Lower Tule River Irrigation District & Pixley Irrigation District FAQ Sheet

SGMA OVERVIEW

What is the Sustainable Groundwater Management Act?

Sustainable Groundwater Management Act, SGMA, was enacted by the California Legislature in 2014 and went into effect on January 1, 2015. SGMA provides a legal framework to regulate groundwater usage in California. The goal of SGMA is to create groundwater sustainability by 2040.

What is a Groundwater Sustainability Agency?

A Groundwater Sustainability Agency or GSA is a local Agency overlying a groundwater basin or sub-basin. The GSA manages groundwater under the Sustainable Groundwater Management Act (SGMA). Lower Tule River and Pixley Irrigation Districts serve as the GSAs for the lands within their respective Districts.

What is a Groundwater Sustainability Plan?

As required by SGMA, a Groundwater Sustainability Plan, or GSP, is the plan that a GSA uses to define a course of action to achieve sustainability. It also describes the GSA's approach to avoiding the six (6) undesirable results. The GSPs are required by SGMA to be coordinated with the other GSAs in the sub-basin.

What are the six undesirable results?

SGMA defines the six undesirable results as follows:

1. Chronic Lowering of Groundwater levels.
2. Significant and unreasonable reduction in groundwater storage.
3. Significant and unreasonable seawater intrusion.
4. Significant and unreasonable degraded water quality.
5. Significant and unreasonable land subsidence
6. Depletions of interconnected groundwater and surface water.

How many GSA are there in the Tule Subbasin?

There are six (6) GSA in the Tule Subbasin, which are:

1. Pixley Irrigation District GSA
2. Delano-Earlimart Irrigation GSA
3. Alpaugh GSA
4. Lower Tule River Irrigation District GSA
5. Tri-County Water Authority GSA
6. Eastern Tulare GSA JPA

How can a landowner get involved with GSP implementation?

The Lower Tule & Pixley GSAs formed Groundwater Planning Commissions (GPC) to guide and advise the implementation of the GSPs for the GSAs. The GPCs are made up of five appointed landowners from each division by the Board of Directors. Landowners are encouraged to participate in the GPC meetings. Any concerns or questions can be addressed during the meeting.

(Visit www.ltrid.org/calendar/events/ for future GPC meetings)

Do the six GSAs in the basin impact each other equally?

Activity in one GSA can impact other GSAs. For example, land subsidence along the Friant Kern Canal has an effect downstream of the subsidence. Therefore, neighboring Friant Contractors cannot take full water delivery due to the canal subsidence.

How is the coordination of Groundwater Sustainability Plans (GSP) coming?

Section 7 – The Coordination Agreement was developed by the GSA managers, who meet quarterly, to ensure the coordination of GSPs. The GSPs were submitted to DWR in January 2020. In 2022 DWR asked for revisions to the coordination agreement and the GSPs. Those revisions were done, and the plans were resubmitted to DWR in July 2022.

What happens if GSPs in the Tule Sub-basin are not coordinated or not approved?

SGMA requires that GSPs must be coordinated before submission. If GSPs are not coordinated, DWR can determine that the sub-basin is in probationary status. DWR then turns over enforcement to the State Water Resources Control Board. The State Board can then take control of the sub-basin, including surface water supplies. The Tule Sub-basin GSAs are working to ensure that this does not happen.

Will our GSP be reviewed for calibration annually?

SGMA requires that each GSA submit yearly progress reports. DWR also requires that a comprehensive report and calibration of the plan be done every five years.

What is the strategy of the GSA when it comes to fallowing land?

Land fallowing or land retirement is a project identified in the GSP. Landowners can enroll in the land fallowing/retirement program at www.ltrid.org/sgma under Forms or email the District at customerservice@ltrid.org for assistance.

What is the total overdraft for the Tule-Sub-basin?

Based on GSP data and calculations, the total overdraft for the sub-basin is approximately 257,000 acre-feet over 477,000 gross acres annually.

The GSA is also required to provide an annual report. *Reports are at www.ltrid.org/sgma, Lower Tule River Irrigation or Pixley Irrigation District Annual Report.*

Can a third-party challenge and sue someone for causing an undesirable result?

