



Ensuring reliable, long-term water supplies for Montgomery County



Frequently Asked Questions

FACT Prior to September 2015 Montgomery County was totally reliant on groundwater for its municipal supplies

Q. What is Groundwater?

A. It is the water located underground that fills the voids, cracks, and other openings in the various layers of rocks, sand, and soil. It is found in formations that are able to retain it and is constantly replenished by rain or snow. In most cases, groundwater is naturally filtered by the layers of sand it percolates through as it moves through the aquifer underground.

Q. What is an aquifer?

A. An underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt, or clay) from which groundwater can be pumped using a well.

Q. Prior to September 2015, did all of the water used in Montgomery County come from underground sources?

A. Yes. All of the water used for public water supply in Montgomery County originates as groundwater from the Gulf Coast Aquifer, which consists of three productive sands underlying the county: the Chicot, the Evangeline, and the Jasper. At this time, the only entities using surface water from Lake Conroe are a few irrigation users around the lake (such as golf courses and homeowners' associations) and the Entergy power plant located in Willis.

Q. What is meant by recharging an aquifer?

A. Aquifers are underground reservoirs of water. Precipitation, both rain and snow, flows into creeks, rivers, lakes, oceans and other recharge areas where a small amount eventually percolates into underground aquifers. Water percolating into recharge areas over the aquifer refills it. Natural refilling of an aquifer is typically a slow process, because water moves slowly through the unsaturated zone before reaching the aquifer.

Q. What is the long-term sustainable recharge of the aquifer in Montgomery County?

A. The Lone Star Groundwater Conservation District has determined that the annual recharge is about 64,000 acre-feet per year (an acre-foot of water is 325,851 gallons – or enough water to cover one acre to the depth of one foot).



Visit www.sjra.net/grp for more information on SJRA's Groundwater Reduction Plan (GRP)



Frequently Asked Questions

Q. Does Montgomery County have a problem with its long-term water supply?

A. Yes. Our rapidly growing population and industrial growth has created an overwhelming demand that cannot be met by our current groundwater supplies. In 2009, the demand in the county exceeded the sustainable recharge rate by approximately 30 percent. By 2040, the total annual water demand is expected to be two-and-a-half-times the sustainable recharge rate. Water suppliers in Montgomery County began seeing significant declines in the water levels in their wells beginning in the mid-1980s. Continued water level declines cause increased operations and maintenance costs and can lead to the failure of a well, which can cost over a million dollars to replace.

Q. Where will the new water come from?

A. Civic leaders in the 1950's realized that our supplies of groundwater wouldn't last forever, so they built Lake Conroe as a future water supply for this region. Prior to September 2015, the only surface water being used from Lake Conroe was for a few small irrigation customers and the Entergy power plant in Willis. The primary source of water for the GRP program is surface water from Lake Conroe, however, SJRA is also working to maximize other water supplies that can reduce both our costs and our use of surface water. These alternative sources include water conservation, reuse of treated wastewater effluent, and groundwater from the Catahoula Aquifer.



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Q. How will the level of Lake Conroe be impacted by the GRP program?

A. A number of people have made wild speculations about potential impacts the GRP program might have on the level of Lake Conroe and, as a result, property values, business income, and tax revenues. SJRA commissioned a detailed third-party study that modeled the potential impact of the program on water levels. The results of the study were released in December of 2009 and subsequently peer reviewed by a number of entities. The study confirmed what SJRA has stated all along: The amount of water that will be used to meet Montgomery County's drinking water needs will have very little impact on lake levels for the first 20 to 30 years, and even after that, the only time you will see significant impacts will be during periods of prolonged, severe droughts. A detailed summary of this study along with the graphs that were developed are available in the resources section of the site.

Q. Are declining groundwater supplies a new problem?

A. Due to over-production, declining groundwater supplies have been a problem in the Gulf Coast region surrounding Houston since before the 1950s. In Montgomery County, water suppliers began seeing water level declines in the 1980s. At first, the declines were seen mostly along the I-45 corridor, which had the greatest population density, but today water-level declines can be seen over large portions of Montgomery County. Water suppliers in Harris, Galveston, and Fort Bend counties had to begin reducing their groundwater use and converting to surface water beginning in the late-1970's.





