Southern San Joaquin Municipal Utility District

Water Management Plan

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Section I: Description of the District

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A. History

1. Date district formed: 1935 ***Date of first Reclamation contract:*** 10/18/1945

Original size (acres): 61,000 ***Current year (last complete calendar year):*** 2019

The Southern San Joaquin Municipal Utility District (SSJMUD or the District) under its present name was organized in 1935, in accordance with the provisions of California laws pertaining to the formation and operation of municipal utility districts. The District was formed for the purpose of entering a contract for purchase and distribution of water from the Central Valley Project (CVP). Portions of the area now included in the District formerly were part of the Poso Irrigation District, formed in 1888 and of the Kern and Tulare Irrigation District, formed in 1890. These early districts were short lived because of financial difficulties and lack of water. Prior to completion of the Southern Pacific Railroad through the vicinity in 1873, land in the area was used principally for livestock grazing.

With improved transportation facilities and development of large capacity water wells, irrigated agriculture superseded livestock production in the area. In subsequent years, intensive pumping had resulted in a serious lowering of the groundwater table underlying the District. This had necessitated drilling deeper wells with large increases in costs for installation and operation. At present, the District's only source of irrigation water is their surface supply from the Friant-Kern Canal (FKC) which is part of the CVP. SSJMUD has a perpetual 9(e) contract for Class 1 and Class 2 water from the CVP.

In 2015, California enacted the Sustainable Groundwater Management Act (SGMA), which mandates that the state's groundwater resources be managed to meet sustainability by 2040. SGMA also requires that each groundwater basin prepare a Groundwater Sustainability Plan (GSP) to detail how the basin will meet the six sustainability indicators, defined by SGMA, to reach the basin's sustainability goal. The act required that groundwater basins identified as critically overdrafted prepare their GSPs for submittal in January 2020. The Kern County

Subbasin, in which SSJMUD is located, is one of those groundwater basins. Therefore, the District joined the Kern Groundwater Authority (KGA") as a member agency for the purposes of preparing and implementing a GSP. Each of the KGA's member agencies prepared individual Management Area Plans as part of the KGA GSP to coordinate the use of common datasets and the establishment of sustainable management criteria.

2. Current size, population, and irrigated acres

	(2019)
Size (acres)	64,711
Population served (urban connections)	0
Irrigated acres	46,367

The Cities of Delano and McFarland are located entirely within the District's service area boundary. The District does not, however, make any direct deliveries to either city; therefore, SSJMUD is not an urban water provider. The cities, however, do rely on the local groundwater supply, which is naturally recharged. The District provides a small amount of recharge to the groundwater reservoir supply through on-farm, in-lieu recharge efforts and recharge efforts through District reservoirs. A portion of this recharge would accrue to the benefit of the urbanized areas. Future groundwater recharge projects in the District will provide additional benefit to urbanized areas by maintaining groundwater levels for municipal supply wells.

3. Water supplies received in current year

Water Source	*AF*
Federal urban water (Tbl 1)	0
Federal agricultural water (Tbl 1)	104,171
State water (Tbl 1)	0
Other Wholesaler (define) (Tbl 1)	0
Local surface water (Tbl 1)	0
Upslope drain water (Tbl 1)	0
District groundwater (Tbl 2)	0
Banked water (Tbl 6)	1,416

Transferred water (Tbl 1)	0
Recycled water (Tbl 3)	4,292
Other (define) (Tbl 1)	0
Total	109,879

"Other" District water is defined as delivered non-Project water made available through exchanges between the District and other Friant-Division CVP contractors that have local water sources in addition to their CVP supply.

4. Annual entitlement under each right and/or contract

	AF	*Source*	*Contract #*	*Availability period(s)*
Reclamation Urban AF/Y	0	N/A*	N/A	N/A
Reclamation Agriculture AF/Y	97,000	Friant Division CVP –Class 1	Irl-1460D	All year
Reclamation Agriculture AF/Y	45,000	Friant Division CVP –Class 2	Irl-1460D	All year
Other AF/Y	0	N/A	N/A	N/A

*Not Applicable.

The District entered into a contract with Reclamation (Contract # Ir1-1460D) for an all-year availability of Class-1 and Class- 2 water. The District has a combined 142,000 AF/Y contract from the Friant Division of the CVP. However, the recent drought resulted in reduced surface water supplies through the FKC. Also, subsidence has lessened the capacity in sections of the FKC, which further exacerbates issues from decreased surface water supplies.

5. Anticipated land-use changes. For Ag contractors, also include changes in irrigated acres.

According to the land use projections provided in the District's Management Area Plan and the KGA GSP, urban expansion for the cities of Delano and McFarland are anticipated to remove approximately 1,200 acres from the District's irrigated acreage by 2030. The District also proposes to convert another 280 acres of land from irrigated acreage to dedicated recharge acreage by 2030. This represents a decrease in irrigated acreage from 46,367 acres to 44,887 acres.

6. Cropping patterns (Agricultural only) (Source: Summary Report by crop for 2019 crop areas from District TruePoint water management system).

List of current crops (crops with 5% or less of total acreage) can be combined in the 'Other' category.

Original Plan (1998)		*Previous Plan (2009)*		*Current Plan (2019)*	
Crop Name	*Acres*	*Crop Name*	*Acres*	*Crop Name*	*Acres*
Almonds	13,344	Almonds	13,170	Almonds	16,438
Grapes	10,656	Table Grapes	10,992	Table Grapes	10,536
Cotton	10,080	Naval Oranges	4,250	Pistachios	4,896
Alfalfa	5,664	Pistachios	4,130	Naval Oranges	4,042
Citrus	2,928	Alfalfa	2,796	Alfalfa	718
		Grapes	2,740	Grapes	6,235
Other (<5%)	5,328	*Other (<5%)*	6,549	*Other (<5%)*	3,502
Total	48,000	*Total*	44,627	*Total*	46,367

7. Major irrigation methods (by acreage) (Agricultural only) (Source: 2020 Crop Report by Irrigation System from District TruePoint water management system).

Original Plan (1998)		*Previous Plan (2009)*		*Current Plan*	
Irrigation Method	*Acres*	*Irrigation Method*	*Acres*	*Irrigation Method*	*Acres*
Row	17,897	Flood	18,453	Drip	33,827
Flood	15,501	Drip	16,265	Fan Jet	6,668
Drip	5,355	Micro Sprinkler	4,849	Flood	4,392
Sprinkler	5,261	Fan Jet	3,243	Sprinkler	1,046
Misters	2,959	Furrow	1,409	Micro Sprinkler	930
		Sprinkler	408		
Other		*Other*		*Other*	0
Total	46,973	*Total*	44,627	*Total**	46,863

***Greater than total irrigated acres due to inclusion of 496 acres listed as fallow.**

B. Location and Facilities

See Attachment A-2 for a map containing the following: incoming flow locations, turnouts (internal flow), and outflow (spill) points, conveyance system, storage facilities, operational loss recovery system, lift pumps, water quality monitoring locations, and groundwater recharge facilities (both existing and proposed). All wells within the District are owned and operated by landowners. The District does not own or operate any groundwater wells but rather recharges surface water for later return by landowner wells as groundwater.

The Southern San Joaquin Municipal Utility District (District) is located in Kern County, California, approximately 75 miles southeast of Fresno and 30 miles northwest of Bakersfield. The District includes lands in the southeastern San Joaquin Valley and the adjacent low foothills of the Sierra Nevada mountains. Its northern boundary is the Kern-Tulare Counties line, from which it extends southward about 13 miles. Its greatest width east and west is also about 13 miles. The general location of the District is shown on Attachment A-1. The principal town and location of the District's headquarters is Delano, located in the north-central part of the

District. The community of McFarland is also in the District and is located about six miles south of Delano.

The distribution system is designed for a capacity of one (1) cubic foot per second for each 80 acres, with a delivery pressure of 10 feet of head available at the highest point in each 160 acres. The portion of the District lying below the Friant-Kern Canal is served by a combination gravity and pumping system, with the pumping being confined to the first sublateral. The portion of the District lying above the canal is served by pumping through three (3) pumping stations on the canal and two re-lift plants on each of the three (3) laterals. The District has fifteen (15) regulating reservoirs in total. Each has an area of approximately two (2) acres. Their locations within the distribution system are shown in Attachment A-2.

The District's system consists of 175 miles of pipelines. The original pipelines, completed in the early 1950's, were made of concrete. Portions of the pipelines were of nonreinforced pipe with mortar joints, while portions were of reinforced concrete pipe with rubber gasketed joints.

The District has 610 active deliveries at the present time and approximately 30 that are not currently in use. All deliveries are metered. Older meters are being replaced by a propeller type meter that indicates the flow and records the total flow that is supplied to the user. The District does not own any groundwater production facilities. Landowners in the District continue to own and operate groundwater production facilities aside from the District.

1. Incoming flow locations and measurement methods

Location Name	*Physical Location*	*Type of Measurement Device*	*Accuracy*
Friant-Kern Canal & Lateral 1	FKC Mile Post 119.6	Propeller Meter	±2%
Friant-Kern Canal & Lateral 2	FKC Mile Post 122.5	Propeller Meter	±2%
Friant-Kern Canal & Lateral 3	FKC Mile Post 124.5	Propeller Meter	±2%
Friant-Kern Canal & Lateral 4	FKC Mile Post 126.7	Propeller Meter	±2%
Friant-Kern Canal & Lateral 5	FKC Mile Post 128.3	Propeller Meter	±2%
Friant-Kern Canal & Lateral 6	FKC Mile Post 129.8	Propeller Meter	±2%
Friant-Kern Canal & Lateral 7	FKC Mile Post 124.5 E	Propeller Meter	±2%
Friant-Kern Canal & Lateral 8	FKC Mile Post 127.7 E	Propeller Meter	±2%
Friant-Kern Canal & Lateral 9	FKC Mile Post 130.4 E	Propeller Meter	±2%

2. Current year Agricultural Conveyance System

Miles Unlined - Canal	*Miles Lined - Canal*	*Miles Piped*	*Miles - Other*
None	None	175	None

3. Current year Urban Distribution System

Miles AC Pipe	*Miles Steel Pipe*	*Miles Cast Iron Pipe*	*Miles - Other*
N/A	N/A	N/A	N/A

4. Storage facilities (tanks, reservoirs, regulating reservoirs)

Name	*Type*	*Capacity (AF)*	*Distribution or Spill*
Lateral 1 – Bassett	Regulating	1	Distribution
Lateral 2 – Airport	Regulating	1	Distribution
Lateral 3 – Elmo	Regulating	1	Distribution
Lateral 7 – S2	Regulating	1	Distribution
Lateral 7 – S3	Regulating	1	Distribution
Lateral 7 – S4	Regulating	1	Distribution
Lateral 7 – S5	Regulating	1	Distribution
Lateral 7-1 – S6	Regulating	0.5	Distribution
Lateral 8 – S10	Regulating	1	Distribution
Lateral 8 – S11	Regulating	1	Distribution
Lateral 8 – S12	Regulating	1	Distribution
Lateral 8 – Reynolds S14	Regulating	14	Distribution
Lateral 9 – S16	Regulating	1	Distribution
Lateral 9 – S17	Regulating	1	Distribution
Lateral 9 – S18	Regulating	1	Distribution

5. Description of the agricultural spill recovery system and outflow points.

There are no operational spill losses experienced by the District. All water conveyed within the District's distribution system remains within the system until utilized. On-farm tailwater return systems have been constructed by those District landowners not utilizing permanent on-farm distribution systems. All deep percolation losses return to usable groundwater source and no water leaves the service area in the form of surface runoff.

6. Agricultural delivery system operation (check all that apply)

Scheduled	*Rotation*	*Other (describe)*
✓		

Water users are to place their water orders a minimum of 24-hours in advance with the District Dispatcher. See Attachment B, Section B(9) for a description of water delivery scheduling procedures.

7. Restrictions on water source(s)

Source	*Restriction*	*Cause of Restriction*	*Effect on Operations*
USBR	Declaration	Quantity of Snowfall	Reduced Deliveries
FKC	Capacity	Subsidence/Siphons	Reduced Deliveries

As previously mentioned, SSJMUD has a perpetual 9(e) contract with USBR for Friant Division Class 1 and Class 2 water from the CVP. Due to recent drought and environmental regulations, allocations of CVP supplies to the District have been received as a percent allocation of contracted supplies based on water available for delivery. This results in a decrease in imported surface water supplies available to the District.

Additionally, subsidence has lessened the capacity in sections of the FKC, which exacerbates issues from decreased surface water supplies thereby reducing the delivery of surface water supplies through the FKC. The Friant Water Authority is to implement Phase I of the Friant Kern Canal Middle Reach Capacity Correction project to correct subsidence issues. Construction began on January 25, 2022, to construct 10 miles of concrete-lined canal to replace impacted areas.

8. Proposed changes or additions to facilities and operations for the next 5 years

While the District is fully developed, and anticipated changes to the District's existing distribution system are continued efforts to replacing older pipelines, the District is currently developing plans to construct an intertie pipeline between its distribution system and North Kern Water Storage District ("North Kern"). SSJMUD is a banking partner with North Kern and plans to build the intertie pipeline and necessary conveyance improvements to provide 40 cfs of return capacity. This capacity will provide approximately 2,814 AF/Y of returned water from North Kern's groundwater bank.

