

Lower Tule River Irrigation District FAQ Sheet



SGMA OVERVIEW

What is Sustainable Groundwater Management Act?

Also referred to as SGMA, which was enacted by the California Legislature in 2014 and went to effect January 1, 2015. SGMA provides a legal framework to regulate groundwater usage in California and provides a direct to create 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 is responsible for managing groundwater in accordance with the Sustainable Groundwater Management Act (SGMA). Lower Tule River Irrigation District and Pixley Irrigation District serve as the GSA for the lands within the 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 and describe the approach the GSA will take to avoid the six (6) undesirable results. The GSPs are required by SGMA to be coordinated with the other GSA's in the basin before being submitted to the California Department of Water Resources. The deadline for submitting a GSP is January 30, 2020.

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's are there in the Tule Subbasin?

There are seven (7) GSA in the Tule Subbasin which are:

- | | |
|---|-----------------|
| 1. Pixley Irrigation District GSA | (69,803 acres) |
| 2. Delano-Earlimart Irrigation GSA | (64,134 acres) |
| 3. Alpaugh GSA | (14,437 acres) |
| 4. Lower Tule River Irrigation District GSA | (104,525 acres) |
| 5. Tri-County Water Authority GSA | (61,575 acres) |
| 6. Eastern Tulare GSA JPA | (161,151 acres) |
| 7. Tulare County GSA: | (2,408 ares) |

How can a landowner get involve with GSP drafting?

The Lower Tule & Pixley GSAs formed a Groundwater Planning Commission (GPC) to guide and advise the implementation of SGMA for the Districts. The GPC is made up of five appointed landowners from each District. Landowners are encouraged to participate in the GPC meetings. Any concerns or question can be addressed during those time.

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

Do the GSA's in the basin impact each other equally?

No. While each GSA has their own localized impact, these localized impacts can have an effect on other GSA's. Land subsidence along the Friant Canal, for example, has an impact downstream of the subsidence. Neighboring Friant Contractors cannot make their full water delivery because of subsidence.

How is the coordination of plans coming?

The GSA managers have been meeting monthly to discuss and coordinate the plans. Each GSA is developing their plan to meet SGMA and DWR regulations. Most of the GSA's in the sub-basin are working on similar timelines.

What happens if all the GSA's in the Tule Sub-basin are not coordinated?

SGMA requires the plans must be coordinated prior to submission. If they are not, DWR can determine the sub-basin is in probationary status and turn over enforcement to the State Water Resources Control Board. The State Board can then come in and take control of the sub-basin, including surface water supplies. The Tule Sub-basin GSA's are working to ensure that does not happen.

If most of the GSA's start implementation in 2020 and others are not, how can we know the impacts are going to be?

It is in our best interest to coordinate our plan with the other GSA's. SGMA requires each plan be implemented in 2020 and each plan must not have any negative impacts or cause the six undesirable results to the neighboring GSA's or basin.

Will our GSP be reviewed for calibration annually?

The GSA will review the GSP annually and recalibrate the water budget as needed. SGMA also requires that each GSA to submit yearly progress reports. DWR also requires that every five years a comprehensive report and calibration of the plan be done, and adjustments made as needed.

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

Land fallowing/retirement will be a project identified in the plan. This will include landowners voluntarily fallowing land as well as the GSA putting land fallowing/retirement programs in place for voluntary participation by landowners.

Does having a city in the GSA make it easier or harder to get new water supply?

There is not much difference. However, getting state grant money, especially through DWR is easier when you partner with a Disadvantaged or Severely Disadvantage Community.

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

Yes, though the best approach would be GSA to GSA working collaboratively to solve those issues first.

Who chooses well monitoring locations?

The Tule sub-basin management group is working with a team of hydrogeologists who will determine the monitoring locations sub-basin wide to fill in the data gaps in the hydrological model.

Are there any requirements for domestic well users?