Frequently Asked Questions

Q. If this problem has been going on for so long, why are we just hearing about it now?

A. A tremendous amount of research and planning has already been conducted in Montgomery County on this issue, and the Lone Star Groundwater Conservation District (LSGCD), SJRA, and others have written many articles and hosted many public meetings, but now that cities and other water suppliers are beginning to implement solutions, the costs are just starting to be felt by customers, and therefore public interest is increasing.

Q. Would we run out of water if nothing changed?

A. The short answer is yes. If we do not find a way to reduce consumption of groundwater from the Gulf Coast Aquifer, the water supply will be depleted. The wells will eventually run dry.

FACT The LSGCD was created to study the aquifers and force a solution by regulating groundwater use.

Q. What is the LSGCD?

A. When the county's groundwater problem first began to become apparent, community leaders and elected officials petitioned the Texas Legislature to create a groundwater conservation district. The result was the creation in 2001 of the LSGCD, a local government entity governed by a nine-member appointed board of directors.

The purpose of the LSGCD is to study and manage the groundwater resources in Montgomery County. Studies conducted by the LSGCD confirmed the reports of many water suppliers that water levels were declining at an alarming rate. Results of computer modeling of future groundwater supplies showed that absent a major reduction in groundwater use, water-level declines would continue and eventually spread to other parts of Montgomery County where water levels had not historically been a concern. For additional information about the LSGCD, visit www.lonestargcd.org.



Q. What does the LSGCD regulate?

A. The LSGCD regulates the use of groundwater and encourages the conjunctive use of surface water along with groundwater supplies. The LSGCD has adopted regulations that require water suppliers and certain other groundwater users in the county to reduce their groundwater pumpage starting in 2016.

Q. What regulations has the LSGCD adopted?

A. Beginning in 2006, the LSGCD has adopted a multi-phased District Regulatory Plan that establishes the limits on how much groundwater can be pumped and the deadlines for when reductions must take place. The LSGCD's regulations only apply to large volume groundwater users (LVGUs), which are defined as groundwater users that produce 10 million gallons or more of groundwater annually. Well owners using groundwater solely for an individual single-family residence or for agricultural use are not included in the definition of a LVGU. There are approximately 200 LVGUs in Montgomery County, including everything from large municipal systems to smaller public and private utilities, individual industries, businesses, golf courses and homeowners' associations.



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Frequently Asked Questions

Q. What do these regulations translate into for Montgomery County?

A. In January 2016 the LSGCD established a regulatory target to reduce groundwater withdrawals in Montgomery County to 64,000 acre-feet per year. At the time, the current amount of groundwater used in the county was approximately 80,000 acre-feet per year. This means that water providers countywide had to come up with alternative water supplies to replace approximately one-third of their use. Groundwater is a relatively inexpensive supply, and therefore, these regulations meant the water costs will most likely increase.

FACT SJRA offered a solution to the groundwater crisis that was cost-effective and available to all.

Q. What is the GRP?

A. The Groundwater Reduction Plan (GRP) is SJRA's solution to Montgomery County's groundwater supply. The GRP is the foundational document that lays out all of the action items that SJRA must complete in order to meet the LSGCD's requirement to reduce groundwater pumpage. It contains population and water demand data for all participating customers, descriptions of all plants and pipelines built, explanations of how the plan was financed, and evidence of reliable sources of water. In order to implement the most cost-effective solution for decreasing groundwater withdrawals, the GRP takes advantage of regional cooperation and economies of scale. Participation in SJRA's GRP was offered as a solution to all large water suppliers in the county, and over 130 different water utilities joined the plan, representing 80 percent of the water use in Montgomery County. Eighty percent of LVGUs in the county have joined the GRP. What does this mean?

The LSGCD regulations only apply to those groundwater users who pump 10 million or more gallons per year called LVGU. LVGUs account for more than 90 percent of the total water pumped in Montgomery County. By regulating only the 200 or so LVGUs in the county, the LSGCD can effectively solve the problem. Of the 200 LVGUs in the county, over 130 joined SJRA's GRP. These 130 LVGUs represent over 80 percent of the water used in Montgomery County.

Q. Why do you say the GRP is the most cost-effective solution for the entire county?

A. The key benefit of joining multiple users into a regional GRP is the ability to achieve tremendous cost savings by utilizing a "group compliance" concept in which some customers are "over-converted" to surface water while other customers continue to use only groundwater. As a group, all the participants meet the regulatory requirements of the LSGCD without incurring the cost to physically deliver surface water to every customer. Installing large pipelines is the most expensive part of a regional water system, so it saves a tremendous amount of money for all the participants to only deliver water to a select few. The rest of the participants can remain on groundwater but achieve compliance with the LSGCD mandates via their participation in the GRP.