In addition to improving its operational flexibility and reducing its reliance on groundwater, SSJMUD is in the process of adding in-district groundwater recharge facilities. These facilities include a 40-acre spreading basin with a recovery well, which is funded through the USBR's

Bay-Delta Restoration Program (Agreement R19AP00259). This recharge facility proposes to provide an additional 2,880 AF/Y to the district. It is the first of a proposed 280 acres of in-district recharge to allow SSJMUD to purchase surplus supplies during wet years to be banked in-district and recovered via in-district groundwater pumping during dry years.

The District is working to procure land on which to build these recharge facilities and is exploring collaboration with the City of Delano to repurpose existing stormwater retention basins or idle land into recharge facilities. While the District does not supply water to the City of Delano, the city will realize the benefits of the District's groundwater recharge in the form of locally maintained groundwater levels and water quality.

C. Topography and Soils

1. Topography of the district and its impact on water operations and management

The general relief of the District gently slopes predominantly from the southeast to the northwest, with the topography becoming smoother and more level to the west. The topography of lands varies in elevation from a high of 650 feet on the eastern boundaries to a low of 240 feet at the western boundaries. The average slope is about 21 feet per mile and the average elevation is about 310 feet above sea level.

The District may be divided topographically into three types of terrain: (1) low foothills on the eastern boundary of the District, (2) an intermediate belt averaging 6 miles wide, sloping 30 to 40 feet per mile westerly with small, isolated areas of poor drainage and (3), in the western portion, a zone with relatively flat slopes that originate from a series of alluvial fans, of which those of Poso Creek and Rag Gulch are pre-eminent. Farther west these fans merge into an area of very flat slopes marked by saline soils.

2. District soil association map (Agricultural only)

See Attachment A-3, District Soils Map

Soils of the District can be divided into three (3) different major categories. The foothill area is distinguished by hardpan and other compact subsoil layers which allow for limited development into vineyards and truck crop areas. The transition zone and the majority of the valley floor area consists of deep permeable soils. The soil in this area is extremely productive and well suited for any crop that fits the existing weather conditions. On the western limits of the District, the soil contains areas of saline type material which require specific reclamation actions to become productive.

In February of 1948, the United States Bureau of Reclamation made a semi-detailed land classification of the District, as detailed in Land Use Study of the Southern San Joaquin Municipal Irrigation District. The land classes assigned to District lands represent varying degrees of suitability for irrigation and were determined by evaluation of the factors of soil, topography and drainage in relationship to adapted crops, productivity and land management.

The first soil region contains soils mainly on alluvial fans, alluvial plains, basin rims and flood plains in the eastern part of the San Joaquin Valley. The Garces soil series is deep, nearly level, saline-alkali, well-drained silt loam and clay loams soils. With the Garces soils, typically, the surface layer is silt loam. The subsoil is clay loam and loam. The substratum is loam and fine sandy loam. In some areas, the substratum is stratified and contains a brittle layer of weakly to moderately cemented material. These soils are moderately to strongly saline-alkali.

The Kimberlina soil series is deep, nearly level, well drained fine sandy loam and sandy loam soils. Also present, to a minor extent, are Cajon soils which are deep and somewhat excessively drained. The surface soil of the Kimberlina soils is fine sandy loam. The upper part of the underlying material is fine sandy loam, and the lower part is silt loam.

The McFarland soil series is a deep, nearly level, well drained loam soil. These soils are formed in alluvium and derived from granite rock. The surface layer and underlying material are loam.

The second soil region included within the District contains soils on terraces in the eastern part of the San Joaquin Valley. The Delano soil series is deep, nearly level to hilly, well drained sandy loam and clay loam soils. These soils are formed in alluvium and derived from granite rock. The surface layer of Delano soils is sandy loam. The subsoil is clay loam, sandy clay loam and sandy loam. The substratum is sandy loam.

3. Agricultural limitations resulting from soil problems (Agricultural only)

Soil Problem	*Estimated Acres*	*Effect on Water Operations and Management*
Salinity	None	None
High-water table	None	None
High or low infiltration rates	None	None
Other (define)	None	None

D. Climate

1. General climate of the district service area

The climate of the District is typical of the San Joaquin Valley, being semiarid and characterized by mild winters and hot, dry summers. Mean annual temperature at Delano is 62.9 degrees Fahrenheit. The average annual minimum and maximum temperatures are 35.2 degrees in December and 98.4 degrees in August, respectively.

The average yearly rainfall for the District area is 6.75 inches, based on records published for the California Irrigation Management Information System (CIMIS) station number 182 at Delano, for the 17-year period of 2002-2019, inclusive. The CIMIS station has been active since March 21, 2002. Rain falls principally during the period November to April.

Many of the crops in this area are crops that are particularly sensitive to frost. The most favored areas for citrus and other frost-sensitive crops are the tops and slopes of some of the foothills where there is better air drainage. The area is in a thermal belt, but there are cold areas in some of the lowlands and depressions.

The climatological norms for the District area presented in the preceding tables were obtained from the CIMIS station number 182 at Delano, for the 17-year period of 2002-2019, inclusive.

The climatological extremes for the District area were obtained from the CIMIS station number 182 at Delano, for the period of 2002-2019, inclusive.

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Annual*
Avg Precip.	1.17	0.98	0.99	0.71	0.38	0.07	0.04	0.01	0.01	0.45	0.75	1.19	6.75
Avg Temp.	46.0	50.4	56.5	61.2	68.4	76.3	81.5	80.2	73.9	62.7	51.9	45.3	62.9
Max. Temp.	58.5	64.2	70.9	76.0	84.2	93.0	98.4	97.3	92.1	80.3	67.5	58.2	98.4
Min. Temp	36.3	39.0	43.7	47.3	52.9	58.9	64.3	62.6	57.4	48.4	40.0	35.2	35.2
ETo	1.23	2.07	3.68	5.24	6.97	8.01	8.22	7.49	5.54	3.48	1.84	1.17	54.93

ET Station ID: *182* ***Average annual frost-free days:*** *357*

Frost Free Days - According to National Oceanic and Atmospheric Administration (NOAA), frost free days are days with temperatures greater than 28 degrees Fahrenheit.

2. Impact of microclimates on water management within the service area

Demand exists for water during the winter months for frost protection purposes such as aerial spraying for citrus. This demand is independent of the evapotranspiration demand.

E. Natural and Cultural Resources

1. Natural resource areas within the service area

Name	*Estimated Acres*	*Description*
N/A	None	N/A

2. Description of district management of these resources in the past or present

Not applicable.

3. Recreational and/or cultural resources areas within the service area

Name	*Estimated Acres*	*Description*
N/A	None	N/A

F. Operating Rules and Regulations

See Attachment B, District Rules and Regulations (water related).

1. Water allocation policy (Agricultural only)

See Attachment B, Section C(1)

General: Any Water User of lands within the District designated non-excess (or otherwise made eligible to receive water) who has otherwise complied with these Rules and Regulations and policies of the Board, including having timely submitted an application for water service, is entitled to water service made available to the District under the Contract with the Bureau. Provided, however, no Schedule B lands shall be eligible to receive any share of the District's contract entitlement until all applications for Schedule A lands are fulfilled.

2. Official and actual lead times necessary for water orders and shut-off (Agricultural only)

See Attachment B, Section B(9)

Water delivery changes are made six (6) days a week with no changes on Sundays. Water Users desiring water shall place their water orders a minimum of 24-hours in advance. Water orders are taken between the hours of 7:00 A.M. to 3:30 P.M. Monday through Friday and 7:00 A.M. to 9:00 A.M. on Saturday. No orders are taken on Sunday and orders for Monday changes must be in by 9:00 A.M. Saturday. All orders are compiled by the Dispatcher in order to place the District water order for the next day deliveries.

3. Policies regarding return flows (surface and subsurface drainage from farms) and outflow (Agricultural only)

See Attachment B, Section B(11)

The District does not have a policy specific to outflow of return flows and no policies on outflow since water from the distribution system does not leave the district boundaries. However, the District reserves the right to turn off Water deliveries in those instances of a Water User not taking care of his water and flooding roads or neighboring lands.

4. Policies on water transfers by the district and its customers

See Attachment B, Section B(5)

Water may be transferred from one parcel to another parcel provided the parcels are owned or leased by the same person(s) or company. No landholder or Water User can transfer or exchange water outside the District service area.

Exchanges of water with other Friant-Division, CVP contractors are permitted with Board approval.

G. Water Measurement, Pricing, and Billing

1. Agricultural Customers

Refer to BMP A.1. Information on water measurement for agricultural contractors is completed under BMP A.1 on page 26.

2. Urban Customers

a. Total number of connections *N/A*
b. Total number of metered connections *N/A*
c. Total number of connections not billed by quantity *N/A*
d. Percentage of water that was measured at delivery point *N/A*
e. Percentage of delivered water that was billed by quantity *N/A*

3. Measurement Device Table

The table below was intentionally left blank because the District does not have urban customers.

Meter Size and Type	*Number*	*Accuracy* (+/-percentage)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
5/8-3/4"					
1"					
1 ½"					
2"					
3"					

4"					
6"					
8"					
10"					
Compound					
Turbo					
Other (define)					
Total					

**Documentation verifying the accuracy of measurement devices must be submitted with Plan and included in Attachment C.*

4. Agricultural and Urban Rates

a. Current year agricultural and /or urban water charges - including rate structures and billing frequency

The current-year water rate is $130 per acre foot. Water users are billed on monthly basis with payments due on or before the 20th of each month for water used the prior month (See Attachment B, Section D(2a).

See Attachment D, for current year rate ordinance. The rate ordinance does not include the $40 power/pumping surcharge, which is an additional fee listed on the sample bill.

b. Annual charges collected from agricultural customers

Fixed Charges			
Charges ($ by unit)	*Charge units $/acre, etc.*	*Units billed during year acres, etc.*	*Total $ collected ($ times units)*
N/A	N/A	N/A	N/A

Volumetric charges			
Charges ($ by unit)	*Charge units $/AF, etc.*	*Units billed during year AF, etc.*	*Total $ collected ($ times units)*
$130	$/AF	105,678 AF	$13,738,140

c. Annual charges collected from urban customers

These tables are not applicable to the District, as it does not provide water for urban use.

Fixed Charges			
Charges ($ by unit)	*Charge units ($/meter size)*	*Units billed during year (by meter size) etc.*	*Total $ collected ($ times units)*
N/A	N/A	N/A	N/A

Volumetric charges			
Charges ($ by unit)	*Charge units ($/HCF), etc.*	*Units billed during year HCF, Kgal, etc.*	*Total $ collected ($ times units)*
N/A	N/A	N/A	N/A

See Attachment D Page D-1, District Sample Bills

d. Describe the contractor's record management system

The District record management system is kept on a Dell Server Computer System. The District utilizes True Point Solutions Software for water accounting which interfaces with Sage Software for invoicing and financial accounting. More than forty years of records are archived at the District office and available to customers for their reference.

H. Water Shortage Allocation Policies

1. Current year water shortage policies or shortage response plan - specifying how reduced water supplies are allocated

See Attachment E, Page E-1, District Water Shortage Plan

2. Current year policies that address wasteful use of water and enforcement methods

See Attachment B, Section B(11) Runoff Prohibited

The District reserves the right to turn off water deliveries in those instances of a Water User not taking care of his water allocation and flooding roads or neighboring lands. Prior to turning off such a delivery, an attempt will be made to reach by phone the responsible party causing the wasting of water.

I. Evaluate Policies of Regulatory Agencies

The District's contracted CVP surface water supply originates from the FKC, which is regulated by the FWA. In certain water supply years, reduced allocations due to regulations or impediments on the canal increases the District's reliance on use of groundwater storage. SSJMUD and other CVP contractors are working with the FWA to appropriately adjust to FWA regulations with the ongoing FKC project to fix subsidence that reduces supply reliability. The District will update its policies as conditions warrant, based on operational and policy issues identified as FWA's project is implemented.

Section II: Inventory of Water Resources

A. Surface Water Supply

1. Surface water supplies in acre-feet, imported and originating within the service area, by month (Table 1).

See Section 5, Water Inventory Tables, Table 1.

2. Amount of water delivered to the district by each of the district sources for the last 10 years.

See Section 5, Water Inventory Tables, Table 8.

B. Groundwater Supply

1. Groundwater extracted by the district and delivered, by month (Table 2)

See Section 5, Water Inventory Tables, Table 2.

2. Groundwater basin(s) that underlies the service area

Name	*Size (Square Miles)*	*Usable Capacity (AF)*	*Safe Yield (AF/Y)*
Kern County Basin (5-22.14)	3,040	11,200,000	37,000[(1)]
SSJMUD	100	59,000[(2)]	15,800[(3)]

[(1)]Bureau of Reclamation Water Needs Analysis Summary, March, 1988.

[(2)]Groundwater pumping quantity based on continued delivery of contract supply leading to a period of stable groundwater levels. Ref. USBR Needs Assessment, February 14, 2000.

