plan

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WATER CONSERVATION PLANS FOR INDUSTRIAL/MINING USES – SAN JACINTO RIVER AUTHORITY HIGHLANDS 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") Highlands Division (the "Division) has certain authorizations to divert and use water originating in the San Jacinto River Basin as well as water delivered through the Coastal Water Authority canal system from the Trinity River Basin for industrial and mining purposes . Such uses include, but are not necessarily limited to, petroleum refining and chemical production. The Division does not currently have any mining customers but anticipates potential need for water allocated for mining use in the future. The total industrial/mining demand is not anticipated to exceed 100,000 acre-feet in 2024 (but could increase in subsequent years), 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 by customers from the Highlands Canal System and metered at the Lake Houston Pump Station, the East Canal Transfer Pump Station, the South Canal Transfer Pump Station, and 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. The Division manages an open canal transmission system and all customer diversions for industrial/mining are made directly from that system, therefore the Division also encourages customer conservation goals in an effort to keep water loss below 10% annually. In an attempt to meet these targets, the Division has developed the following recommendations for best management practices for its industrial/mining customers:

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. 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, specifically, continues to make efforts to minimize losses through its canal system through various practices. The Division 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. The Division has also initiated the use of 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. 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 – Highlands 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):

   221,244 Acre-feet in total water rights utilized for Highlands service area which are authorized for Industrial (and other uses). 96,461 contracted (non-leap year; not including water reserved for future use or current short-term customer).

2. Maximum diversion rate (cfs):

   Multiple maximum diversion rates based on water right permits. 465.69 cfs is maximum diversion rate for San Jacinto River water rights. 744.45 cfs is maximum diversion rate for Trinity River water rights.

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:

Source	*Water Right No.(s)*	*Current Use*	*Anticipated Use*
Surface Water	COA-4279A COA 10-4964 Permit 5271C Permit 5807 Permit 5808 Permit 5809A Permit 13183	86,779 (2023)	96,461*
Groundwater	N/A		
Purchased	N/A		
Total			

* Current long-term customer contract demand. Anticipated to increase in the future. Does not include short term contracts.

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

   Master meter ; Customer meter X; 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:

   Petroleum refining and chemical production, and potentially other products.

2. North American Industry Classification System (NAICS):

   324110

II. WATER USE AND CONSERVATION PRACTICES

A. Water Use in Industrial Processes

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

Boiler feed		100			
Incorporated into product		100			
Other		100			

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

*Water uses and split between groundwater, surface water, and potentially other types vary between customers. However, for the uses with 100% surface water indicated above, SJRA only provides surface water. For the use with 100% groundwater, SJRA provides no water. SJRA does not currently possesses data regarding amount of water used for each process listed above.

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.

   SJRA surface water is utilized by multiple industrial customers for different industrial production processes. These uses include, but are not necessarily limited to, cooling towers, industrial water applications, feed for demineralization plants, process cooling, pollution control, and steam generation.

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

None of the water diverted by long-term customers is available for SJRA reuse.

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

Month	*Diversion Amount**	*% of Water Returned (If Any)*	*Monthly Consumption**
January	6,872	0	6,872
February	5,975	0	5,975
March	7,085	0	7,085
April	6,860	0	6,860
May	7,358	0	7,358
June	7,662	0	7,662
July	7,834	0	7,834
August	8,038	0	8,038
September	7,353	0	7,353
October	7,330	0	7,330
November	7,070	0	7,070
December	7,342	0	7,342
Totals	86,779	0	86,779

* Amounts based on actual customer consumption, not SJRA water right diversion. In 2023 Highlands Division customers consumed more water than was diverted due to rainfall capture, etc.

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

Month	*Diversion Amount**	*% of Water Returned (If Any)*	*Monthly Consumption**
January	6,872	0	6,872
February	5,975	0	5,975
March	7,085	0	7,085
April	6,860	0	6,860
May	7,358	0	7,358
June	7,662	0	7,662
July	7,834	0	7,834
August	8,038	0	8,038
September	7,353	0	7,353
October	7,330	0	7,330

November	7,070	0	7,070
December	7,342	0	7,342
Totals	86,779	0	86,779

** Values in this table same as table under item 4 above (based on 2023 customer consumption). Customer demands expected to increase in future 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 Highlands 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 792 ac-ft per year

   b. 10-year goal: Reduction of 1,583 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 Highlands industrial customer contracts require the customers to install and maintain measuring equipment to track water usage from Highlands Canal System. The contracts require inspection of the equipment on a defined schedule. 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 maintains records of customer monthly usage.

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

   Customers take water directly from the Highlands Canal System and are responsible for any leak detection, repair, etc. Customers monitor water consumption closely and any significant change in water consumption is immediately investigated and any damage repaired as needed.