Frequently Asked Questions

Q. Why is the GRP the most strategic and efficient plan for the county?

A. The benefits of regionalization and “group compliance” have been well proven by groundwater users in Harris, Galveston, and Fort Bend counties who faced similar regulatory restrictions on groundwater use. In simple terms, the use of a “group compliance” approach results in the construction of much less infrastructure; lower overall costs; and the distribution of those costs across a larger group of users. The result is tremendous savings to all end users.

In addition to cost savings, all groundwater users across the county benefit as the reduced pressure on the aquifer creates a ripple effect of stabilized groundwater levels over a large area. Stabilized water levels mean that users who remain on groundwater are able to continue using their wells while avoiding costly rehabilitations or replacements.

Another benefit of a “group compliance” approach is that the participants will continue to share or “regionalize” the costs of infrastructure over time. As new lines are needed in portions of the county further from the original system or opportunities are identified for large scale reuse projects, all the users in the group can offset the costs of the project.

Q. How long will it take to complete the GRP?

A. Phase one of the plan, including construction, was completed in June, 2015. The LSGCD regulations established January 1, 2016, as the date groundwater withdrawals must be reduced.

FACT

As one of 10 major river authorities in the State of Texas, SJRA is uniquely positioned to effectively and efficiently implement a countywide GRP.

Q. Who is the San Jacinto River Authority?

A. Created by the Texas Legislature in 1937 (Article 8280-121, as amended), SJRA is a government agency whose mission is to develop, conserve, and protect the water resources of the San Jacinto River basin. Covering all or part of seven counties, the organization’s jurisdiction includes the entire San Jacinto River watershed, excluding Harris County. Like other river authorities in Texas, its primary purpose is to implement long-term, regional projects related to water supply and wastewater treatment.

Q. How is SJRA financed?

A. SJRA derives most of its revenue from the sale of raw water and a small amount from the provision of services. In fact, the source of revenue for the development and maintenance of Lake Conroe, prior to September 2015, was the sale of raw water to industries along the ship channel. Other services, such as water and wastewater treatment, are done on a revenue-neutral basis. SJRA has no taxing authority.





Frequently Asked Questions

Q. Who governs SJRA?

A. Like other river authorities in Texas, SJRA is governed by a board of directors who are appointed by the Governor. SJRA has seven directors that serve six-year terms and are selected in a manner that ensures all areas of the watershed are represented.

Q. What does SJRA stand to gain by implementing the GRP?

A. As a governmental entity, SJRA does not operate on a profit-oriented basis, and it is not implementing the GRP because of any anticipated benefit. As a steward of the water resources developed for Montgomery County, SJRA feels an obligation to the citizens of the county to make available the most cost-effective alternative possible. Regional "group compliance" approaches have proven to be the least expensive solution in other nearby counties. By offering the GRP for groundwater users in Montgomery County, SJRA believes it can offer the best and cheapest solution to the county's groundwater problem.

Q. How much is implementing the GRP going to cost?

A. When SJRA first began studying the feasibility of a countywide GRP, preliminary cost estimates were developed based on an assumption that approximately 75 percent of the county would eventually participate. The estimated cost for the first phase of the program is approximately \$480 million, which includes the first phase of the treatment plant, transmission and distribution lines, raw water reservation fees, engineering, legal, land acquisition and various other costs. Rough cost estimates were also developed for future phases of the project.

Q. How will the GRP program be paid for?

A. Each of the large water suppliers that chose to join SJRA's GRP pays a pumpage fee based on the amount of water used by their customers. The amount of the fee is calculated to cover the cost of implementing the GRP program, and each supplier passes the cost through to their retail customers.

Q. What can consumers do to conserve water?

A. Studies show that outdoor irrigation generally makes up over 60 percent of typical residential water use during the summer months, so there's a great potential to save water and thereby save money. In some parts of Montgomery County, that number is more than 80 percent in the summer. Up to 50 percent of that water is typically wasted because of broken or ill-designed irrigation systems or unnecessary watering. Overwatering creates excessively thirsty turf with shallow roots that crave extra water. Repair leaks, water the lawn and shrubs at night, and water less.