[(3)]Safe yield. Quantity independent of imported water deliveries. Ref. USBR Water Supply Study, February, 1948.

3. Map of district-operated wells and managed groundwater recharge areas

See Attachment A-2, for District Map of Groundwater Facilities

As stated previously, the District does not currently own or operate any groundwater extraction wells. The district has three recharge facility projects that are currently under design which will add one recovery well to its distribution system. All other extraction will be done through existing landowner wells. These project have an estimated completion date of Summer 2023.

A map indicating the District's groundwater facilities (limited to regulation reservoirs) and its proximity to Poso Creek is included as Attachment A-2.

4. Description of conjunctive use of surface and groundwater The main contributions to the recharge of the groundwater reservoir underlying the District are from any percolation from the 15 regulating reservoirs, Poso Creek runoff, and other smaller adjacent foothill drainage areas to the east. Historically, the District has primarily achieved its groundwater recharge goals through an in-lieu surface water delivery program. When surface water supplies are available and can be delivered to the District, the surface water supplies are utilized "in lieu" of groundwater pumping. The District will continue this program whenever surface supplies are available and will augment deliveries whenever supplemental supplies can be purchased at a reasonable cost and ordered for delivery by growers.

In addition to continuing its in-lieu surface water delivery, the District is developing its own groundwater recharge facilities for its use whenever additional supplies are available through its contract with the CVP. Per its Management Area Plan under the KGA GSP, the District plans to convert an estimated 280 acres of irrigated acreage into dedicated groundwater recharge and spreading basins. These facilities would be for the District's use, to increase its capacity to receive available CVP water when there is surplus supplies during wet years and to utilize capacity in the FKC during off-peak seasons.

5. Groundwater Management Plan

As of January 1, 2015, new or updated Groundwater Management Plans (GWMPs) cannot be adopted in medium and high priority basins. Instead, local public agencies and groundwater sustainability agencies (GSAs) are required to develop and implement groundwater sustainability plan (GSP). SSJMUD is in a high priority basin and, therefore, developed and adopted a management area plan under the Kern Groundwater Authority GSP in compliance with SGMA. Since SSJMUD has adopted its management area plan, their GWMP is no longer in effect. SSJMUD's Management Area Plan can be found at http://www.kerngwa.com/assets/southern-san-joaquin-municipal-utility-district-management-area-plan.pdf

6. Groundwater Banking Plan

See Attachment F, Groundwater Banking Plan.

The District does not participate in any groundwater banking projects with other districts. However, SSJMUD has recently developed its own in-district groundwater recharge facilities such as the City Recharge and Pandol Spreading areas. The District is not planning use these facilities to bank water on behalf of other districts or agencies.

C. Other Water Supplies

1. "Other" water used as part of the water supply – Describe supply

See Section 5, Water Inventory Tables, Table 1

D. Source Water Quality Monitoring Practices

1. Potable Water Quality (Urban only)

Not Applicable.

2. Agricultural water quality concerns: Yes _____ No ✓

(If yes, describe)

3. Description of the agricultural water quality testing program and the role of each participant, including the district, in the program.

Individual landowners are signatories to the Kern Sub-watershed of the Southern San Joaquin Valley Water Quality Coalition. The District does not participate in the Irrigated Lands Regulatory Program (ILRP) as it has no irrigated lands-based discharges. The District rules and regulations prohibit runoff (See Attachment B, Section B(11) Runoff Prohibited). While there are water programs in the area such as the Integrated Regional Water Management Program, agricultural water quality testing is not a requirement of this program.

4. Current water quality monitoring programs for surface water by source (Agricultural only)

Analyses Performed	*Frequency*	*Concentration Range*	*Average*
Salinity, measured as Total Dissolved Solids (TDS)	Monthly, year-round	30 mg/l – 110 mg/l	50 mg/l

There are currently two (2) water quality sampling and monitoring programs conducted on waters related to the District. The first of these is a four-entity program conducted on waters in the Friant-Kern Canal. A sample is taken monthly, year-round, on which tests are run to determine suitability and treatability. The second program is run by Reclamation District No. 770 on waters of the Kaweah River and the Tule River. Tests are run at least annually to provide a base related to pumping into the Friant-Kern Canal for flood water management purposes. The tests are designed to ensure that any waters pumped into the canal meet Title 22, CAC, standards.

5. Current water quality monitoring programs for groundwater by source (Agricultural only)

Analyses Performed	*Frequency*	*Concentration Range*	*Average*
Sodium and Chloride	Semi-annual	No data yet	No data yet

Water quality monitoring programs on groundwater are conducted by the cities of Delano and McFarland based on criteria established by the State Department of Health Services. The District has also described water quality sampling for its representative monitoring wells in their Management Area Plan submitted as part of the KGA's 2020 GSP, which was adopted in January 2020 and submitted to the California Department of Water Resources ("DWR"). The constituents of concern identified in SSJMUD's Management Area Plan include sodium, chloride, arsenic, and nitrate. Of these constituents, the ones of concern to agricultural water uses are sodium and chloride.

The Management Area Plan calls for water quality sampling to occur in the same timeframe as the semi-annual groundwater level measurements The data collected during the implementation of the District's Management Area Plan will be used to address the data gaps identified in the 2020 GSP with respect to groundwater quality in agricultural lands in the Kern Subbasin.

E. Water Uses within the District

1. Agricultural

See Section 5, Water Inventory Tables, Table 5 - Crop Water Needs

2. Types of irrigation systems used for each crop in current year (Source: 2020 Crop Report by Irrigation System from District TruePoint water management system).

Crop name	*Total Acres*	*Drip - acres*	*Fan Jet - acres*	*Flood – acres*	*Sprinkler - acres*	*Micro-Sprinkler - acres*
Alfalfa	718	0	0	95	156	0
Almonds	16,438	15,168	2,293	678	77	174
Grapes	6,235	4,299	58	1,066	0	0
Naval Oranges	4,042	84	3,144	0	10	542
Pistachios	4,896	4,436	154	0	0	0

Crop name	*Total Acres*	*Drip - acres*	*Fan Jet - acres*	*Flood – acres*	*Sprinkler - acres*	*Micro-Sprinkler - acres*
Table Grapes	10,536	8,685	0	1,245	0	0
Other	3,502	1,155	1,019	1,308	803	214
TOTAL	46,367	33,827	6,668	4,392	1,046	930

*Greater than total irrigated acres due to inclusion of 496 acres listed as fallow.

3. Urban use by customer type in current year

This table is left intentionally blank, as the District is not a supplier or retailer of water for urban use.

Customer Type	*Number of Connections*	*AF*
Single-family	N/A	N/A
Multi-family	N/A	N/A
Commercial	N/A	N/A
Industrial	N/A	N/A
Institutional	N/A	N/A
Landscape irrigation	N/A	N/A
Wholesale	N/A	N/A
Recycled	N/A	N/A
Other (specify)	N/A	N/A
Unaccounted for	N/A	N/A
Total		N/A

4. Urban Wastewater Collection/Treatment Systems serving the service area

Treatment Plant	*Treatment Level (1, 2, 3)*	*AF*	*Disposal to / uses*
Delano WWTP	2	4,242	Agriculture
McFarland WWTP	2	50	
	Total	4,292	
Total discharged to ocean and/or saline sink		N/A	

Urban wastewater treatment supply for the City of Delano and City of McFarland are record for 2019

5. Groundwater recharge in current year (Table 6)

Recharge Area	*Method of Recharge*	*AF*	*Method of Retrieval*
City Recharge	Spreading at City-operated Stormwater Retention Basin	567	Landowner pumping
Pandol Spreading	Spreading Ground	848	Landowner pumping
	Total	1,416	

6a. Transfers and exchanges into the service area in current year – (Table 1)

From Whom	*To Whom*	*AF*	*Use*
N/A	N/A	N/A	N/A
	Total	N/A	

The District did not participate in any transfers and/or exchanges with other entities into the service during the current year.

6b. Transfers and exchanges out of the service area in current year – (Table 6)

From Whom	*To Whom*	*AF*	*Use*
N/A	N/A	N/A	N/A
	Total	N/A	

The District did not participate in any transfers and/or exchanges with other entities out of the service during the current year.

7. Wheeling, or other transactions in and out of the district boundaries – (Table 6)

From Whom	*To Whom*	*AF*	*Use*
N/A	N/A	N/A	N/A
	Total		

8. Other uses of water

Other Uses	*AF*
N/A	N/A

The District has not defined other uses for water in its service area.

F. Outflow from the District (Agricultural only)

See Facilities Map, Attachment A-2, for the location of surface and subsurface outflow points, outflow measurement points, outflow water-quality testing locations.

1. Surface and subsurface drain/outflow

Outflow point	*Location description*	*AF*	*Type of measurement*	*Accuracy (%)*	*% of total outflow*	*Acres drained*

Outflow point	*Where the outflow goes (drain, river or other location)*	*Type Reuse (if known)*

Not Applicable. The District rules and regulations prohibit runoff (See Attachment B, Section B(11) Runoff Prohibited). There is no outflow since water from the closed pipe distribution system. All water is used for agricultural purposes. If any flooding occurs, the District reserves the right to turn off water deliveries in those instances of a water user not monitoring their usage.

2. Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program.

Not Applicable. The District rules and regulations prohibit runoff (See Attachment B, Section B(11) Runoff Prohibited).

3. Outflow (surface drainage & spill) Quality Testing Program

Not Applicable. The District rules and regulations prohibit runoff (See Attachment B, Section B(11) Runoff Prohibited).

4. Outflow (subsurface drainage) Quality Testing Program

Not Applicable.

5. Provide a brief discussion of the District's involvement in Central Valley Regional Water Quality Control Board programs or requirements for remediating or monitoring any contaminants that would significantly degrade water quality in the receiving surface waters.

Districts included in the drainage problem area, as identified in "A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley (September 1990)," should also complete Water Inventory Table 7 and Addendum C (include in plan as Attachment J)

Individual landowners are signatories to the Kern Sub-watershed of the Southern San Joaquin Valley Water Quality Coalition. The District does not participate in the ILRP as it has no irrigated lands based discharges.

G. Water Accounting (Inventory)

See to Section 5 for Agricultural Water Inventory Tables. Urban Water Inventory Tables are not applicable. While Table 6 has an estimated 28,195 AF of water to percolation, the District has planned management actions under SGMA to reduce the amount of groundwater pumping. Management actions include an in-lieu recharge program that includes a fee structure in which growers with access to surface water may be assessed for the use of groundwater when surface water is available for use.

Section III: Best Management Practices (BMPs) for Agricultural Contractors

A. Critical Agricultural BMPs

1. Measure the volume of water delivered by the district to each turnout with devices that are operated and maintained to a reasonable degree of accuracy, under most conditions, to +/- 6%

a. Number of delivery points (turnouts and connections) 640
b. Number of delivery points serving more than one farm 0
c. Number of measured delivery points (meters and measurement devices) 640

District delivery points serving more than one farm exist when an individual landowner divides a parcel and sells off the divided portion of his/her land to another party. When this occurs, water conveyed to each parcel is accomplished through the existing turnout and meter. When payment for the water is due to the District, the original landowner, whose name is on the District account, pays the District water bill. The original landowner then receives payment from the secondary landowner based on his share of the delivery.

To comply with the current Guidelines, all farm deliveries must be provided with measurement capability meeting the established minimum accuracy requirements. For the referenced (4) deliveries, the District has designed, constructed and placed into operation, new metered turnouts with appropriate rating capabilities and sized to meet the requirements of each delivery. The installations were completed during Fall 2012.

a. Percentage of water delivered to the contractor that was measured at a delivery point 100
b. Total number of delivery points not billed by quantity 0
c. Delivery point measurement device table

Measurement Type	*Number*	*Accuracy* (+/- %)*	*Reading Frequency (Days)*	*Calibration Frequency (Months)*	*Maintenance Frequency (Months)*
Orifices					
Propeller meter	640	±6%	Daily	Upon Request	As needed
Weirs					
Flumes					
Venturi					

Metered gates					
Acoustic doppler					
Other (define)					
Total	640				

**Documentation verifying the accuracy of measurement devices must be submitted with Plan and included in Attachment C.*

The District's water tracking software performs a day-by-day comparison of what is ordered versus the amount recorded as delivered through each individual meter. When a consistent difference occurs, the District installs a temporary clock mechanism within the meter and proceeds to repair, recalibrate, and reinstall the existing clock. In the case where the clock is not repairable, the District installs a new clock. As it relates to District underground line meters, which can no longer be repaired, the District replaces the entire meter. In the event that the District receives a complaint from a water user, the District automatically installs a temporary clock and repairs, recalibrates and reinstalls the clock in question, unless a new clock is warranted. This program is performed on an on-going basis.

