



Southern San Joaquin Municipal Utility District

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Addendum to the “Southern San Joaquin Municipal Utility District (SSJMUD) Water Management Plan” for 2020 Agricultural Water Management Plan Update

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An Addendum to the Southern San Joaquin Municipal Utility District (SSJMUD) Water Management Plan was prepared to meet the requirements by the California Department of Water Resources (DWR) for compliance with the California Water Code and Executive Order B-29-15 issued by Governor Brown on April 1, 2015. The Addendum follows guidance provided in the DWR’s *Guidebook to Assist Agricultural Water Suppliers to Prepare a 2020 Agricultural Water Management Plan* (August 2020), pages 130-137.

In accordance with the DWR’s Guidebook, the Addendum must include:

- Specific water measurement reporting and documentation
- An expanded drought management plan
- A high-level summary of water uses and supplies for Water Year 2015/16 through 2019/20
- Reporting on Efficient Water Management Practices (EWMP), to maintain grant and loan eligibility

In addition, there are requirements for notification of plan preparation and public participation that must be met, as noted in Item 5 of this Addendum.

Given that SSJMUD has an existing Water Management Plan that was adopted in November 2020 and given that it is accepted as adequate by the United States Bureau of Reclamation (USBR), submission of the existing Water Management Plan, along with an Addendum containing the Agricultural Water Measurement Regulation documentation and compliance with the Executive Order B-25-15 is sufficient to satisfy the requirements of the Water Code Part 2.8 for a 2020 Agricultural Water Management Plan (AWMP).

For the preparation of the Addendum, the following five outlined items identify the location of the information in the existing Water Management Plan or present the necessary additional information.

Agricultural Water Measurement Regulation Documentation

Sufficient information is contained in the existing Water Management Plan for the following:

- Attachment A: Legal Certification and Apportionment Required for Water Measurement
- Attachment B: Engineer Certification and Apportionment Required for Water Measurement
- Attachment C: Description of Water Measurement Best Professional Practices
- Attachment D: Documentation of Water Measurement Conversion to Volume
- Attachment E: Device Corrective Action Plan Required for Water Measurement

Drought Management Plan

Governor Brown issued Executive Order B-29-15 on April 1, 2015, directing all agricultural water suppliers that supply 10,000 or more irrigated acres to include a detailed drought management plan that describes the actions and measures the supplier will take to manage water demand during a drought.

As stated in the Executive Order, “the Drought Management Plan should detail how the water supplier would prepare for droughts and manage water supplies and allocations during drought conditions. Some components or actions may require detailed review of conditions, policy changes, and long-term capital improvements. Additionally, as conditions change and new technology and knowledge becomes available, opportunities and constraints will change.”

The Addendum will need to identify and describe the water shortage allocation policies and changes to the policies, as required by the Water Code, and identify any other key components of the Drought Management Plan. SSJMUD’s Water Shortage Allocation Policy needs to be identified and included in this section. In addition to the water shortage allocation policy, the Drought Management Plan, at minimum, considers describing the following components tailored to SSJMUD:

- a) *What hydraulic levels or conditions (reservoir levels, stream flows, groundwater, snowpack, etc.) are monitored and measured to determine the water supply available and level of drought severity?*

The primary source of surface supply for the District is its contract for Central Valley Project (CVP) water through the Friant-Kern Canal (FKC). Hydrologic conditions affecting supply and operations of the CVP are extensively monitored by USBR and used to forecast allocations to each of the project’s contractors. Deliveries from the FKC into the District’s system are measured. In addition, the District participates in water purchase and transfer programs that acquire water supplies which are typically acquired during wet periods, placed into groundwater storage outside of the District, and recovered for in-district use in dry years. The District also monitors groundwater elevations for compliance with DWR’s CASGEM program.

Determinations of drought severity as it applies to the CVP are developed by the USBR. Data on groundwater elevations are used by the District to assess drought severity.