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

   SJRA does not possess comprehensive information for all industrial customers. This information is considered confidential in some cases.

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 Highlands 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 – Highlands 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 – Highlands 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
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):

   82,144 Acre-feet in total water rights utilized for Highlands service area which are authorized for mining (and other uses). SJRA currently does not have any mining customers in the Highlands service area.

2. Maximum diversion rate (cfs):

   Multiple maximum diversion rates based on water right permits. 155.97 cfs is maximum diversion rate for San Jacinto River water rights that allow mining (5809A/13183). 744.45 cfs is maximum diversion rate for Trinity River water rights.

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	Permit 5271C, Permit 5809A, Permit 13183	0	0
Groundwater	N/A	0	0
Purchased	N/A	0	0
Total	N/A	0	0

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

   Master meter ; Customer meter ; Estimated ; Other

3. Was purchased water raw or treated? *N/A*

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

C. Mining Information ***(N/A)***

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

2. North American Industry Classification System (NAICS):

II. WATER USE AND CONSERVATION PRACTICES

A. Water Use in Mining Processes ***(N/A)***

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

Oil Field Repressuring					
Other					

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

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

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

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

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

Month	*Diversion Amount*	*% of Water Returned (If Any)*	*Monthly Consumption*
January			
February			
March			
April			
May			
June			

July			
August			
September			
October			
November			
December			
Totals			

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

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

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

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 Highlands 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: N/A (No current mining customers)

   b. 10-year goal: N/A (No current mining customers)

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%.

   Not applicable, no current mining customers

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

   Not applicable, no current mining customers

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

   Not applicable, no current mining customers

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 Highlands 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 – Highlands 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 – Highlands 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 customer in Highlands area (north of Highlands Reservoir), approximately 1000 acres, and two wastewater reuse irrigation customers in The Woodlands, Texas area.

2. Total miles of main canals and pipelines:

   Approximately 27.

3. Total miles of lateral canals and pipelines:

   Minimal piping is associated with pump stations, siphons, etc.

4. Description of canal construction:

   a. Miles of unlined canals – *Approximately 27*

   b. Miles of lined canals – *Some sections of the 27-mile canal system lined with riprap or concrete slope paving (small portion).*

   c. Miles of enclosed pipelines - *Minimal piping associated with pump stations, siphons, etc.*

   d. Other – *A number of siphons, culverts, etc. crossing roads, ditches, railroads, etc.*

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

   The oldest portions of the Highlands canal system were constructed in the 1940s with various expansions, modifications, and improvements made in subsequent years since. SJRA develops an annual 10-year project plan to identify repairs and improvements needed to maintain the system and continues to perform projects as needed.

6. Reservoir capacity, if applicable:

   Approximately 3,800 Acre-feet

7. Description of pumps and pumping stations:

   The Lake Houston Pump Station pumps water from Lake Houston into the northernmost end of the Highlands Canal system (SJRA Main Canal). The pump station consists of 4 pumps with a total capacity of approximately 130 MGD and firm capacity of approximately 95 MGD.

   The East Canal Transfer Pump Station pumps water from Coastal Water Authority's Main Canal into SJRA's East Canal. The pump station consists of 2 pumps with a total capacity of approximately 17 MGD and firm capacity of approximately 8.5 MGD.

   The South Canal Transfer Pump Station pumps water from Coastal Water Authority's Main Canal into SJRA's South Canal. The pump station consists of 2 pumps (with one empty pump bay) with a total capacity of approximately 43 MGD and firm capacity of approximately 22 MGD. SJRA is currently in the process of planning for design and construction of a new South Canal Transfer Pump Station.

8. Description of meters and/or measuring devices:

   The Lake Houston Pump Station and East Canal Transfer Pump Station use differential metering devices. The South Canal Transfer Pump Station uses propeller style meters. SJRA also has SCADA measuring devices in place at key locations along the canal system. Highlands area irrigation customer has a meter that is read by SJRA staff monthly. Additionally, SJRA has two minor wastewater reuse customers in the vicinity of The Woodlands, Texas who utilize water rights assigned to SJRA's Highlands service area (5809A). One of these customers meters and self-reports its usage via SJRA's customer portal. The other reuse customer is assumed to utilize its full contracted amount for

reporting purposes, however SJRA is working to coordinate with that customer to develop a more precise metering process.

9. Description of customer gates and measuring devices:

   See item 8 above.

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

    SJRA maintains a number of gate structures along the canal system.