2. Designate a water conservation coordinator to develop and implement the Plan and develop progress reports

Name: Roland Gross *Title:* General Manager/ Secretary

Address: P.O. Box 279 or 11281 Garzoli Avenue, Delano, CA 93216

Telephone: (661) 746-6510 *E-mail:* roland@ssjmud.org

The General Manager reports to the five-member Board of Directors and is responsible for implementing Board policy, managing day to day operations and business affairs of SSJMUD, and proposing new or modified Board policy. The General Manager manages a staff that currently consists of an Accounting Manager & Treasurer, Dispatcher/Office Manager, Field Superintendent, Field Technicians. The General Manager is also responsible for advancing District initiatives, developing partnerships, and ensuring customer needs are met.

3. Provide or support the availability of water management services to water users

See Attachment G, Communications and Engagement.

a. On-Farm Evaluations

1) The Agricultural Pumping Efficiency Program (APEP) is being discontinued in 2020. However, the District plans to continue supporting on-farm efficiency improvements through

the NRCS' Environmental Quality Incentives Program (EQIP). On farm irrigation and drainage system evaluations currently use the APEP mobile lab type assessment.

	Total in district	*# surveyed last year*	*# surveyed in current year*	*# projected for next year*	*# projected 2nd year in future*
Irrigated acres	51,000	2,480	2,332	2,320	2,580
Number of farms	250	10	8	10	12

The District is supplied with color brochures from the North West Kern Resource Conservation District, which are sent out to each landowner at the beginning of each water year. These brochures supply information as it pertains to these evaluations.

2) Timely field and crop-specific water delivery information to the water user

See Attachment G, Communications and Engagement.

Each week, the Friant Water Authority issues a reproduction of crop coefficients to all of its contractors which are compiled by the Kings River Conservation District and made available by the District to its growers. The table lists the daily average for the previous seven (7) days and estimate of the average for the subsequent seven (7) days of crop coefficients. District water delivery information is provided to each water user, each month in which delivery to a water user is made. This information can then be used by a water user to manage water used by field and crop.

b. Real-time and normal irrigation scheduling and crop ET information

See Attachment G, Communications and Engagement.

Each week, the Friant Water Authority issues a reproduction of crop coefficients and CIMIS evapotranspiration rates to all of its contractors which are compiled by the Kings River Conservation District and made available by the District to its growers. The crop coefficients table lists the daily, average for the previous seven (7) days and an estimate of the average for the subsequent seven (7) days, while the CIMIS evapotranspiration rates table lists data for twelve (12) CIMIS stations located within the Friant Division, CVP service area and details daily, total for the previous seven (7) days, normal previous seven (7) days, variance percentage from normal and normal next seven (7) days, evapotranspiration rates.

Most normal year information pertaining to irrigation scheduling and crop evapotranspiration ("ET"), such as CIMIS data and crop coefficients, is available to the landowner/grower through many agencies or services. The following are examples of services and information that are available to growers:

- The Office of Water Use Efficiency ("OWUE"), through DWR provides CIMIS data free of charge to the public for the use in estimating crop water use for irrigation scheduling. This information can be found through the OWUE's CIMIS website at www.cimis.water.ca.gov;
- During the growing season, crop ET information is published in the local newspapers and broadcast daily over the radio for reference and use by any water user;
- The U.S. Weather Service currently provides real-time CIMIS ET data and forecasts on their local weather channels and on the NOAA website.

The examples listed above provide crop specific ET data that is based on real-time. In an effort to assist District landowners in the understanding of crop coefficient and evapotranspiration rates, and how to develop water use for a specific crop, calculated examples will be published within the on-farm water conservation tools and strategies found in the Water Conservation Information Bulletins, as described in Section 3.3.d. of this report.

c. Surface, ground, and drainage water quantity and quality data provided to water users

The District, upon request, will provide surface water quality data, which is provided to the District by the Friant Water Authority, to District landowners/growers. The District, however, does not participate in in-district water quality testing. As per the District's Rules and Regulations for Water Service; "The District's water supply is in a raw, untreated condition, and as a result is considered to be unfit for human consumption without treatment. The District does not warrant the quality of water delivered and is under no obligation to construct or furnish water treatment facilities or maintain or better the quality of water."

d. Agricultural water management educational programs and materials for farmers, staff, and the public

Program	*Co-Funders (If Any)*	*Yearly Targets*
Water Conservation Information Bulletins	Keller/Wegley Consulting Engineers Client Group Provost & Pritchard Consulting Group	Quarterly Publication Mailings
Friant Water Authority	Friant Division Contractors	Monthly Publications
Kern Groundwater Authority		Bi-monthly Stakeholder Meetings

See Attachment G for samples of provided materials and notices. For Kern Groundwater Authority meeting materials during GSP and management area plan development, visit http://www.kerngwa.com/resources---outreach.html.

The Water Conservation Information Bulletins are provided to the District to inform both the District and its growers of on-farm water conservation tools and strategies. This educational program is being sponsored by both Keller/Wegley Consulting Engineers and Provost & Pritchard Consulting Group. Additional communication and engagement on agricultural water management occurs through KGA's bi-monthly stakeholder meetings.

e. Other

None

4. Pricing structure - based at least in part on quantity delivered

Adopt a water pricing structure based on the measured quantity delivered.

The District's pricing structure is that of three (3) forms, all which are values set on an annual basis. Volumetric charges are based on a per acre-foot basis and can be adjusted as water supply allocations from Reclamation change. The cost per acre-foot for 2019 was $130. The Friant-Kern Canal bifurcates the District. The lands that are supplied surface water via the District's gravity system are west of the Friant-Kern Canal. All lands located east of the Friant- Kern Canal are supplied surface water through a pressurized system. Water delivered through this system is charged the third form of pricing, known as lift charges. Lift charges are based on a per lift basis at a cost of $22.00.

5. Evaluate and improve efficiencies of district pumps

Describe the program to evaluate and improve the efficiencies of the contractor's pumps.

As stated previously, the District does not own or operate any groundwater pumping wells or facilities. All wells within the District are owned by landowners. The District does operate distribution system lift stations and includes those facilities in the District preventative maintenance program including efficiency performance tests.

	Total in district	*# surveyed last year*	*# surveyed in current year*	*# projected for next year*
Wells	N/A	N/A	N/A	N/A
Lift pumps	79	0	62	0

B. Exemptible BMPs for Agricultural Contractors

1. Facilitate alternative land use

Drainage Characteristic	*Acreage*	*Potential Alternate Uses*
High water table (<5 feet)	0	Not Applicable[1]
Poor drainage	0	Not Applicable[1]
Groundwater Selenium concentration > 50 ppb	0	Not Applicable[1]
Poor productivity	0	Not Applicable[1]

[1]Not applicable as all lands are put to beneficial use.

2. Facilitate use of available recycled urban wastewater

Sources of Recycled Urban Wastewater	*AF/Y Available*	*AF/Y Currently Used in District*
Delano WWTP	4,242	4,242
McFarland WWTP	50	50

Delano Wastewater Treatment Plan has some reclaimed water that they deliver to their agricultural lands in the District. Therefore, the District reports it since it is used for agricultural purposes.

3. Facilitate the financing of capital improvements for on-farm irrigation systems

The District maintains a listing of potential funding sources and has an established policy to provide assistance in completing funding application documents. The District is a member of the Farm Service Agency (FSA), formerly known as the Agricultural Stabilization and Conservation Service, which is part of the United States Department of Agriculture. The FSA administers programs concerning on farm conservation and grants loans to farms, through a 50 percent cost-share program for conservation related improvements. The District also financially participates in on-farm efficiency evaluations.

4. Incentive pricing

The District operates a conjunctive use district. The District provides surface water when available as a supply to its water users. The District encourages water users to use District

surface water when available. The District strives to set surface water rates less than pumping costs for growers to facilitate sustainable groundwater management. As noted previously, the District rules and regulations prohibit runoff. Therefore, any excess surface water deliveries will recharge groundwater, contributing to sustainability.

Structure of Incentive Pricing	*Related Goal*
Off-Peak water usage	Energy Savings
Discounted weekend water rates (program has been discontinued due to no noticeable change in delivery pattern)	Water Availability/Energy Savings were the program goals

5a. Line or pipe ditches and canals

Not applicable. The District distribution system is a closed pipeline system.

5b. Construct/line regulatory reservoirs

Regulatory reservoirs required for proper system operation have previously been constructed. No additional facilities are currently required for efficient operation. Funds are budgeted to maintain existing reservoir facilities.

6. Increase flexibility in water ordering by, and delivery to, water users

The District continues to make improvements to its existing distribution system by replacing older laterals made of clay mortar joint pipe, which severely leaked, causing a loss in potential delivered supply to the growers. By replacing the old clay mortar joint pipe with new, more efficient and modern pipe, the District has been able to increase its percentage of supply delivered to approximately 98 percent.

The District's water tracking software, which performs a day-by-day comparison of what is ordered versus the recorded delivered volume through each individual meter, allows the District to manage, at high accuracy, the amount of water delivered at each turnout. This level of tracking allows the District to maximize flexibility in water ordering and water accounting based on available system characteristics.

The District does not have a "water order form". Water orders are currently submitted to the District by landowners on their own template, via fax, email or in-person at the District office. Additional information on water order and shutoffs are provided in Attachment B, Section B(9).

7. Construct and operate district spill and tailwater recovery systems

Distribution System Lateral	*Annual Spill (AF/Y)*	*Quantity Recovered and reused (AF/Y)*
N/A	N/A	N/A
Total	N/A	

Drainage System Lateral	*Annual Drainage Outflow (AF/Y)*	*Quantity Recovered and reused (AF/Y)*
N/A	N/A	N/A
Total	N/A	

Describe facilities that resulted in reduced spill and tailwater

None. There are no District spills. The distribution system is a closed pipe system.

8. Plan to measure outflow

This is not applicable to the District. The District rules and regulations prohibit runoff (See Attachment B, Section B(11) Runoff Prohibited

Total # of outflow (surface) locations/points 0

Total # of outflow (subsurface) locations/points 0

Total # of measured outflow points 0

Percentage of total outflow (volume) measured during report year N/A

Identify locations, prioritize, determine best measurement method/cost, submit funding proposal

Location & Priority	Estimated cost (in $1,000s)				
	2019	2020	2021	2022	2023
Not Applicable	N/A	N/A	N/A	N/A	N/A

9. Optimize conjunctive use of surface and groundwater

Describe the potential for increasing conjunctive use of surface and groundwater.

Historically, the District has primarily achieved its groundwater recharge goals through an in-lieu surface water delivery program. When surface water supplies are available and can be delivered to the District, the surface water supplies are utilized "in lieu" of groundwater pumping. The District will continue this program whenever surface supplies are available and will augment deliveries whenever supplemental supplies can be purchased at a reasonable cost and ordered for delivery by growers. The District continues to evaluate available and developing banking programs.

10. Automate distribution and/or drainage system structures

Identify locations where automation would increase delivery flexibility and reduce spill and losses. Describe program to achieve these benefits and estimate the annual water savings.

The District utilizes a closed piped system. Automation of structures is currently limited to the District delivery points from the Friant-Kern Canal, which are automated and controlled by the Friant Water Authority. The District has taken the first steps toward total system automation by replacing all main gate control devices and constructing low volume bypass piping and valves at each large diameter system control location. A trial SCADA element was implemented under the last AWMP. Since implementation, the SCADA system has increased efficiency of day to day operations and the District's water delivery system. Real time ordering and shutoff system gives operators the ability to shut off water from their phone rather than driving 50 miles, at times, to manually shut off deliveries at the canal to the grower. Not only does this save time and operating costs, but water savings are also realized by having the ability to immediately shut off deliveries preventing delivery of unnecessary water that results in loss. Additionally, the District has more control of all water shut offs. Historically, water losses have occurred when growers turn off valves without preauthorization from the district. When this happens, water is still delivered from main gates to the grower and losses occur. With SCADA, the system has built in control that will alarm the system if a grower shuts off a valve without authorization and shut off canal water to the grower to prevent water loss.

11. Facilitate or promote water customer pump testing and evaluation

See Attachment G, Communications and Engagement.

The District has and will continue to provide information to the growers relative to the availability of pump testing and efficiency services provided by the serving utility or local pump companies. The involvement of the District with private pump efficiencies is related to water conservation and overall resource management. The fact that a farmer may apply a given amount of water to a field with a pump which is operating at a less than optimum efficiency does affect the application time and the total quantity of water which is being demanded by the

crop. In May 2012, the District initially distributed and continuously make available a memorandum informing landowners of the Center for Irrigation Technology's Agricultural Pumping Efficiency Program and a listing of local participating pump test companies. Since the District does not own any groundwater wells, they are indirectly involved in this program; however, since program implementation grower participation has increased.

12. Mapping

GIS maps	*Estimated cost (in $1,000s)*				
	2019	*2020*	*2021*	*2022*	*2023*
Layer 1 – Distribution system	0	0	0	0	1
Layer 2 – Drainage system	N/A	N/A	N/A	N/A	N/A
Suggested layers:					
Layer 3 – Groundwater information	0	0	0	0	0
Layer 4 – Soils map	0	0	0	0	1
Layer 5 – Natural & cultural resources	N/A	N/A	N/A	N/A	N/A
Layer 6 – Problem areas	N/A	N/A	N/A	N/A	N/A

C. Provide a 5-Year Budget for Implementing BMPs

The District participates in programs at the District level and the landowners participate with NRCS for implementing on-farm best management practices. Through the implementation of SGMA, the District plans to get more involved in implementing BMP improvements. For example, the District has implemented Land IQ to provide estimates of crop water demand using satellite imagery. As SGMA is further implemented the District will consider making additional water measurement improvements in addition to the improvements made through implementation of their SCADA system.