Q. Has SJRA taken steps in terms of conservation?

A. By reducing the total demand for water within our county through conservation, reuse and drought contingency measures, we can reduce the amount of water that must be treated and lessen the impact on raw water supplies. This, in turn, keeps more water in our rivers and streams to support fish and other wildlife. SJRA is implementing numerous programs to increase conservation, including a conservation education program that is implemented in elementary school classrooms. In addition, SJRA has adopted Water Conservation and Drought Contingency plans, and participants in the GRP are required to also have adopted plans. SJRA also provides educational materials and water conservation brochures and is working with retail water providers on materials that can be inserted in water bills. These steps are just a start. SJRA is committed to aggressively pursuing conservation.





Frequently Asked Questions

FACT

SJRA doesn't intend to rely solely on Lake Conroe as the only solution. We are aggressively pursuing other water supply strategies to reduce costs and lessen any impacts on lake level.

Q. Is SJRA investigating alternative water resources in addition to Lake Conroe?

A. Ensuring a safe, reliable water supply for the end user is the GRP's first priority, and the GRP is considering all possible alternatives as a long-term water source. Enhanced water conservation and reuse of treated wastewater effluent are being actively developed as alternative supplies. In addition, groundwater from deeper, "brackish" aquifers is being investigated as a potential source, but until disposal options, long-term reliability, and the chemistry/salinity of these sources can be more fully investigated, "brackish" groundwater use will be used as a supplement to the GRP's primary source, which is water from Lake Conroe. Alternative water supplies can often be a win-win because they have the potential to both lower costs and reduce our use of surface water from Lake Conroe.

Q. What is the Catahoula Aquifer? Is SJRA planning to use water from this aquifer? Is it true that it's the "mother lode?"

A. The Catahoula is a deep aquifer that lies beneath the freshwater aquifers currently used for water supply in Montgomery County. At this time, the LSGCD has chosen not to regulate pumpage from the Catahoula, and in fact, it is considered an alternative water supply that meets their conversion requirements. Until recently, there were no water wells in Montgomery County that used water from the Catahoula, so very little information is known about the quality or quantity of water in the Catahoula. Recent research conducted by the LSGCD and several other entities has shown that there are certain locations in Montgomery County (primarily north of SH 105) where the water in the Catahoula aquifer is of drinking water quality. Once you go south of SH 105, the water is considered to be too salty and too hot to be used cost-effectively. This was confirmed by water samples taken from a Catahoula test well in The Woodlands – independent analysis showed a deep layer of water-bearing sand with a water temperature of 115 degrees and salinity levels comparable to ocean water; the analysis also showed a shallower, thin layer with a water temperature of 105 degrees and salinity levels about 2 ½ times the drinking water limit. So the short answer is "no." The Catahoula is not the "mother lode," but SJRA is committed to researching the Catahoula to determine just how much water can be safely and effectively used. SJRA has recently entered into a project with one of its GRP participants to partner on the installation of two wells into the Catahoula. These types of partnerships can create an immediate benefit in terms of groundwater reduction and can also yield valuable data for studying the viability of the Catahoula.

Q. What was built to begin using surface water to supplement Montgomery County's groundwater supplies?

A. To meet the LSGCD's regulatory requirements and supplement our limited groundwater supplies by the deadline of January 2016, SJRA is constructing:

- a surface water treatment plant at the Lake Conroe dam, including raw water intake, storage, and pumping facilities;
- 57 miles of treated water transmission pipelines; and
- piping, metering, and blending facilities at each of the surface water delivery points.





Frequently Asked Questions

Q. When did construction begin and end?

A. Construction of the surface water treatment plant, raw water intake, and associated storage and pumping facilities began in August of 2012. These facilities were complete in mid to late-2015. Construction of the water transmission pipeline began in February of 2013 and was complete in the spring of 2015.

Q. What is SJRA doing to give the public notice of construction impacts?

A. SJRA has put together a Construction Communications Plan (CCP) and assembled a Construction Communications Team (CCT) made up of local stakeholders to implement strategies to minimize construction impacts and keep the public informed about construction schedules, work zones, and possible detours. The CCP contains numerous strategies for disseminating information about construction, including the GRP Division's website, direct mail brochures, signage, public meetings, community association newsletters and websites, press releases, articles in local magazines and newspapers, and many other strategies. SJRA maintains a call center to assist with construction related questions or concerns. Please call (936) 588-1662 for more information.

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