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

GROUNDWATER MEASUREMENT/METERING VIA CALPOLY LANDSAT-METRIC PROGRAM

What is ET?

Evapotranspiration or ET is a process in which water leaves the ground and plant 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 the LandSAT differentiate the usage by crops?

The LandSAT differentiates crop usage by a process called thematic mapper data along with the internal calibration proprietary to the CalPoly ITRC. This process involves thermal imagery, grass calibration performed periodically which determines the crop consumption.

How does LandSAT or CalPoly ITRC-METRIC calculate groundwater consumption.

LandSAT calculates the amount of crop demand (Evapotranspiration, or ETc) by using NASA satellite images and local weather data.

Step 1: Total Crop Demand (Evapotranspiration or ET) is calculated by Cal Poly ITRC METRIC program.

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 Consumption.

Examples:

1. If surface water applied is less than the ET, the formula results in groundwater used by the Landowner to meet the crop demand. This may not be the entire amount of groundwater pumped, any additional amount pumped is over application and returns to the ground.
 - i. The groundwater deficit calculated using this equation will be tracked and will decrease landowner groundwater account managed by the GSA.

Example:

Crop Requirement= 4 AF

Surface Water Delivered =3 AF

Groundwater Pumping=2 AF

Water Reduction in Landowners Account is as follows:

4AF crop demand - 3AF surface water deliveries = 1AF groundwater consumed

Even though 2-acre feet was pumped as groundwater, the landowner's account will only have 1 AF feet groundwater shown as consumption. The other 1AF was over applied and will not count against credits on the account.

2. If surface water applied is more than the crop demand, the land owner will receive a credit for over application of surface water based on the current draft policy included in the GSP:
 - i. Over application of surface water for irrigation purposes.
 1. 90% credit for 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 demand - 3AF surface water deliveries = 1AF overapplication of surface water

The other 1AF overapplied will create a 0.9 AF credit to the landowner's account.

For more technical information on LandSAT visit: <http://www.itrc.org/projects/metric.htm>

How accurate is the LandSAT technology?

The Lower Tule River Irrigation and Pixley Irrigation Districts performed a pilot test to verify the LandSAT accuracy. Based on the results, LandSat accuracy compares to meter accuracy.

Metering is 2-4% accurate on average when a meter is properly installed, calibrated and tested yearly.

How can we make LandSAT more accurate?

In the upcoming years, NASA plans to launch additional LandSAT satellites into space to take different and more frequent readings. Instead of getting images every 16-days, images will be available every 8-days. Photo interpolation of ETc will be more accurate, thus, groundwater consumption accounting will be more accurate. Weather and Temperature data is extremely important to the accuracy of LandSat data. So, it may be advantageous to install more CIMIS stations, or other weather monitoring stations within the District to improve the accuracy.

Is LandSAT more expensive than a meter?

LandSAT technology is expected to be much cheaper and more affordable compared to metering all wells. It takes more resources and man power to install, calibrate and read meters monthly. Not only that, meters can be installed improperly and cause deviation from the true reading. LandSAT is estimated to cost less than a dollar (\$1.00) per acre annually. It's also much less intrusive with water measurement being done offsite and not with a SGMA meter installed on every individual well.

Can the Cal Poly LandSAT model tell when the plant is stressed?

Yes, the LandSAT will determine the crop consumption (ETc). A stressed plant will not be consuming as much water as a plant that is not stressed.

Does the LandSAT differentiate between irrigation systems? (i.e. drip compared to flood irrigation)

LandSat is calculating crop demand only. This eliminates the need to gather data on each field's irrigation system and soil types and calculate the efficiencies of that system in order to estimate how much water returns to the underground. LandSat simplifies the process by removing assumptions and variable calculations.

When will LandSAT data be available?

The ET data is currently available from 1990 through 2018 by parcel by parcel basis. *(Please email jdomondon@ltrid.org for any ET data request. Parcel/Account number must be submitted along with the request)*

Will there be a way to reconcile Cal Poly data with metering?