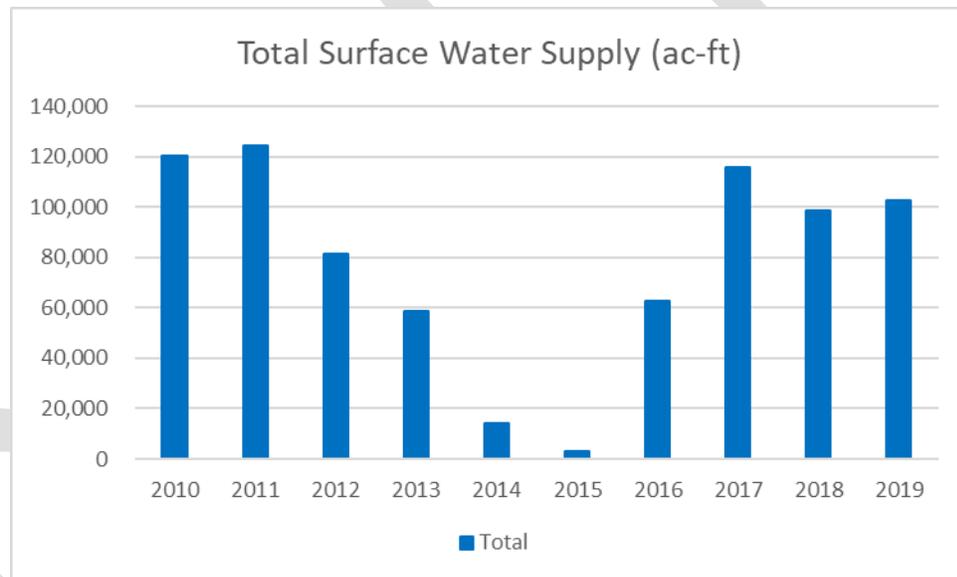
- b) *The District’s policy and process for declaring a water shortage and implementing the water shortage allocation and drought management plan.*

Water supplies available from CVP are governed by watershed precipitation, snow melt runoff, and other hydrologic factors that affect the yield of the CVP. For CVP water, in any year when the District’s water supply is less than the total of the contract amounts for all water users in its service area, each water user is allocated a pro-rated share of the District’s

total water supply in accordance with the shortage policy described for the District. The District may also allocate supplies obtained through active purchase and transfer programs and from surface supplies retrieved from previously stored water in groundwater banks. In the future, SSJMUD plans to add an in-district Recharge Project. A portion of the water allocated to water users may be from sources other than the CVP, including water it returns as a delivery into the District from storage in banking projects located outside of the District. During years when the availability of water from the CVP is limited, the District landowners pump groundwater from landowner-owned wells as part of the District’s conjunctive management strategy.

- c) *Operational Adjustments: changes in district water management and district operations to respond to drought, including canal and reservoir operations and groundwater management.*

Figure 1 shows the annual diversions for the District from the FKC from 2010 through 2019. The figure illustrates that in a “dry” year, surface water supplies can be very limited as in 2015.



Under these conditions, pumping from landowner-owned and operated wells increases to meet demands. By contract, in a “wet” year such as 2011, surface water deliveries to the District exceeded 124,000 acre-feet (AF). The “wet” year deliveries satisfy irrigation water requirements within the District’s service area, thereby minimizing the use of groundwater, and making surface water available for groundwater recharge to store for later delivery into the District for use in dry periods.

During droughts, because surface water supplies available to the District are reduced, measures to improve management of surface water through canal and pipeline operations have limited effectiveness. The District’s response to dry conditions has been to exercise conjunctive management by working to establish in-district groundwater recharge and increase deliveries to conjunctive use projects operated by adjacent districts. Without District-owned wells, recovery of banked supplies is through landowner-owned and operated wells or through surface delivery from banking partners. In addition to establishing in-district recharge projects, the District is also developing a project which would include the installation of District-owned recovery wells connected to the District’s distribution system to compensate for reduced deliveries of surface water.

Due to its length and severity, the drought which ended in 2017 caused District landowners to rely on groundwater. In addition to drought response measures undertaken by the District, individual landowners within the District's service area have actively managed land, water, and other resources to minimize drought-induced impacts on their farming operations.

- d) *Demand Management: policies and incentives in addition to water shortage allocation plan to lower on farm water use.*

The District's programs for demand management include operating a delivery system that delivers water to on-farm irrigation systems and conjunctively managing available supplies to meet demands. The District has purchased surface water supplies available during wet periods, placed the supplies into groundwater storage, and supplemented limited surface supplies during times of drought with the extraction and return of previously stored water. Rather than instituting district-governed policies and incentives to lower on-farm water use, the District's responsiveness in deliveries necessary to enable growers to manage water efficiently under all conditions. These practices include use of district-own conveyance facilities to deliver water transferred to land holdings within the service area.