1. Amount actually spent during current year.

Year 2019 or Year 1

BMP #		BMP Name	Actual Expenditure (not including staff time)	Staff Hours
A	1	Measurement	$0	0
	2	Conservation staff	$0	0
	3	On-farm evaluation /water delivery info	$0	0
		Irrigation Scheduling	$0	0
		Water quality	$0	0
		Agricultural Education Program	$0	0
	4	Quantity pricing	$0	0
	5	Contractor's pumps	$0	0
B	1	Alternative land use	$0	0
	2	Urban recycled water use	$0	0
	3	Financing of on-farm improvements	$0	0
	4	Incentive pricing	$0	0
	5	Line or pipe canals/install reservoirs	$0	0
	6	Increase delivery flexibility	$0	0
	7	District spill/tailwater recovery systems	$0	0
	8	Measure outflow	$0	0
	9	Optimize conjunctive use	$0	0
	10	Automate canal structures	$0	0
	11	Customer pump testing	$0	0
	12	Mapping	$0	0
		Total	$0	0

2. Projected budget summary for the next year.

Year 2020 or Year 2			*Budgeted Expenditure*	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	*$0*	*0*
	2	*Conservation staff*	*$0*	*0*
	3	*On-farm evaluations/water delivery info*	*$3000*	*0*
		Irrigation Scheduling	*$0*	*0*
		Water quality	*$1500*	*0*
		Agricultural Education Program	*$0*	*0*
	4	*Quantity pricing*	*$0*	*0*
	5	*Contractor's pumps*	*$0*	*0*
B	*1*	*Alternative land use*	*$0*	*0*
	2	*Urban recycled water use*	*$0*	*0*
	3	*Financing of on-farm improvements*	*$0*	*0*
	4	*Incentive pricing*	*$0*	*0*
	5	*Line or pipe canals/install reservoirs*	*$0*	*0*
	6	*Increase delivery flexibility*	*$5000*	*0*
	7	*District spill/tailwater recovery systems*	*$0*	*0*
	8	*Measure outflow*	*$0*	*0*
	9	*Optimize conjunctive use*	*$7500*	*0*
	10	*Automate canal structures*	*$0*	*0*
	11	*Customer pump testing*	*$0*	*0*
	12	*Mapping*	*$0*	*0*
		Total	*$17,000*	*0*

3. Projected budget summary for 3rd year.

Year 2021 or Year 3			*Budgeted Expenditure*	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	*$0*	*0*
	2	*Conservation staff*	*$0*	*0*
	3	*On-farm evaluations/water delivery info*	*$3000*	*0*
		Irrigation Scheduling	*$0*	*0*
		Water quality	*$1500*	*0*
		Agricultural Education Program	*$0*	*0*
	4	*Quantity pricing*	*$0*	*0*
	5	*Contractor's pumps*	*$0*	*0*
B	*1*	*Alternative land use*	*$0*	*0*
	2	*Urban recycled water use*	*$0*	*0*
	3	*Financing of on-farm improvements*	*$0*	*0*
	4	*Incentive pricing*	*$0*	*0*
	5	*Line or pipe canals/install reservoirs*	*$0*	*0*
	6	*Increase delivery flexibility*	*$5000*	*0*
	7	*District spill/tailwater recovery systems*	*$0*	*0*
	8	*Measure outflow*	*$0*	*0*
	9	*Optimize conjunctive use*	*$5000*	*0*
	10	*Automate canal structures*	*$0*	*0*
	11	*Customer pump testing*	*$0*	*0*
	12	*Mapping*	*$0*	*0*
		Total	*$14,500*	*0*

4. Projected budget summary for 4th year.

Year 2022or Year 4			*Budgeted Expenditure*	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	*$0*	*0*
	2	*Conservation staff*	*$0*	*0*
	3	*On-farm evaluations/water delivery info*	*$3000*	*0*
		Irrigation Scheduling	*$0*	*0*
		Water quality	*$1500*	*0*
		Agricultural Education Program	*$0*	*0*
	4	*Quantity pricing*	*$0*	*0*
	5	*Contractor's pumps*	*$0*	*0*
B	*1*	*Alternative land use*	*$0*	*0*
	2	*Urban recycled water use*	*$0*	*0*
	3	*Financing of on-farm improvements*	*$0*	*0*
	4	*Incentive pricing*	*$0*	*0*
	5	*Line or pipe canals/install reservoirs*	*$0*	*0*
	6	*Increase delivery flexibility*	*$5000*	*0*
	7	*District spill/tailwater recovery systems*	*$0*	*0*
	8	*Measure outflow*	*$0*	*0*
	9	*Optimize conjunctive use*	*$3000*	*0*
	10	*Automate canal structures*	*$0*	*0*
	11	*Customer pump testing*	*$0*	*0*
	12	*Mapping*	*$0*	*0*
		Total	*$12,500*	*0*

5. Projected budget summary for 5th year.

Year 2023 or Year 5			*Budgeted Expenditure*	
BMP #		*BMP Name*	*(not including staff time)*	*Staff Hours*
A	*1*	*Measurement*	*$0*	*0*
	2	*Conservation staff*	*$0*	*0*
	3	*On-farm evaluations/water delivery info*	*$3000*	*0*
		Irrigation Scheduling	*$0*	*0*
		Water quality	*$1500*	*0*
		Agricultural Education Program	*$0*	*0*
	4	*Quantity pricing*	*$0*	*0*
	5	*Contractor's pumps*	*$0*	*0*
B	*1*	*Alternative land use*	*$0*	*0*
	2	*Urban recycled water use*	*$0*	*0*
	3	*Financing of on-farm improvements*	*$0*	*0*
	4	*Incentive pricing*	*$0*	*0*
	5	*Line or pipe canals/install reservoirs*	*$0*	*0*
	6	*Increase delivery flexibility*	*$5000*	*0*
	7	*District spill/tailwater recovery systems*	*$0*	*0*
	8	*Measure outflow*	*$0*	*0*
	9	*Optimize conjunctive use*	*$3000*	*0*
	10	*Automate canal structures*	*$0*	*0*
	11	*Customer pump testing*	*$0*	*0*
	12	*Mapping*	*$0*	*0*
		Total	*$12,500*	*0*

Section IV: Best Management Practices for Urban Contractors

Urban BMPs

This section is not applicable to the District because it is not a supplier of water for urban use. However, as part of its Management Area Plan in compliance with SGMA, the District has collaborated with the cities of Delano and McFarland to identify potential projects, management actions, and practices which will further increase groundwater sustainability within the District.

Foundational BMPs

1. Utility Operations Programs

    1.1. Operations Practices

        A.1) Conservation Coordinator

        A.2) Water waste prevention

        A.3) Wholesale agency assistance programs

    1.2. Water Loss Control

    1.3. Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

    1.4. Retail Conservation Pricing

2. Education Programs

    2.1. Public Information Programs

    2.2. School Education Programs

Programmatic BMPs

3. Residential

        A.1) Residential assistance program

        A.2) Landscape water survey

        A.3) High-efficiency clothes washers (HECWs)

        A.4) WaterSense Specification (WSS) toilets

        A.5) WaterSense Specifications for residential development

4. Commercial, Industrial, and Institutional (CII)
5. Landscape

B. Provide a 5-Year Budget for Expenditures and Staff Effort for BMPs

1. Amount spent during current year.

Year 2019 or Year 1

BMP #	BMP Name	Projected Expenditures (not including staff hours)	Staff Hours
1.	Utilities Operations		
1.1	Operations Practices	$0	0
1.2	Water Loss Control	$0	0
1.3	Metering	$0	0
1.4	Retail Conservation Pricing	$0	0
2.	Education Programs		
2.1	Public Information Programs	$0	0
2.2	School Education Programs	$0	0
3.	Residential	$0	0
4.	CII	$0	0
5.	Landscape	$0	0
	Total	*$0*	*0*

2. Projected budget summary for 2nd year.

Year 2020 or Year 2			Projected Expenditures	
BMP #		BMP Name	(not including staff hours)	Staff Hours
1.	Utilities Operations			
	1.1	Operations Practices	$0	0
	1.2	Water Loss Control	$0	0
	1.3	Metering	$0	0
	1.4	Retail Conservation Pricing	$0	0
2.	Education Programs			
	2.1	Public Information Programs	$0	0
	2.2	School Education Programs	$0	0
3.	Residential		$0	0
4.	CII		$0	0
5.	Landscape		$0	0
		Total	*$0*	*0*

3. Projected budget summary for 3rd year.

Year 2021 or Year 3			Projected Expenditures	
BMP #		BMP Name	(not including staff hours)	Staff Hours
1.	Utilities Operations			
	1.1	Operations Practices	$0	0
	1.2	Water Loss Control	$0	0
	1.3	Metering	$0	0
	1.4	Retail Conservation Pricing	$0	0
2.	Education Programs			
	2.1	Public Information Programs	$0	0
	2.2	School Education Programs	$0	0
3.	Residential		$0	0
4.	CII		$0	0
5.	Landscape		$0	0
		Total	*$0*	*0*

4. Projected budget summary for 4th year.

Year 2022 or Year 4			Projected Expenditures	
BMP #		BMP Name	(not including staff hours)	Staff Hours
1.	Utilities Operations			
	1.1	Operations Practices	$0	0
	1.2	Water Loss Control	$0	0
	1.3	Metering	$0	0
	1.4	Retail Conservation Pricing	$0	0
2.	Education Programs			
	2.1	Public Information Programs	$0	0
	2.2	School Education Programs	$0	0
3.	Residential		$0	0
4.	CII		$0	0
5.	Landscape		$0	0
		Total	*$0*	*0*

5. Projected budget summary for 5th year.

Year 2023 or Year 5			Projected Expenditures	
BMP #		BMP Name	(not including staff hours)	Staff Hours
1.	Utilities Operations			
	1.1	Operations Practices	$0	0
	1.2	Water Loss Control	$0	0
	1.3	Metering	$0	0
	1.4	Retail Conservation Pricing	$0	0
2.	Education Programs			
	2.1	Public Information Programs	$0	0
	2.2	School Education Programs	$0	0
3.	Residential		$0	0
4.	CII		$0	0
5.	Landscape		$0	0
		Total	*$0*	*0*

Section V: Water Inventory Tables for Agricultural Contractors

Year of Data	2019	Enter data year here

Table 1

Surface Water Supply

2019 Month	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (define) (acre-feet)	Other Water (define) (acre-feet)	Transfers into District (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
Method	M1							
January	644	0	0	0	0	0	0	644
February	1,275	0	0	0	0	0	0	1,275
March	2,090	0	0	0	0	0	0	2,090
April	8,415	0	0	0	0	0	0	8,415
May	9,539	0	0	0	0	0	0	9,539
June	18,927	0	0	0	0	0	0	18,927
July	21,867	0	0	0	0	0	0	21,867
August	17,792	0	0	0	0	0	0	17,792
September	11,174	0	0	0	0	0	0	11,174
October	8,244	0	0	0	0	0	0	8,244
November	3,727	0	0	0	0	0	0	3,727
December	477	0	0	0	0	0	0	477
TOTAL	104,171	0	0	0	0	0	0	104,171

Table 2

Ground Water Supply

2019 Month	District Groundwater (acre-feet)	Private Agric Groundwater (acre-feet)
Method		O1
January	0	0
February	0	0
March	0	1,670
April	0	7,509
May	0	7,140
June	0	3,818
July	0	1,799
August	0	1,593
September	0	3,663
October	0	511
November	0	0
December	0	0
TOTAL	0	27,704

*normally estimated

O1: Private Agricultural is calculated as total applied water minus applied surface water. Total applied water is calculated as the ET of applied water divided by an estimated consumptive use fraction of 0.8. ETaw is calculated as total volume of ET by month calculated by SWID Land IQ remotely sensed ET method (adjusted to the larger area of SSJMUD) minus effective precipitation.

Table 3

Total Water Supply

2019 Month	Surface Water Total (acre-feet)	District Groundwater (acre-feet)	M&I Wastewater *(acre-feet)	Water Supply (acre-feet)
Method			M1	
January	644	0	352	996
February	1,275	0	335	1,610
March	2,090	0	378	2,468
April	8,415	0	362	8,777
May	9,539	0	379	9,918
June	18,927	0	359	19,286
July	21,867	0	354	22,221
August	17,792	0	366	18,158
September	11,174	0	354	11,528
October	8,244	0	349	8,593
November	3,727	0	351	4,078
December	477	0	354	831
TOTAL	104,171	0	4,292	108,463

*Recycled M&I Wastewater is treated urban wastewater that is used for agriculture in the water year.