Yes, 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?

Use of water by the dairy a net sum balance that goes like this: The groundwater is pumped and used on the dairy facility, sometimes recycled and reused several times before ultimately ending up in the dairy's ponds. The water from the ponds then gets applied to a crop being grown in the field. It is at that point when 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).

So, the Net groundwater consumed may have come from directly pumped water from a well, or water that was pumped from a well, then used on the dairy before eventually being applied to the crop via the ponds.

This is how dairies will be handled initially. As data is monitored and collected over time, the process may change to improve accuracy.

How do we reconcile for properties that straddle basin boundaries?

This will have to be subject to further discussion and collaboration with the adjacent basin.

Does this mean there is no measuring at the wellhead?

No, there will be no measuring at the wellhead, but if a landowner keeps meter records of water being used to reconcile any deviation from the ET readings, the meters must be calibrated, installed to specs and checked periodically to ensure accurate readings.

How often is the ET data taken?

The thermal imagery is currently provided by NASA every 16 days. CalPoly will then provide ET data to the Districts monthly.

Is the data collection going to start in January or will it cover the growing season?

The data gathering has started. Implementation of action and enforcement of the plan will begin February 1st 2020.

GROUNDWATER ACCOUNTING/ALLOCATION OVERVIEW

When will the groundwater accounting available?

The groundwater accounting, which is being created by the 4Creeks Creative, will be available by February 2020. Testing of the program will convene at that time and any updates or suggestion from the users will be taken a few months after.

What are the different water allocations available to the landowners?

There are five (5) different water allocation that a landowner is entitled to. These are;

1. Surface Water Allocation (0.70 acre-feet per acre)
2. Precipitation Yield (0.77 acre-feet per acre)
3. Sustainable Yield (0.09 acre-feet per acre)
4. District Allocated Groundwater Credits (0.83 acre-feet per acre)
5. Landowner Developed Credits (varies per landowners)

Any special allocation such as riparian, poplar and little pioneer is not included in this water budget. Also, Uncontrolled Season, or flood water is not included in the water budget.

What is the total water that a landowner can use?

For 2020, the total water allocation adds up to 2.39 acre-feet per acre, not including any special allocation and flood water.

How is the water allocated?

The water is allocated proportionally to each land owner based on the gross, assessed acreage in the district.

Is the 0.70 acre-feet per acre the Class one Supply?

The 0.70 acre-feet per acre represents an average water year, which is approximately 100 percent class one supply and the average annual Tule River supply of the District.

What is the District groundwater recharge credits?

The District recharge credits of 0.83 acre-feet per acre is the long-term average of water the District recharges, directly in basins and indirectly as canal seepage.

What is a groundwater credit?

Groundwater credits is the water, measured in acre-feet, that a landowner has access to. Each landowner will have a separate groundwater account. There are different types of groundwater credits that will be available including sustainable yield, landowner recharge water, and District recharge water. A groundwater credit can also be earned when a landowner applies more surface water than is needed by the crop.

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?

Once the credit is in a grower's account, they will remain until used.

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

Growers will have access to the sustainable yield amounts in rolling five-year blocks that can be used anytime in the five-year period. Other credits earned cannot be used until allocated or earned by first recharging water.

Will the surface water allocation change from one year to the other?

The surface water allocation of 0.70 will change from year to year based on hydrology.

What is sustainable yield?

Sustainable yield is the amount of naturally occurring groundwater that would be available if there were no reservoirs or imported surface water.

Can a landowner buy groundwater credits from someone outside the GSA?

A transaction such as this would require coordination between the GSA transferring and the GSA receiving such transfer. The cleanest way to make this transaction work, will be to physically transfer the water from one GSA to the other, rather than transferring credits.

What is the sustainable yield in the Tule-Subbasin?