B. Management Practices

1. Total water available to district (in acre-feet/year): 167,144 Acre-feet available in Highlands service area for irrigation/agricultural use (and other uses) per water rights.

   a. Maximum water rights allocation to district: 167,144 Acre-feet for irrigation/agricultural use (and other uses) in Highlands service area.

   b. Water right number(s): COA 10-4964, Permit 5809A, Permit 13183, COA 08-4279A, Permit 5271C

   c. Other water contracted to be delivered by district: SJRA has a total of 221,244 Acre-feet of water rights that can be utilized in the Highlands Service Area. This includes the permits listed above, as well as 5807 and 5808 which are not authorized for irrigation/agricultural uses.

2. Average annual water diverted by district (in acre-feet/year): 84,501

3. Average annual water delivered to customers (in acre-feet/year): 84,662

4. Delivery efficiency (percentage): 100% (Delivered more than diverted due to rainfall capture, etc.)

5. Historical diversion and deliveries for the previous three years (in acre-feet/year):

Year	*Total Water Diverted Annually*	*Irrigation Water Delivered Annually*	*Municipal Water Delivered Annually*	*Total Water Delivered Annually*	*Estimated Delivery Efficiency (%)*
2023	87,289	529	2,128	89,436	100
2022	86,252	509	2,013	83,164	96
2021	79,961	269	1,665	81,386	100
Average	84,501	436	1,935	84,662	100

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 Highlands raw water contracts require customers to develop a water conservation plan at least as stringent as the Highlands 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 Highlands 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 .01 ac-ft/acre per year (approximately 3,000 gallons per acre).

   or water use efficiency %

   Water loss

   10-year goal:

   Water savings in acre-feet .02 ac-ft/acre per year (approximately 7,000 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:

    See item 8 in section A above. Customers are required to maintain and read their own meters. Meter readings are provided by customers and/or obtained by SJRA when necessary, and SJRA keeps records of all water usage. Diversions from Lake Houston water rights are governed by the Lake Houston Accounting Plan approved by TCEQ.

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

    See item 10 above.

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

    SJRA performs routine inspections for leaks along the canal system and at structures to minimize conveyance losses. See section 3.2.2 of the Highlands Division Water Conservation Plan.

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

    See section 3.2.6 of the Highlands Division Water Conservation Plan.

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

    See Highlands Division Water Conservation Plan.

C. User profile

1. Total number of acres or square miles in service area: Approximately 201 Square miles

2. Average number of acres irrigated annually: Approximately 1,000 (This includes a turf farmer in the Highlands Area and a reuse customer in The Woodlands, Texas area. It does not include a second reuse customer in The Woodlands area who uses SJRA water to maintain level in a water body used for irrigation.)

3. Projected number of acres to be irrigated in 10 years: minimal (there has been a reduction in turf farms in the Highlands area over time)

4. Number of active customers taking delivery of water by the system: 3 in 2023 (2 reuse), currently 3 under contract in 2024 but Highlands irrigation customer is not currently taking.

5. Total irrigation water delivered annually (in acre-feet): 529

6. Types of crops grown by customers:

   Turf/grass

7. Types of irrigation systems used by customers:

   Landscape and turf farm 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:

    Newport MUD – 2,072 Acre-feet

    Crosby MUD – 1,120 Acre-feet

    Harris County MUD 50 – Currently only reserving water for future use.

    Lago Bello MUD 1A – Currently only reserving water for future use.

11. List of industrial and other large customers and number of acre-feet allocated annually:

96,461 Acre-feet total for 5 industrial customers (Not including amounts reserved for future use). As some of SJRA's industrial contracts are confidential, we have not broken out the demand by individual customers. SJRA has submitted our industrial contracts to TCEQ previously. SJRA also provides small amounts of water to short-term industrial customers from time to time.

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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SJRA
SAN JACINTO RIVER AUTHORITY

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,

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

Highlands 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. 4279-A, 4964, 5271-C, 5807, 5808, 5809-A, 13183

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

X Municipal Water Use by Public Water Supplier — SJRA provides water to municipal providers.

X Wholesale Public Water Supplier

X Industrial Use

X Mining Use

_____ Agriculture Non-Irrigation

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

X 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 X 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 Highlands Division does not have direct control over the demands that it serves. The Division is not involved in the day-to-day operations of its customers. 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. One of the water rights associated with the Highlands Division is based on reuse of wastewater discharge. In 2023, this resulted in approximately 2,776 acre-feet of indirect reuse being utilized to meet SJRA customer demands. 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 x_____

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.

See response to item 6 above. As of 2023, the 2024 targets set in the Division's 2019 WCP have not been met. SJRA will coordinate with its municipal use customers on the Highlands Division system with respect to conservation practices and resulting gpcd targets.

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 X No

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

Section 3.1 of the updated Highlands Division WCP ("Highlands 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 Highlands 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 Rd, Conroe, Texas 77304
Contact Phone Number: 936-588-7177 Contact Email Address: mbarrett@sjra.net

Signature: Matt Barrett 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.