Yes, any party can challenge others that cause undesirable results. However, the best approach would be for GSAs to work collaboratively and solve any issues caused by undesirable results or to avoid undesirable results.

Who chooses well-monitoring locations?

The Tule sub-basin technical management group consists of GSA Managers, licensed hydrogeologists, and Professional Engineers working to create a network of monitoring wells. The Tule Subbasin Technical Team is also tasked to apply for qualifying state and federal grants for such projects. These monitoring networks are utilized in the groundwater model.

Are there any requirements for domestic well users?

SGMA requires domestic well users, de minimis extractors, to report extraction and comply with the plan only if pumping more than 2AF per year.

GROUNDWATER MEASUREMENT/METERING VIA Land IQ

What is ET?

Evapotranspiration or ET is when the water leaves the ground and plants through evaporation (ground) and transpiration (plant). ET is a measurement and process in which water moves from the soil and plant to the atmosphere.

How can Land IQ differentiate the usage by crops?

Land IQ differentiates crop usage by a process called thematic mapping. Data and proprietary internal calibration are performed by Land IQ. This process involves thermal imagery, and grass calibration is performed periodically to determine crop consumption. Land IQ also uses actual crop survey data to compare and calibrate results.

How does LandSAT or Land IQ calculate groundwater consumption?

Land IQ calculates the crop demand (Evapotranspiration, ETc) using NASA JPLs satellite images and local weather data.

Step 1: Total Crop Demand (Evapotranspiration or ET) is calculated by Land IQ.

Step 2: Total Applied Surface water delivered is accounted for by the District by measuring surface water through district turnouts. This amount is subtracted from the ETc.

Step 3: Any remaining unmet demand is accounted for as net groundwater pumping.

Formula: Crop ETc - Total Applied Surface Water=Total Net Groundwater Pumping.

Examples:

1. If the surface water applied is less than the ET, the formula results in a groundwater deficit. Any groundwater deficit is assumed to be pumped to meet the crop demand.
    i. The following calculation reduces the landowner's groundwater account.
    Example:
    Crop Consumed (ETc)= 4 AF
    Surface Water Delivered =3 AF
    Groundwater Pumping=2 AF

Water Reduction in Landowners' Accounts is as follows:
4AF crop consumed - 3AF surface water deliveries = 1AF groundwater consumed

Even though 2-acre feet were pumped as groundwater, the landowner's account will only have 1 AF feet of groundwater shown as consumption. The other 1AF is a return flow to the groundwater table and will not count against the account.

2. If the surface water applied exceeds the crop consumption, the landowner will receive a Landowner Developed Credit (LDC) based on the current GSP.
    i. Over-application of surface water for irrigation purposes or recharge results in the following:
        1. 90% credit for the over-application of surface water goes into the landowner's groundwater account.

Example:

Crop Requirement= 2 AF
Surface Water Delivered =3 AF

Water credit in Landowner's Account is as follows:

2AF crop consumption - 3AF surface water deliveries = 1AF overapplication of surface water

The remaining 1AF of overapplied surface water will create a 0.9 AF credit to the landowner's account.

How accurate is the ETc technology?

The Lower Tule River and Pixley Irrigation Districts started a pilot program to verify ETc with water meter readings. The pilot program began in 2015. The ETc results have been compared to the meter readings and are within the margin of error for the meters appropriately installed, calibrated, and tested annually.

How can we make ETc more accurate?

The District hired Land IQ to provide the ETc data. Land IQ utilizes LandSAT to gather data every eight days. Land IQ also installed weather stations and remote sensing devices around Tule Subbasin and neighboring Basins. Land IQ ETc data is calibrated to the cropping data, weather stations, and remote sensing devices. This calibration provides for a more accurate ET.

Is Land IQ more expensive than a meter?

Land IQ technology is much cheaper and more affordable compared to metering and monitoring all wells. Installing, calibrating, and reading meters monthly takes more resources and staffing. Also, meters can be installed improperly and cause deviations and errors. Land

IQ costs less than a dollar ($1.00) per acre annually. It's also much less intrusive with the measurement being done remotely.