2019 Precipitation Worksheet				
	inches precip	ft precip	acres	AF/Year
Jan	1.34	0.11	0.00	0.00
Feb	1.53	0.13	0.00	0.00
Mar	2.11	0.18	0.00	0.00
Apr	0.11	0.01	0.00	0.00
May	1.85	0.15	0.00	0.00
Jun	0.00	0.00	0.00	0.00
Jul	0.00	0.00	0.00	0.00
Aug	0.00	0.00	0.00	0.00
Sep	0.00	0.00	0.00	0.00
Oct	0.00	0.00	0.00	0.00
Nov	0.76	0.06	0.00	0.00
Dec	2.01	0.17	0.00	0.00
TOTAL	**9.71**	**0.58**		

2019 Evaporation Worksheet				
	inches evap	ft evap	acres	AF/YEAR
Jan	1.64	0.14	0.00	0.00
Feb	2.09	0.17	0.00	0.00
Mar	3.80	0.32	0.00	0.00
Apr	6.05	0.50	0.00	0.00
May	6.25	0.52	0.00	0.00
Jun	8.34	0.70	0.00	0.00
Jul	8.46	0.71	0.00	0.00
Aug	7.99	0.67	0.00	0.00
Sep	5.83	0.49	0.00	0.00
Oct	4.07	0.34	0.00	0.00
Nov	2.36	0.20	0.00	0.00
Dec	1.36	0.11	0.00	0.00
TOTAL	**58.24**	**4.20**		

Table 4

Agricultural Distribution System

2019 Canal, Pipeline, Lateral, Reservoir	**Length** (feet)	**Width** (feet)	**Surface Area** (square feet)	**Precipitation** (acre-feet)	**Evaporation** (acre-feet)	**Spillage** (acre-feet)	**Seepage** (acre-feet)	**Total** (acre-feet)
Lateral 1 -Bassett	33,500	0	0	0.0	0.0	0	0	0
Lateral 2 - Airport	43,800	0	0	0.0	0.0	0	0	0
Lateral 3 - Elmo	40,900	0	0	0.0	0.0	0	0	0
Lateral 4	37,000	0	0	0.0	0.0	0	0	0
Lateral 5	25,300	0	0	0.0	0.0	0	0	0
Lateral 6	19,300	0	0	0.0	0.0	0	0	0
Lateral 7	19,500	0	0	0.0	0.0	0	0	0
Lateral 8	31,700	0	0	0.0	0.0	0	0	0
Lateral 9	23,800	0	0	0.0	0.0	0	0	0
Sub-Laterals	783,150	0	0	0.0	0.0	0	0	0
	0	0	0	0.0	0.0	0	0	0
TOTAL				0.0	0.0	0	0	0

Note: Seepage from the distribution system is acknowledged to occur. The seepage however, is the source for the groundwater which is pumped by landowners to replace supply lost to seepage

Table 5

Crop Water Needs

YTD 2020 - SWID Crop type ETa received from LandIQ on May 3, 2022 Assume 80% of 9.71 inches in 2019 is effective precipitation

2019 Crop Name	**Area** (crop acres)	**Crop ET** (AF/Ac)	**Leaching Requirement** (AF/Ac)	**Cultural Practices** (AF/Ac)	**Effective Precipitation** (AF/Ac)	**Appl. Crop Water Use** (acre-feet)
Alfalfa	718	3.40	0.0	0.0	0.6	1,976
Almonds	16,438	3.30	0.0	0.0	0.6	43,605
Carrots	234	1.58	0.0	0.0	0.6	218
Cherries	231	3.61	0.0	0.0	0.6	684
Corn	110	2.24	0.0	0.0	0.6	175
Forage - Other	39	1.71	0.0	0.0	0.6	41
Grapefruit	10	2.79	0.0	0.0	0.6	21
Grapes	6,235	2.63	0.0	0.0	0.6	12,362
Hay - Other	117	1.71	0.0	0.0	0.6	124
Lemons & Limes	10	2.79	0.0	0.0	0.6	21
Mandarins	99	2.79	0.0	0.0	0.6	212
Naval Oranges	4,042	2.79	0.0	0.0	0.6	8,661
Oats	105	1.71	0.0	0.0	0.6	112
Other Fruits	8	2.79	0.0	0.0	0.6	17
Pasture	25	2.59	0.0	0.0	0.6	49
Pecans	394	2.79	0.0	0.0	0.6	844
Peppers	38	1.36	0.0	0.0	0.6	27
Pistachios	4,896	3.04	0.0	0.0	0.6	11,714
Potatoes, early	155	1.27	0.0	0.0	0.6	97
Raisin Grapes	62	2.63	0.0	0.0	0.6	123
Silage	11	2.24	0.0	0.0	0.6	18
Sudan	144	2.24	0.0	0.0	0.6	229
Table Grapes	10,536	2.63	0.0	0.0	0.6	20,889
Tomatoes	273	1.49	0.0	0.0	0.6	230
Valencia Oranges	800	2.79	0.0	0.0	0.6	1,714
Vegetables, other	139	1.49	0.0	0.0	0.6	117
Walnuts	149	3.10	0.0	0.0	0.6	365
Wheat	221	1.94	0.0	0.0	0.6	286
Wine Grapes	128	2.63	0.0	0.0	0.6	254
Crop Acres	46,367					105,187

Total Irrig. Acres 46,367 (If this number is larger than your known total, it may be due to double cropping)

Table 6

2019 District Water Inventory

Water Supply	Table 3		108,463
Riparian ET	(Distribution and Drain)	minus	0
Groundwater recharge	(intentional - ponds, injection)	minus	1,416
Seepage	Table 4	minus	0
Evaporation - Precipitation	Table 4	minus	0
Spillage	Table 4	minus	0
Transfers out of District		minus	0
Water Available for sale to customers			107,048
Actual Agricultural Water Sales	2019 From District Sales Records		105,678
Private Groundwater	Table 2	plus	27,704
Crop Water Needs	Table 5	minus	105,187
Drainwater outflow	(tail and tile, not recycled)	minus	0
Percolation from Agricultural Land	(calculated)		28,195
Unaccounted for Water	(calculated)		1,370

Table 7

Influence on Groundwater and Saline Sink

2019

Agric Land Deep Perc + Seepage + Recharge - Groundwater Pumping = District Influence on	1,416
Estimated actual change in ground water storage, including natural recharge)	0
Irrigated Acres (from Table 5)	46,367
Irrigated acres over a perched water table	0
Irrigated acres draining to a saline sink	0
Portion of percolation from agri seeping to a perched water table	0
Portion of percolation from agri seeping to a saline sink	0
Portion of On-Farm Drain water flowing to a perched water table/saline sink	0
Portion of Dist. Sys. seep/leaks/spills to perched water table/saline sink	0
Total (AF) flowing to a perched water table and saline sink	0

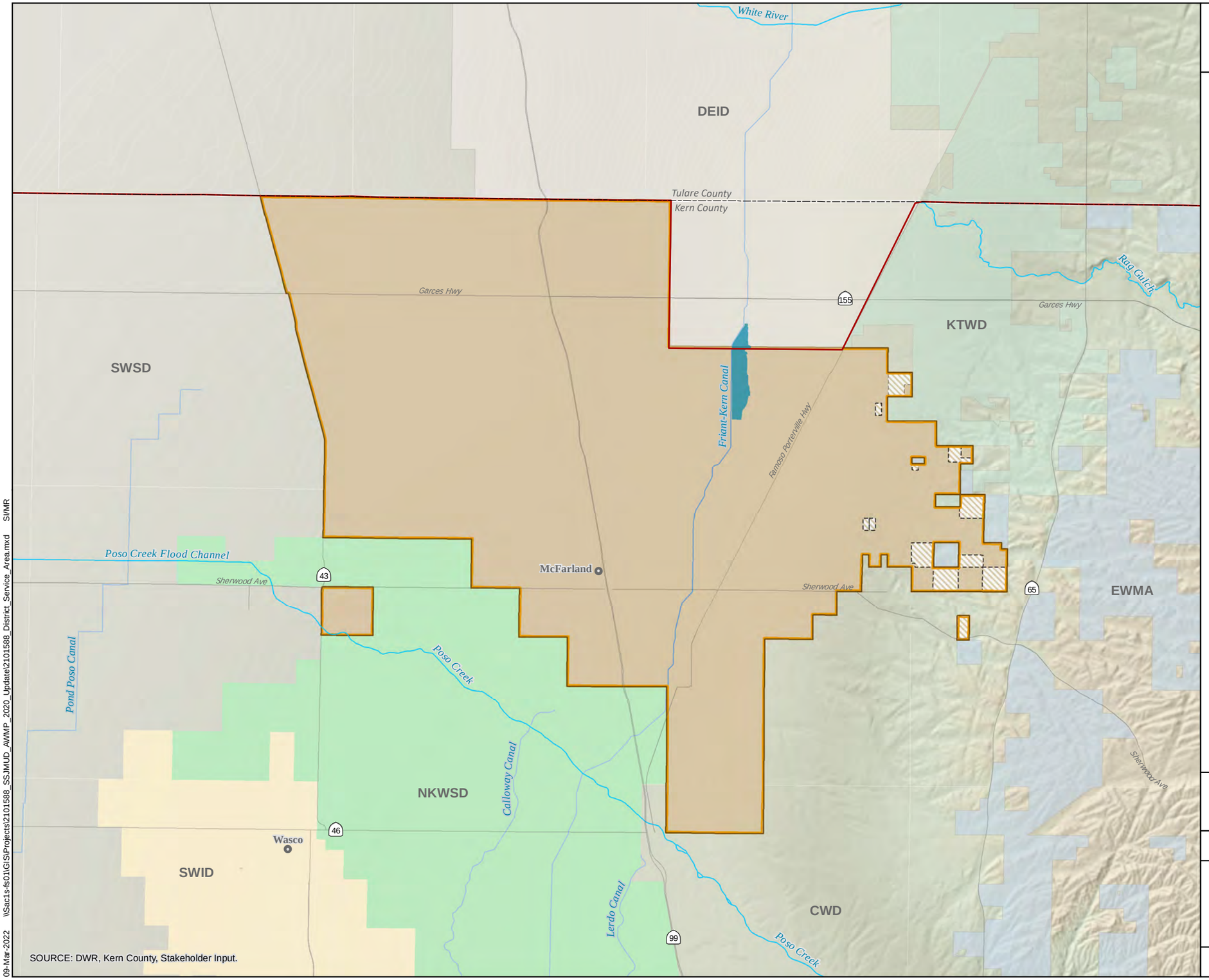
Table 8

Annual Water Quantities Delivered Under Each Right or Contract

Year	Federal Ag Water (acre-feet)	Federal non-Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (define) (acre-feet)	Other Water (define) (acre-feet)	Transfers into District (acre-feet)	Upslope Drain Water (acre-feet)	Total (acre-feet)
2010	120,528	0	0	0	0	0	0	120,528
2011	124,678	0	0	0	0	0	0	124,678
2012	81,602	0	0	0	0	0	0	81,602
2013	58,923	0	0	0	0	0	0	58,923
2014	14,249	0	0	0	0	0	0	14,249
2015	3,020	0	0	0	0	0	0	3,020
2016	62,934	0	0	0	0	0	0	62,934
2017	111,994	0	0	0	0	3,714	0	115,708
2018	98,761	0	0	0	0	0	0	98,761
2019	104,171	0	0	0	0	0	0	104,171
Total	780,860	0	0	0	0	3,714	0	784,574
Average	78,086	0	0	0	0	371	0	78,457

Attachment A: District Maps

SSJMUD
WATER MANAGEMENT PLAN

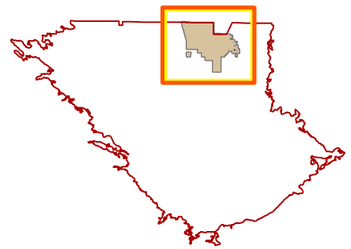


SOURCE: DWR, Kern County, Stakeholder Input.