The District also provides clear estimates of water allocations so that growers can make well-informed farming decisions. The level of operational responsiveness provided by the District together with early projections of water allocations are particularly crucial during droughts when farmers must make challenging decisions on how best to manage their farmland, including decisions on planning and on allocation of water among established crops.

- e) *Alternative Water Supplies: discuss the potential, if possible, for the district to obtain or utilize additional water supplies. These supplies could include transfers from another water agency or district, the use of recycled water and desalination of brackish groundwater or drainage water.*

As previously mentioned, the District's principal source of water is its contract for CVP water. In addition, the District can gain access to supplemental supplies of water through purchases and transfers. Throughout the last drought, the District has adhered to its fundamental strategy of returning previously stored water from groundwater banks and on additional purchases and transfers, when available, to satisfy demands within the District's service area.

- f) *Stages of Actions: include the stages of action and corresponding levels of drought severity that the district will implement in response to a drought.*

Drought response in the District is a responsibility shared by the District and its growers. The District's drought response policies are intended to allocate available surface water, augmented by delivery of previously stored water in groundwater banks located outside of the District in a manner that is equitable and consistent with the District's operational policies while maintaining the District's financial viability. An important objective of this approach is to provide growers with an accurate assessment of the volume and cost of water that will become available to them so they can utilize this water in a manner that is best suited to the requirements of their farming operations.

Because the quantity of CVP water available to the District in any given year is beyond the District's control, the District's drought response measures center on managing water previously stored in groundwater banks and opportunities to purchase or transfer water during

the dry periods. Reduced allocations of District-supplied water have placed the responsibility of managing these reduced supplies on growers to determine how best to utilize limited water supplies through deficit irrigation. The District is also in the process of developing recharge facility projects which would take farmland out of production, thereby conserving groundwater and storing available groundwater supplies.

- g) *Coordination and Collaboration: include a description of how coordination and collaboration with other local districts and water agencies or regional groups will be used in drought response.*

The District has participated in drought programs through coordination and collaboration with the USBR, neighboring CVP contractors, and neighboring State Water Project (SWP) contractors, in addition to participation in the Poso Creek Integrated Water Management (IRWM) Group. Implementation of the Sustainable Groundwater Management Act (SGMA) through participation in the Kern Groundwater Authority (KGA) will also provide another mechanism for regional collaboration and coordination. Regional efforts to implement this legislation will provide a firm, cooperative basis for management of groundwater during all conditions but will be particularly important as a tool for drought response.

- h) *Revenues and Expenditures: describe how the drought and lower water allocations will affect the district's revenues and expenditures.*

The District's Board of Directors annually establishes a water allocation of available supplies and establishes water rates. Water and the cost for the water is applied on a per-acre basis and is based on budget requirements and Board policy.

Since CVP water is delivered into the District's distribution system and distributed using pressurized laterals, the cost of distributing surface water in the pressurized distribution system is attributable to the fixed costs of operating and maintaining the canal and pipeline distribution system.

The District's Service Charge is based on the volume of surface water projected to be available to the District during the coming irrigation season, and uncertainties in these projections can result in unexpected expenditures to both the District and to its water users.

Quantification of Water Demand and Supplies

SSJMUD has provided the information required on its overall supplies and uses in the District for Water Years of 2016 through 2020 in Tables 1 through 3. This water budget summary was completed using a water demand estimate based on the District's irrigated acreage identified in the crop surveys and the evapotranspiration (ET) rates of the irrigated acreage in the District's service area.