Can the Land IQ model tell when the plant is stressed?

Yes, Land IQ will determine crop consumption (ETc). A stressed plant will consume less water than a plant that is not.

Does Land IQ differentiate between irrigation systems? (i.e., drip compared to flood irrigation)

Land IQ calculates crop demand. This eliminates the need to gather data on the irrigation system and soil types. This also eliminates the need to calculate the efficiencies of that system to estimate how much water returns to the underground. In addition, Land IQ simplifies the process by removing assumptions and variable calculations.

When will ETc data be available?

ETc data from 2019 to current is available on individual landowner accounts. Landowners can log in to: https://watermanagement.ltrid.org/Account/Login to view their ET data. In addition, historical ET from 1990 through 2018 by parcel can be requested by submitting a request to customerservice@ltrid.org.

Will there be a way to reconcile ETc data with metering?

If a landowner believes there is a discrepancy in the data, the landowner and GSA will work together to reconcile and verify the data.

How are dairy facilities accounted for groundwater use?

The groundwater is pumped and used in the dairy facility, sometimes recycled and reused several times before ending up in the dairy's ponds. The water from the ponds then gets applied to a crop grown in the field. At that point, the groundwater consumption will be deducted from the landowner's account based on the formula for crop consumption (Crop ETc – surface water application = Net Groundwater consumed).

As data is collected over time, the process may change to improve accuracy.

Does this mean there is no measuring at the wellhead?

The GSAs have no current plans for measuring at the wellhead. However, the GSAs encourage landowners to record meter readings to compare with the ETc data. The meters must be calibrated, installed at specs, and checked periodically to ensure accurate readings.

How often is the ET data taken?

Various satellites take thermal imagery. The images are taken every eight days.

GROUNDWATER ACCOUNTING/ALLOCATION OVERVIEW

What are the different water allocations available to the landowners?

Landowners are entitled to the following types of groundwater allocations;

1. Precipitation Yield
2. Sustainable Yield

3. District Allocated Groundwater Credits
4. Landowner Developed Credits (varies per landowner)

For more information, please reference the Districts Rules and Operation Policies under SGMA (www.ltrid.org/sgma) under the water accounting section or the quick reference guide under the allocation table.

How is the water allocated?

The water is allocated per acre basis on the total assessed acreage of the district.

What are groundwater credits?

Groundwater credits are allocations that are deposited in landowner accounts. These allocations are reduced as crops consume water.

For more information, please reference the quick reference guide (www.ltrid.org/sgma), water measurement & metering section.

Can a landowner use the dry river bed for recharge?

No, the district does not allow for a landowner to use the dry river bed for recharge.

How long can a credit carry over?

Unused groundwater credits are available to landowners perpetually. Only Transitional groundwater credits have an expiration.

Please reference the transitional water credit section policies at www.ltrid.org/sgma under the quick reference guide.

Can a farmer use more credits in one year than allocated?

Growers can access one year of Precipitation Yield, Sustainable Yield; District allocated Groundwater Credits, and any recharge water or Landowner Developed Credits. Landowners can also use future Transitional Allocation within the five-year allocation block period.

Please reference www.ltrid.org/sgma under the quick reference guide, Priority of Water Use and Policies for Transitional Water Credits.

What is a safe yield?

Safe yield is the amount of naturally occurring groundwater recharge in the mountain and natural waterways.

Will the sustainable yield volume change or be updated?

The GSA evaluates the sustainable yield volume, and SGMA requires GSA to recalibrate the Groundwater Model every five years. Therefore, adjustments to sustainable yield volume will be made as necessary.

How does recharge work in the District? Can a private landowner operate their recharge facility?

Regular Operation: Any landowner within the District will be allowed to purchase water to recharge in their recharge basin for a groundwater credit of 90% of the water recharged.

Landowners can also purchase water and recharge it in a District-owned facility for a 75% groundwater credit when the District has available capacity in District-owned facilities.

***Flood Release**:* During Flood releases, the District will utilize its total capacity first, then any available water can be purchased by landowners to recharge. District recharge will be allocated annually to the total assessed acres in the District.