Based on the most current data available, the sustainable yield in the Tule-Sub-basin has been calculated to be 0.09 Acre-Feet Per Acre per year (AF/A/Y) of consumption. Another vital part of the sustainable yield is the precipitation yield which is 0.77 in Lower Tule River Irrigation District.

Will the sustainable yield volume change or be updated?

The GSA will do regular evaluations of the data and the plan and have the flexibility to adjust the plan as needed.

Can a Farmer get credit for not farming and use the groundwater to lease or sell?

Yes. If a farmer elects to fallow their land and stop farming and use their groundwater allocation to lease or sell, they can do so. Groundwater sales requires formal notification and approval of the GSA. The sale or lease terms of groundwater credits is between landowners and not subject to disclosure.

Would you need to acquire property to move credits?

No. Water credits can be transferred, leased or sold within the GSA boundaries.

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

Normal Operation: Any landowner within the District will be allowed to purchase water to recharge in their own 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 in for a 75% groundwater credit.

Flood Release: During Flood release, the District will utilize its full capacity first, then any available water can be purchase by a private landowner to recharge at their own recharge basin. District recharge will be allocated equally to the total assessed acres.

When should a landowner start banking water?

Landowner banking can start before 2020 when water is available and receive credits based on District interim policies prior to implementation of the GSP.

Can you recharge Riparian water?

No, landowners cannot recharge riparian water. Riparian water is only for “beneficial use” as defined by California Riparian law, which does not include recharging water.

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

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

Who will determine the credits?

The GSA will account for and allocate groundwater credits.

Are there credits for flood irrigation?

Any over irrigation will count as a recharge credit to a landowners account. The District knows how much water was delivered through a turn-out and the District knows the ET of the crop. 90 percent of the over irrigation after the ET has been deducted will be credited to the landowner’s account.

If you are overwatering with a well do you get penalized for that use?

No. Usage will be accounted for on a consumption (ET) basis only. Any overapplied well water will end up back in the underground to be repumped at a later date.

What happens in 2040 if the credits are still there but the results show the we are not sustainable?

The district will analyze the data every year and determine if plans and objectives are being met. The District groundwater allocations will be made and adjusted annually to meet the goal of sustainability in 2040.

Is there any penalty for farmers who overdeveloped the land?

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

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

Any crop demand not met by surface water deliveries will be accounted for as demand met from groundwater use. If one landowner (Transferor) is pumping the groundwater and another landowner (Transferee) is applying the water, then a transfer of groundwater credits needs to take place from the Transferor account to the Transferee's account to avoid having the Transferee be charged for pumping the use of groundwater that was pumped by the Transferor

What is the District going to do with the water as it accumulates credit from recharge and other means?

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

Does the GSA keep a percentage of groundwater sold by a land owner?

No, the GSA does not keep a percentage of groundwater sold by a private landowner.

Can a landowner use its private recharge facility to sink water?

Yes, a landowner can develop a recharge facility as long as the water is metered going in and the water is not being pumped out for irrigation, which must be verified by District staff.

How is seepage in the canal accounted?

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

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 beneficial use of all landowners in the District. The District does not plan to serve as a water broker for individual landowners.

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

Yes, that would be following the land and using the land for a different purpose. 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. Transfers on any credits require written approval of the landowner.
2. Groundwater credits can only be transferred by a landowner with a positive balance in their groundwater account.
3. Groundwater Credit Transfer is 1:1 transfer within the GSA.
4. All Groundwater Credit Transfers require formal notification and approval of the GSA. The sale or lease terms of the groundwater credits is between landowners and not subject to disclosure.

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

A transaction such as this would require coordination between the GSA transferring and the GSA receiving such transfer. The cleanest way to make this transaction work, will be to physically transfer the water from one GSA to the other, rather than transferring credits. In the future, hydrogeological studies will need to be performed to understand the movement of water to determine if transfers to the white area growers are a possibility.