Management Area

- SSJMUD-1 *(District Land)*
- SSJMUD-2 *(Undistricted Land)*
- North Kern Water Storage District
- Shafter - Wasco Irrigation District
- Kern - Tulare Water District
- Delano - Earlimart Irrigation District
- Eastside Water Management

- Kern County Subbasin Boundary
- Highway
- Waterway
- Major Conveyance



0 2 4
Miles

N

Southern San Joaquin
Municipal Utility District
Service Area

Kern County, California

GEI Consultants

DECEMBER 2021 **DRAFT** FIGURE A-1

09-Mar-2022 \\Sac1s-fs01\GIS\Projects\2101588_SSJMUD_AWMP_2020_Update\2101588_District_Service_Area.mxd SI/MR

SSJMUD
WATER MANAGEMENT PLAN

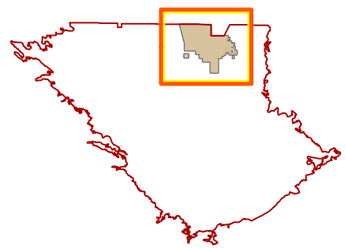
- SSJMUD Reservoir Location
- SSJMUD Lateral *(Pipeline)*

Major Canal

- *Lined*
- *Unlined*
- Minor Canal
- Spreading Grounds

Management Plan Area

- Southern San Joaquin MUD
- Kern County Subbasin Boundary
- Highway
- Waterway



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Miles

N

Southern San Joaquin
Municipal Utility District
District Conveyance Map

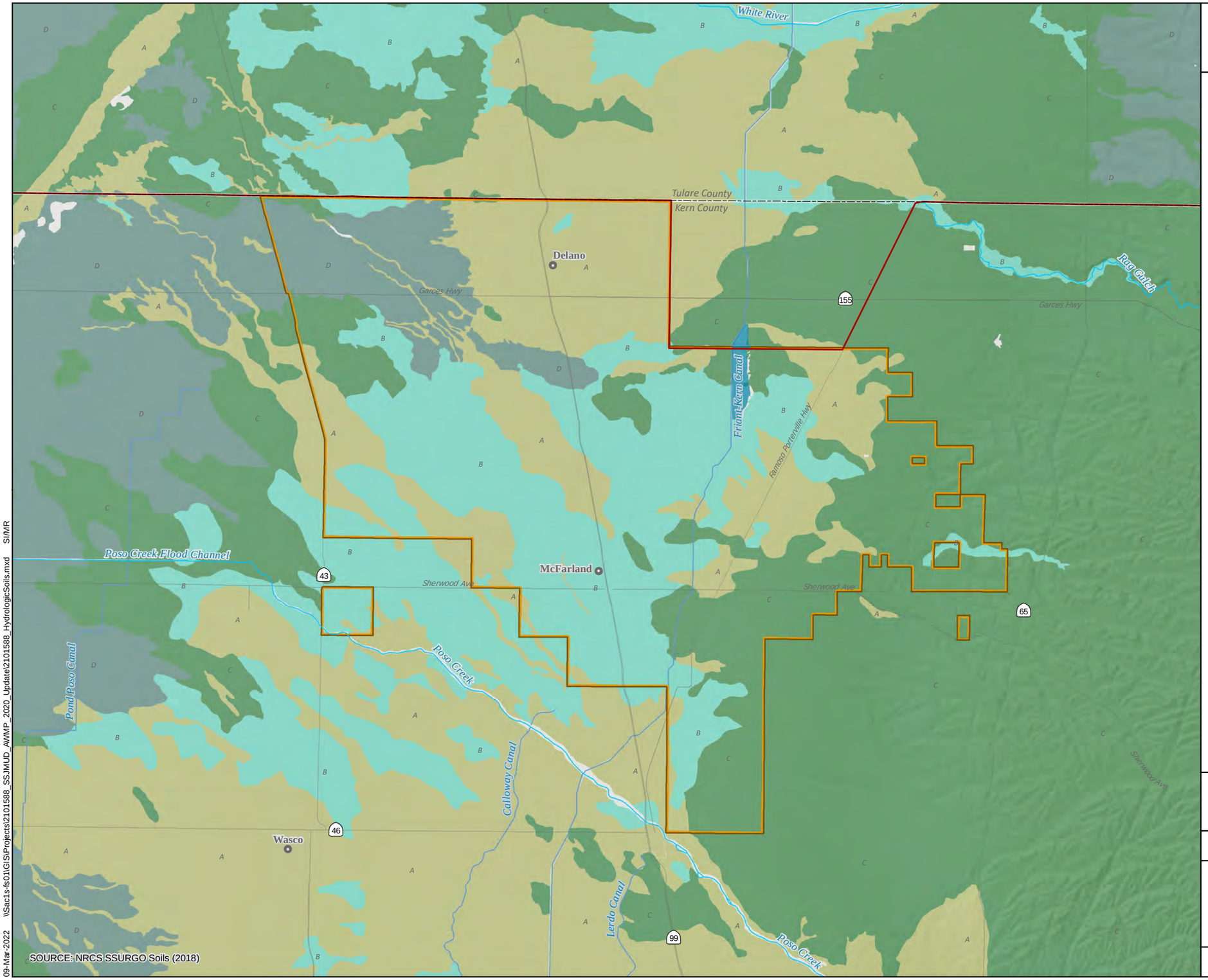
Kern County, California

GEI Consultants

APRIL 2022 FIGURE A-2

SOURCE: SSJMUD, USGS NHD, Kern County

07-Apr-2022 Z:\Projects\2101588_SSJMUD_AWMP_2020_Update\2101588_Conveyance_Reservoirs.mxd SJMR



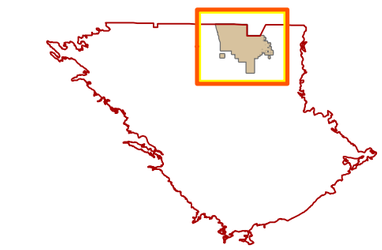
SSJMUD
WATER MANAGEMENT PLAN

Hydrologic Group - Dominant Condition

- A - HIgh Infiltration *(Sands or Gravels)*
- B - Moderate Infiltration *(Fine to coarse Soils)*
- C - Slow Infiltration *(Moderately Fine to Fine Soils)*
- D - Very Slow Infiltration
- No Data

Management Plan

- Southern San Joaquin MUD
- Kern County Subbasin Boundary
- Highway
- Waterway
- Major Conveyance



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Miles

N

Southern San Joaquin
Municipal Utility District
Hydrologic Soils Groups

Kern County, California

GEI Consultants

DECEMBER 2021 **DRAFT** FIGURE A-3

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Attachment B: District Rules and Regulations

SSJMUD

Southern San Joaquin Municipal Utility District

RULES AND REGULATIONS

FOR WATER SERVICE

Effective March 1, 2002

Board of Directors

John N. Fisher, President
Peter Dulcich, Vice President
George Zaninovich
Donnie Morris
James Regan

William R. Carlisle, General Manager/Secretary
Phylliss Sims, Office Manager/Treasurer
Roland Gross, Field Superintendent
Larry Green, Dispatcher/Asst. Water Master

TABLE OF CONTENTS

RULES AND REGULATIONS
FOR WATER SERVICE
SOUTHERN SAN JOAQUIN
MUNICIPAL UTILITY DISTRICT

Adopted January 11, 1989, Revised September 13, 1989, February 13, 1991, February 10, 1993, January 12, 1994, March 1, 1994; Effective March 1, 2002.

A. GENERAL

(1) Authority:

Article 4, Section 11885 of the Municipal Utility District Act states as follows:

The Board shall supervise and regulate every utility owned and operated by the District including the fixing of rates, rentals, charges, and classification, and the making of rules, regulations, contracts, practices, and schedules for or in connection with any service product or commodity owned or controlled by the District.

(2) Applicable Contracts with United States of America:

The District receives its surface water supply by Contract I1r-1460-LTR1, with the United States from the Central Valley Project and delivers its supply through a pipeline distribution system constructed by the United States under Contracts 175r-1434 and Supplementary Contract 14-06-200-6660.

(3) Definitions:

The following definitions shall be applicable to these Rules and Regulations:

Board: The Board of Directors of the Southern San Joaquin Municipal Utility District.

Bureau: Bureau of Reclamation of the United States Department of Interior.

District: Southern San Joaquin Municipal Utility District

Schedule A Lands: Those lands within the District's boundaries, as of March 1, 2001 which are presently connected to the District's distribution system and which either (a) have received a surface water supply from the District during the five (5) years immediately preceding March 1, 2001, or (b) which were designated excess land according to Federal Reclamation Law in effect prior to October 12, 1982, but which have become eligible prior to March 1, 2002.

Schedule B Lands: Those lands within the District's boundaries as of March 1, 2001, or as subsequently annexed to the District, not defined as Schedule A lands.

Water User: The individual or entity who either owns, leases or in a wholesale capacity distributes water to property within the District and makes application with the District for water service, and is responsible for ordering, controlling, using and paying for water received from the District.

Water Year or Year: March 1 through the last day of February.

B. DELIVERY OF WATER

1) District Water Supply – General: The District sells water as a commodity only and not as a guaranteed service and will not be liable for defective quality of water, shortage of water, either temporary or permanent, or for failure to deliver water or delay in doing so. The District assumes no liability for damages to persons or property occasioned through defective works.

The District's water supply is in a raw, untreated condition, and as a result is considered to be unfit for human consumption without treatment. The District does not warrant the quality of water delivered and is under no obligation to construct or furnish water treatment facilities or maintain or better the quality of water.

(2) Applications: Each year prior to February 15, Water Users shall file on a form provided by the District, an "Application for Water" for the forthcoming Water Year. Said application shall contain the following:

(a) Name and address of the Water User.

(b) Telephone number of the Water User and telephone number of the local individual who manages or irrigates the farm or distributes water.

(c) Farm or operation delivery numbers, with legal descriptions, Assessor's parcel numbers, assessed acreage, ownership and Schedule A or B land designation, crop, type of irrigation method and requested quantity of water, for each delivery.

(d) If the Water Application is for leased land, the Landowner must also sign the Water Application along with the Lessee.

Unless previously paid, the Water Application shall be accompanied with a deposit of 18.00 per irrigable acre. However, if in the judgement of the General Manager, the applicant for water is a poor risk, an additional sum may be required to guarantee payment of water bills. The deposit does not represent any particular quantity of water and will be returned when the Landholder ceases to operate the lands served by the outlet. Existing deposits held by the District are considered grandfathered until the land is either sold or assessed per D(2)(a). All deposits paid after March 1, 2002 shall be made in the amount of $18.00 per irrigable acre.

The water year begins on March 1. Applications received after the above deadline may result in a delay of water service while the application is reviewed. In any case, water deliveries will be delayed a minimum of 48 hours after the forms are received.

(3) Bureau Forms: The Water Application must also be accompanied by the proper Bureau Certification or Verification forms for the forthcoming Water Year (unless previously submitted). Such forms must be completed by the Landowner, and where the property is leased, by the lessee. No water will be delivered until the forms, properly completed, are in the District office. Forms may be obtained in the District office.

District staff will review the forms for completeness but are not responsible for errors not found. The District is not responsible for deliveries made to landholders filing forms with incorrect information or if no forms have been filed. The landholder is responsible for filing timely and correct forms.

(4) Land Sales: If, during a year in which water is allocated, a parcel of land is sold, the remaining water, if any, allocated to that land will be assigned to the new owners. However, if the seller has used all of the water allocated to the land, the new owner will not have a water allocation until the next Water Year.

Upon sale of the land, change in a lease or other operating arrangement, both parties must notify the District within 15 days (verbally or by letter) and file new Certification forms within 30 days. However, no water will be delivered to newly acquired land until the proper forms are filed with the District. Landholders not notifying the District of a change in status will be responsible for any charges incurred until such notification is given.

If the proper forms are not filed within 30 days, any water that may have been delivered may be charged at "Full Cost" from the date of the change of status until the forms are filed.

(5) Excess Supplies/Pools: A Water User who retains his allocation with the intent to use in the current Water Year will pay for such water. A Water User who releases his remaining allocation prior to August 15 will not be charged for the water. Water released on or after said deadline, will be charged to the landholder except for the water which can be disposed of by the District.

Prior to February 15 each year, Water Users must apply on the Application for Water form provided by the District for water allocated to the District by the United States Bureau of Reclamation. In the event

requests exceeds allocation, Water Users requests shall be pro-rated to each eligible acre of land within the District proportionally based on the total eligible acreage within the District.

Unused requested and/or pro-rated water will be billed after the last day of February of the same Bureau water year. Unused water will be billed and not eligible to be carried over. Water may be transferred from one parcel to another parcel provided the parcels are owned or leased by the same person(s) or company. No landholder or Water User can transfer or exchange water outside the District service area.

Prior to but not later than August 15 each year, Water Users having reserved water greater than they can use on eligible land owned or leased by them will be allowed to assign their excess water to a common pool. Pool water will be made available on a first come, first served basis to other Water Users for use on eligible lands in the District. Either Board policy or the General Manager, depending on existing circumstances, will determine the disposition of water remaining in the common pool at the end of the irrigation season.

(6) M & I Deliveries: No Water User is eligible to be delivered water for municipal or industrial uses, as defined in the District's contract with the Bureau, until it has complied with the District's M&I water policy and procedures.

(7) Excess Lands: Water received through District delivery outlets shall not be used to irrigate or provide water to excess lands as determined by the Bureau. Violators are subject to a cut off of water delivery until the situation is rectified and may be assessed the full-cost rate, plus interest, for any such water delivered.

(8) Place of Use: Water received under the District contracts with the United States shall not be used to irrigate or provide water to lands outside of District boundaries, except in certain circumstances as determined by the Bureau and the Board. Violators are subject to cut off of water delivery and other penalties which may be prescribed by law.

(9) Turn Ons and Turn Offs: All adjustments and turning on and off of water deliveries, gates and pumps are performed by District personnel. Unauthorized individuals tampering with District facilities are subject to a Misdemeanor charge as prescribed by the California Penal Code.