Please reference www.ltrid.org/sgma under GSA Quick Reference Guide, under District Surface Water Recharge Credits. Also, reference GSA Rules and Operating Policies under Surface Water Recharge Groundwater Credits.

Can you recharge Riparian water?

No, landowners cannot recharge riparian water. Riparian water is only for "beneficial use," as defined by California Riparian law.

How is water moving underground accounted for after it was banked or recharged?

10% of the recharge water is left behind for underground water movement and evaporation. This will be monitored over time and may have to be adjusted if it causes undesirable results.

Who will determine the credits?

The Tule Subbasin Hydrogeologist calculates the sustainable groundwater amount. The District also tracks the amount of recharge and canal losses. The Board of Directors of the GSA allocates the groundwater credits based on historical averages.

Are there credits for flood irrigation?

Over-application of the surface through flood irrigation or other irrigation methods will count as a recharge credit to a landowner's account. The District measures the amount of surface water delivered through the turnout. The ET consumed by the crop is measured by Land IQ. Any remaining surface water above the ETc, 90%, counts as a recharge credit.

If you are overwatering with a well, are you penalized for the use?

No, each crop requires a different water amount. Therefore, any unused groundwater will return to the water table. However, any consumption above the Precipitation Yield, Sustainable Yield, and District allocated groundwater credits will result in Transitional Consumption (continued overdraft).

What happens if the results show we need to become more sustainable?

The GSAs will analyze the data annually and determine if plans and objectives are met. The groundwater allocations can be adjusted as needed. The Board of Directors can allocate more or less if deemed necessary.

Is there any penalty for farmers who overdevelop the land?

The GSA will not penalize a farmer with overdeveloped land, but the GSA will issue penalties for the overuse of groundwater credits.

How does the accounting work for water use under wastewater agreements?

Any crop demand not met by surface water deliveries will be accounted for as groundwater use. Water transferred by wastewater agreements and consumed by crops will count against the transferee's account.

What will the District do with the water that the District recharges?

As long as the GSA meets the plan's sustainability requirements, the groundwater credits developed by District recharge activities will be allocated to all the growers in the district based on assessed acres.

How is seepage in the canal accounted for?

The seepage in the District canals will be accounted for as a recharge, creating more groundwater credits in the District's account, which may then be allocated based on assessed acres.

Can you put solar (or other use) on the property and still get/use groundwater credits?

Yes, that would be fallowing the land and using the ground for different purposes. However, the land will continue to receive future groundwater credits as long as the land is assessed.

Water Allocation Transfers

Will landowners be able to transfer groundwater credits?

Landowners may transfer groundwater credits through either a direct sale or lease. The process for transferring groundwater credits is as follows:

1. Groundwater credits will be tracked at a land-based level. Therefore, transfers on any credits require written approval from the landowner.
2. A landowner can only transfer groundwater credits with a positive balance in their groundwater account.
3. Groundwater Credit Transfer is a 1:1 transfer.
4. All Groundwater Credit Transfers require formal notification and approval of the GSA. The sale or lease terms of the groundwater credits are between landowners and not subject to disclosure.
5. A $100 administration fee is imposed on transfers outside the GSA.

Does the GSA allow the transfer of groundwater credits from another GSA?

The GSA allows groundwater credit transfer from other GSAs. However, there is a 10,000 AF total limit for transfers in and Out of the GSA.

Can landowners develop credits within the LTRID for transfers to white lands outside the District?

Groundwater Credits can be transferred outside the GSA and within the Tule Subbasin.

Please reference www.ltrid.org/sgma, GSA Quick Reference Guide, and Groundwater budget for types of water than can be transferred. Reference GSA Rules and Operating policies, under the Water Accounting and Water Transfers section.

Can a Landowner transfer groundwater credit to a different entity?

Yes, the landowner can transfer groundwater credit to a different entity. However, there are limitations to the type of water that can be transferred.

Please reference www.ltrid.org/sgma, GSA Quick Reference Guide, and Groundwater budget for types of water than can be transferred.

What allocation types can be transferred?

The allocations that can be transferred are;

(1) Sustainable yield,

(2) District Groundwater Allocation and

(3) Landowner Developed Credits.