Can a Landowner transfer credits to different entity?

Yes, a landowner can transfer credits based on the transfer rules of the GSA.

What are the different allocations that can be transferred?

The different allocation group that can be transferred are; (1) Sustainable yield, (2) District Groundwater Allocation and (3) Landowner Developed Credits.

TRANSITIONAL WATER

What is a Transitional Water?

Consumption of Transitional Water is continued, and controlled overdraft allowed over a period of time to help landowners' transition into sustainability by 2040.

What is the current schedule of access to Transitional Water?

The proposed transitional water schedule is as follows;

- Year 2020-2025 – 2 acre-feet per acre per year
- Year 2026-2030 – 1.5 acre-feet per acre per year
- Year 2031-2035 – 1.0 acre-feet per acre per year
- Year 2036-2040 – 0.5 acre-feet per acre per year
- Year 2040 and beyond – 0

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

As a proposed project, transitional water will have to be coordinated with the other GSA and surrounding sub-basin to ensure that our plan does not negatively impact their plan.

What are the different tiers of Transitional Water?

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

Can a landowner transfer transitional water?

No, landowner cannot transfer transitional water.

What is the current fee schedule for transitional water?

For the first Tier, (tier 1) the initial rate is \$90 per acre foot and Tier 2 is 2 times the cost of Tier 1, or \$180 per acre foot. Transitional water rates will be reviewed and adjusted annually.

What do the fees collected from Transitional Water get used for?

Fees that are collected from Transitional Water will be used for further development of the Plan and potential mitigation of impacts on others in the subbasin. As an example, developing projects to increase supply and/or reduce demand for groundwater. The money will also be used to develop projects such as new recharge and distribution system facilities.

Do all the GSA’s have to be on the same plan/schedule regarding Transitional Water?

No, the GSA plans look different. However, each plan has to be coordinated with the others to show no impacts related to the six 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 have been withdrawn from aquifers. The ground then compresses as water is being depleted in that formation of soil.

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

There is data and studies showing the different 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?

Yes. As noted, studies have been and are being conducted and data will be collected and monitored on an ongoing basis.

Should the water level be higher to avoid subsidence?

Technically, subsidence is linked to decrease of groundwater elevation. If groundwater elevation is restored prior to the depletion of different soil formation, the subsidence should stop.

Recharge Facility

Will the District be able to sink water in the basin if it's a small amount of water?

The District will recharge water as much as it can when water becomes available.

Can a landowner turn land into a sinking basin and recharge the allocated water?

Yes, a landowner can fallow its ground and turn it into a sinking basin. A farmer can recharge its surface water allocation and any flood water that is available.

Will the District help facilitate buying and selling recharge credits?

No, the District will not get involved with any selling of recharge credits. The District will only be accounting for the transactions once they are complete.

Other Discussion Overview

Will the Success Reservoir Enlargement Project have an affect on the overall water budget?

Not much. The Success Reservoir Enlargement Project is a flood protection project. Although, as ancillary benefit of this project is that it allows the District to manage the water differently and bring in more Friant Water as needed, while store the Tule River Water for later use.

Are there any restriction or moratorium on putting in new wells?

No, the District does not get involved with well permitting or regulations. That is under the purview of Tulare County.

Has there been discussion about collective retirement?

No, but the District is looking into purchasing more land and turning them into additional recharge facilities.

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

Yes, enforcement action will be a \$1,000 per acre-foot penalty for overuse and a deduction of their future allocated water.

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 in terms of planting and harvesting?

The District does not need any information for the GSA, but crop surveys will continue to be submitted as a part of our annual Bureau of Reclamation reporting required for our surface water contracts.

How many monitoring wells are measured to determine the minimum thresholds?

The District will continue to take groundwater elevation measurements as we always have. There are 8 well sites in the Lower Tule River Irrigation District GSA designated as the Representative Monitoring Sites for GSP monitoring and reporting.