Table 1: Five Year Water Usage Summary

Estimated Water Use	2016	2017	2018	2019	2020
Crop Water Use					
1 Crop Water Requirement (ETc only due to drought conditions) (Table 21)	126,959	139,429	122,846	126,418	105,609
2 Leaching (included in item 1)	0	0	0	0	0
3 Cultural practices	0	0	0	0	0
Conveyance and Storage System					
4 Conveyance seepage & evaporation (Table 27)	0	0	0	0	0
5 Conveyance operational outflows	0	0	0	0	0
6 Reservoir evaporation	0	0	0	0	0
7 Reservoir seepage ^(c)	0	0	0	0	0
Environmental Use					
8 Environmental use – wetlands (Table 24)	0	0	0	0	0
9 Environmental use – other (Table 24)	0	0	0	0	0
10 Riparian vegetation (Table 24)	0	0	0	0	0
11 Recreational use (Table 25)	0	0	0	0	0
Municipal and Industrial					
12 Municipal (from Table 26)	0	0	0	0	0
13 Industrial (from Table 26)	0	0	0	0	0
Outside the District					
14 Transfers or Exchanges out of the service area (from Table 28)	0	0	0	0	0
Conjunctive Use					
15 Groundwater recharge (Table 27)	0	2,384	1,487	2,763	273
Subtotal	126,959	141,813	124,333	129,181	105,882

Table 2: Five Year Water Supplies Summary

Water Supplies	2016	2017	2018	2019	2020
1 Surface Water (summary total from Table 30)	73,206	116,910	98,062	104,532	73,455
2 Groundwater (summary total from Table 41)	53,753	22,519	32,054	22,247	29,266
3 Annual Effective Precipitation (summary total from Table 42)	9,134	9,853	9,794	9,794	11,407
4 Water purchases	0	0	0	0	0
5 Transfers or exchanges into District	0	0	0	0	3,030
Subtotal	136,092	149,283	139,910	136,572	117,158

Table 3: Five Year Water Budget Summary

	2016	2017	2018	2019	2020
Total Water Usage	126,959	141,813	124,333	129,181	105,882
Total Water Supply	136,092	149,283	139,910	136,572	117,158
Subtotal	9,133	7,470	15,577	7,391	11,276

EWMP Documentation

A schedule, financing plan, and budget for the remaining EWMPs is provided in this Addendum for SSJMUD to maintain its loan and grant eligibility. Table 4 provides the format for reporting and identifies items that part of the Budget for Implementing Best Management Practices identified in the existing Water Management Plan pages 4-28 over a five-year period.

The District will initiate conversion of some irrigated farmland to groundwater recharge basins, which is a combination of implementing conditional EWMPs no. 1, 5, and 8. The total project costs include the development of spreading basins and conveyance improvements.

Table 4: Schedule to Implement EWMPs (Water Code §10608.56 (d))

EWMP	Implementation Schedule	Finance Plan	Budget Allotment	USBR 2019 Criteria
<i>Critical</i>				
1 – Water Measurement	Ongoing	District Funding	\$300,000	Critical 1
2 – Volume Based Pricing	Ongoing	District Funding	No Added Funding	Critical 4
<i>Conditional</i>				
1 – Alternate Land Use	Not Applicable	Not Applicable	Not Applicable	Exemptible 1
2 – Recycled Water Use	Ongoing	Grant Funding/District Funding	\$250,000	Exemptible 2
3 – On-Farm Irrigation Capital Improvements	Ongoing	Grant Funding	\$990,000	Exemptible 3
4 – Incentive Pricing Structure	Ongoing	District Funding	No Added Funding	Exemptible 4
5 – Infrastructure Improvements	Ongoing	Grant Funding/District Funding	\$7.25 million	Exemptible 5a Exemptible 5b
6 – Order/Delivery Flexibility	Ongoing	District Funding	No Added Funding	Exemptible 6
7 – Supplier Spill and Tailwater Systems	Not Applicable	Not Applicable	Not Applicable	Exemptible 7
8 – Conjunctive Use	Ongoing	District Funding	No Added Funding	Exemptible 9
9 – Automated Canal Controls	Ongoing	District Funding	\$80,000	Exemptible 10
10 – Customer Pump Test/Evaluation	Ongoing	Grant Funding	\$50,000	Exemptible 11
11 – Water Conservation Coordinator	Ongoing	District Funding	No Added Funding	Critical 2
12 – Water Management	Ongoing	District Funding	No Added Funding	Critical 3

EWMP	Implementation Schedule	Finance Plan	Budget Allotment	USBR 2019 Criteria
Services to Customers				
13 – Identify Institutional Changes	Ongoing	District Funding	No Added Funding	No Equivalent
14 – Supplier Pump Improved Efficiency	Ongoing	Grant Funding/District Funding	\$50,000	Critical 5
Grand Total All EWMPs			\$8.97 million	

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