How much can be transferred?

Landowners can transfer groundwater credits that are available in the account. However, transfer of future allocation is not allowed. Only landowners with positive groundwater credits are permitted to transfer water credits.

TRANSITIONAL WATER

What is Transitional Water?

Transitional water is continued and controlled overdraft allowing landowners to transition into sustainability by 2040.

What is the current schedule for the transitional groundwater credits?

The proposed transitional pumping is as follows;

- Year 2020-2024 – 2 acre-feet per acre/year
- Year 2025-2029 – 1.5 acre-feet per acre/year
- Year 2030-2034 – 1.0 acre-feet per acre/year
- Year 2035-2029 – 0.5 acre-feet per acre/year
- Year 2040 and beyond – 0

Is transitional water use subject to the coordination agreement with other GSA in the sub-basin?

Transitional water use is considered a project under the GSP and was run in the Tule Subbasin groundwater model Thomas Harder & Company developed to determine the impacts.

What are the different tiers of Transitional groundwater credits?

There are two tiers of transitional groundwater credits, the first 50 percent of the total transitional available per block is Tier 1, and the second 50 percent of the total transitional available per block is Tier 2.

Can a landowner transfer transitional groundwater credits?

No, a landowner cannot transfer transitional groundwater credits.

Is there a charge for transitional groundwater use?

Transitional water use is a continued overdraft of the groundwater aquifer. Therefore, fees will be collected for transitional water use to offset the impacts of the continued overdraft.

What are the fees collected from Transitional water use used for?

Fees collected from Transitional water use will be used for further development of the Plan and to mitigate the impacts of continued overdraft. For example, the District is developing projects to increase supply and reduce demand for groundwater. The money will also be used to create projects like new water supplies, new recharge, distribution system facilities, land fallowing incentives, etc.

Do all the GSAs have to follow the same plan/schedule regarding transitional pumping?

No, the GSA plans could look different. However, each plan must be coordinated to avoid undesirable results.

LAND SUBSIDENCE

What is land subsidence?

Land subsidence is the lowering of ground elevation due to the overdraft pumping of groundwater. Land Subsidence occurs when large amounts of groundwater are withdrawn from aquifers for an extended period. The ground then compresses as water is depleted in that soil formation.

Have studies been showing where the subsidence is in the Tule Subbasin?

Data and studies show the subsidence areas in the Tule Subbasin. The area causing the most direct impacts currently is the subsidence of the Friant Kern canal. The Hydrogeologist retained by the Sub-basin GSAs has presented studies regarding the future subsidence in the Tule Subbasin with the different ramp-down scenarios.

Are there studies to pinpoint the cause of subsidence in the Friant Kern Canal?

. Based on studies, the Tule Subbasin GSAs have isolated two (2) miles on each side of the canal for additional monitoring and management to help determine the cause and mitigate the subsidence to the canal. Based on preliminary data, the subsidence is caused by localized activities.

Should the water level be higher to avoid subsidence?

Technically, subsidence is linked to a decrease in groundwater elevation. Therefore, the subsidence should stop if groundwater elevation is restored and maintained.

Other Discussion Overview

Will the District help facilitate buying and selling recharge credits?

No, the District will not get involved with selling recharge credits. However, the district maintains a list of landowner selling or wanting to buy groundwater credits.

If you have groundwater credits available to sell or looking for the seller's list, please get in touch with the District at nsoto@ltrid.org.

Is there going to be enforcement actions against those who don't comply?

If a landowner uses more than allocated, enforcement actions will be taken. These actions include deducting their future transitional allocations and a penalty per acre-foot for each acre-foot used over the allotted amount.

Is there any reporting requirement from an individual?

No, the GSA does not require any reporting from an individual.

What kind of reporting will landowners need to provide regarding planting and harvesting?

The District does not need any information for the GSA.

Is it realistic to think that a landowner could partner with the District to go out and purchase water for the landowner?

The District's number one goal is to develop and import surface water from districts with surplus water which will be imported to the District for the benefit of all landowners. Therefore, the District does not plan to serve as a water broker for individual landowners.