Water delivery changes are made six (6) days a week with no changes on Sundays. Water Users desiring water shall place their water orders a minimum of 24-hours in advance. For example, to have water turned on or off on Tuesday morning, the water order must be placed with the District Dispatcher (phone 725-0610) by 9:00 A.M. Monday morning. Water orders can also be faxed to 725-2110 or emailed. Water orders are taken between the hours of 7:00 A.M. to 3:30 P.M. Monday through Friday and 7:00 A.M. to 9:00 A.M. on Saturday. No orders are taken on Sunday and orders for Monday changes must be in by 9:00 A.M. Saturday. All orders are compiled by the Dispatcher in order to place the District water order for the next day deliveries. Water orders should not be called into the Ditchrider's homes as those orders may not be accepted by the Dispatcher the following morning.

The District has an employee designated for standby to handle emergencies during off-duty hours. During holidays and off-duty hours, Water Users must call 725-0610 and choose option 5 to report an emergency. Please do not use this emergency service for a non-emergency use. An emergency is a broken pot, ruptured pipeline or similar failure, not an error in scheduling water. Excessive use of emergency service may result in a service charge of up to $50.00 per call.

(10) Access: To operate the system, it is necessary to have access to valves, meters, etc. No delivery of water will be made to a Water User who blocks access to his delivery or provides an unsafe condition for District personnel.

(11) Runoff Prohibited: In addition to the reasons stated above, the District reserves the right to turn off Water deliveries in those instances of a Water User not taking care of his water and flooding roads or neighboring lands. Prior to turning off such a delivery an attempt will be made to reach by phone the responsible party causing the flooding.

(12) Carryover/Preuse: To the extent permitted by the Bureau in administering the water supply contract between the District and Bureau, the District may carryover water allocated or acquired from the prior Water Year or to preuse water to be allocated the next Water Year, as the case may be, but carryover or preuse will not be permitted for individual water users.

(13) Responsibility After Delivery: The District assumes no responsibility for water after it passes through its meter and into a Water User's pipeline or ditch. As a condition for water service, Water User shall indemnify and shall assume the defense of and hold harmless the District and its officers, agents and employees for any and all loss, damage, liability, claims or cause of action of every nature whatsoever, for damage to or destruction of property, including the District's property or for injury to or death of persons, in any manner arising out of or incidental to the control, carriage, handling, use, disposal or distribution of water once it has passed the District's meter.

(14) Subdivided Parcels – Additional Turnouts: Water Services shall only be provided to a single parcel through a turnout designated to serve that parcel only, the water user of which is eligible to receive water upon such lands. After April 13, 1994, the District shall not provide water service to any parcel which does not have a turnout designated to serve that single parcel, unless, and only so long as, the Manager determines that multiple parcels served by a single turnout are under common ownership and/or control. Accordingly, for any land after such date which is further sub-divided, the owners of such land must make arrangements at their sole cost and expense for the District to install additional turnout(s), such that each sub-divided parcel has its own turnout, together with any necessary easements across other landowner's land so that water service can be provided for from a turnout located within the District's existing right-of-way. Notwithstanding the foregoing, the General Manager may, at District expense, provide for the District installing additional turnouts such that multiple parcels being served by a single turnout prior to April 13, 1994, are thereafter served by separate turnouts.

C. ALLOCATION OF WATER

(1) General: Any Water User of lands within the District designated nonexcess (or otherwise made eligible to receive water) who has otherwise complied with these Rules and Regulations and policies of the Board, including having timely submitted an application for water service, is entitled to water service made available to the District under the Contract with the Bureau. Provided, however, no Schedule B lands shall be eligible to receive any share of the District's contract entitlement until all applications for Schedule A lands are fulfilled.

(2) Allocation of Class I and Class II Water: The District's annual entitlement of Class I and Class II water shall be distributed according to requests taken from water applications. During dry years, requests may be allocated proportionately to all applicants on the basis of the acreage entitled to receive water (i.e. designated nonexcess or otherwise entitled to service under reclamation law). Provided, however, no Schedule B lands shall be eligible to receive any share of the District's Class I entitlement until all applications for Schedule A lands are fulfilled.

In any year in which the District's water supply under its contract with the Bureau is adequate to supply all applications for Schedule A lands, but not all Schedule B lands, the Schedule B lands shall share in such a shortage on a proportionate acreage basis.

(3) Allocation of Other Water from Bureau: Notwithstanding the foregoing, water made available by the Bureau beyond the District's contract providing for Class I and Class II water will be allocated to meet the demands of any Schedule A lands within the district, and secondly shall be allocated equally on a per acre basis to owners or operators of Schedule B lands within the District requesting service. Such water shall include, but not be limited to, water which is unstorable or flood flows.

(4) Allocation of Water Other than from the Bureau: In spite of the foregoing, water which the District acquires from sources other than the Bureau shall be marketed within the District to Water Users at a price which reflects the cost of acquiring such additional supplies, and shall be allocated on a "first come, first served" basis.

(5) Allocations of System Capacity: At times that there is inadequate capacity upon a particular lateral to meet the request of all Water Users requesting water service at that particular time, the District shall first reduce the quantity of water provided to each Water User's turnout to the capacity for which the system was originally designed, which was 3.74 acre-feet per day per 160-acre parcel (approximately 5.29 gallons per minute per acre), and then in the event that there is still inadequate capacity upon a particular lateral, the District shall prorate the quantity provided to each Water User requesting service at that particular time on an equal basis per acre. The Board may provide specific exceptions to the foregoing where landowners in a particular service area have funded enhancements of the system to provide a greater level of service, such as the East System Improvement Project.

D. PAYMENT

(1) Tolls and Charges: Payments required to be paid in order for a Water User to be eligible to receive water from the District include the following:

(a) Standby charges, annually fixed by the Board on a per acre basis for the availability of water and/or groundwater benefits, assessed to all "irrigated lands," regardless of whether eligible or capable of receiving water from the District, and collected by the County of Kern along with property taxes.

(b) Water tolls, annually fixed by the Board on a per acre-foot basis, and paid for by Water Users in the manner set forth following. The Board shall fix a basic Water Toll to cover District costs attributable to providing water service to all Water Users, including, but not limited to, the following costs: Water, District operation and maintenance, administration, debt service (to the extent not covered by the standby charge) and reserve accounts. In addition thereto, Water Toll surcharges shall be charged for each lift through a District pumping plant based on the estimated power cost to pump an acre-foot of water through each plant.

(c) Bureau charges, including cost of service charges, Friant surcharge, restoration fund payments, and full-cost charges where applicable, fixed by the Bureau and added to water tolls as applicable, and paid by Water Users in the manner set forth following. The District may impose an administrative charge in addition to such Bureau charges.

(d) Non-contract water, such as water purchased from outside the District or groundwater put into the District's distribution system, will not be charged the charges in (b) and (c) above. However, a service charge will be fixed to cover District costs attributable to delivering such water, including, but not limited to, the following costs: District operation and maintenance, administration, debt service, Bureau of Reclamation charges for use of federal facilities and surcharges for each lift through District pumping plant based on the estimated power cost to pump an acre-foot of water through each plant. The District reserves the right to deny any request for delivery of such water if it may create capacity, water quality problems, endangering public safety or during a bona fide emergency event.

(2) Payment Schedule: The water service contract with the Bureau requires the District to prepay for all water prior to delivery to the District and, therefore, the following regulations will apply:

(a) Payments of monthly water bills are due and payable on or before the 20th of each month for water used the prior month. Payments not received on or before the 20th will be assessed a 10% penalty plus interest at 1-1/2% per month, and if not paid by 8:30 A.M. on the 26th of the month, the water will be shut off on the 27th of the month, and no water orders will be accepted until payment is made in full. An additional deposit totaling $28.00 per assessed acre will be required before water service is resumed if a bill is delinquent sixty (60) days after date of penalty. If the aforementioned steps have been imposed on a Water User and the General Manager believes noncompliance will persist, that Water User may, at the discretion of the General Manager, be required to submit a monthly schedule for water delivery and pay for said water by cash or cashier's check thirty (30) days in advance of delivery.

(b) Lands or parties which are in arrears in payment to the District of any assessments, standby charges, water tolls, penalties or interest, will not receive District water until payment in full is made as set forth above. Water will be delivered in accordance with Contract I1r-1460-LTR1 with the United States… "The Contractor shall not furnish water made available pursuant to this contract for lands or parties which are in arrears in the advance payment of water rates levied or established by the Contractor." (Art. 22(b))

(3) Means of Payment: For payment of bills by check, other than those signed by the Water User and applicant, the District requires the name of the account being paid. Checks which do not identify the account being paid will be returned. When paying two or more accounts, the District requires a separate check for each account being paid in order that a true and exact audit trail can be made. Checks received paying for more than one account will be returned. Penalties and interest will be assessed if the account becomes delinquent.

(4) NSF Checks: Checks returned for non-sufficient funds will be charged an additional $50.00 service charge. All accounts paid by such check will be delinquent and assessed penalties as above.

(5) Delinquencies: As prescribed by California Public Utilities Code Section 12811.1, any fees, tolls, rates or other charges which become delinquent, together with interest and penalties thereon, shall become a lien on the real property within the District for which the services were provided upon the District filing a certificate with the County Recorder, which lien shall have the same force, effect and priority as a judgment lien. This remedy is in addition to other remedies provided by law. In order to partially recover the District's costs incurred in processing said lien, added to said lien will be a service charge of $100.00.

E. ENFORCEMENT OF RULES AND REGULATIONS – APPEALS – AMENDMENTS

(1) The General Manager of the District is authorized to perform all acts necessary and proper to enforce these Rules and Regulations. Failure of a Water User to comply with any of these Rules and Regulations shall be sufficient cause for the termination of water service, and water service will not again be furnished to such Water User until full compliance has been made with all the requirements as herein set forth; PROVIDED, HOWEVER, that Water User in no way be relieved of any responsibility for payment of any charge or obligations by reason of such termination of water service. When it is practicable to do so, advance notice of any such termination of water service will be furnished to Water User. In no event shall any liability accrue against the District or any of its officers, agents or employees, for damage, direct or indirect, arising from such terminations of water service. Non-enforcement of any provision of these Rules and Regulations does not constitute a waiver of the District's right of enforcement at any time.

(2) In the event a Water User disagrees with a decision made by the General Manager in carrying out the enforcement of these Rules and Regulations, he/she shall have the right of appeal to the Board. Appeals should be submitted in writing no less than five (5) days prior to a regular meeting of the Board in order to be considered at that meeting, and shall specifically set forth the decision being appealed and shall give the reasons for said appeal.

(3) These Rules and Regulations shall become effective March 1, 2002, and may be added to, amended or repealed at any time by resolution of the Board of the District.

HELPFUL INFORMATION

- Water Applications and RRA Forms are due in the Office by February 15 each year. (pages 3 & 4)
- Return of excess water is due by August 15 each year. (pages 4 & 5)
- Payments are due by the 20th of each month. (Page 10)
- To place an order for water. (page 6)
    - By Phone: 725-0610 between 7 a.m. & 3:30 p.m. Monday through Saturday.
    - By Fax: 725-2110
    - By email.
    - In person.
- To report an emergency, call 725-0610, choose option 5. (page 6)

Attachment C: Measurement Device Accuracy

DESCRIPTION

Model MW500 and MZ500 main line propeller flow meters are manufactured to comply with AWWA Standard No. C704-02 for propeller type flowmeters.

- Model MW500 is designed for a maximum continuous working pressure of up to 150 psi and is fitted with AWWA Class D flanges.
- Model MZ500 is designed for a continuous working pressure of up to 300 psi and is fitted with ANSI B16.5 Class 300 flanges.

As with all McCrometer propeller flowmeters, standard features include a magnetically coupled drive, instantaneous flowrate indicator and straight reading, six-digit totalizer. The MW500 and MZ500 can be field-serviced without the need for factory recalibration.

FEATURES

Top Plate / Meter Head Weldment

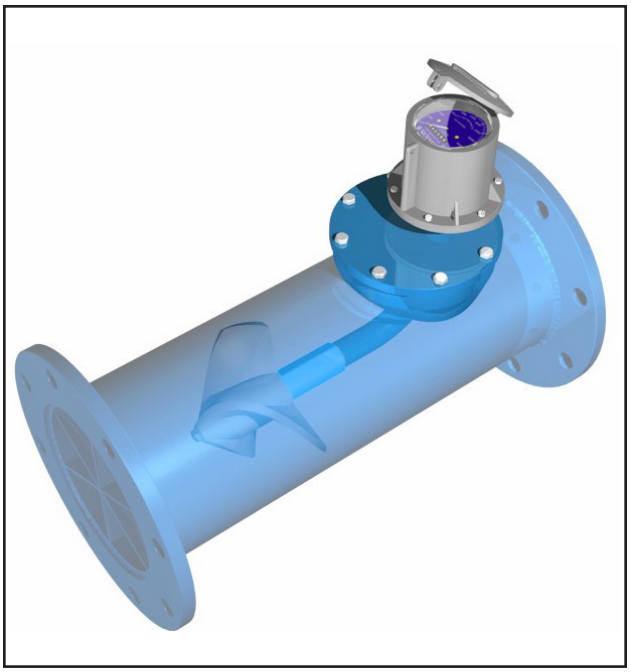
- The meter head weldment is either stainless steel or fusion-bonded epoxy coated carbon steel for maximum corrosion protection.
- The top plate is either stainless steel (for sizes 2" to 4") or fusion-bonded epoxy coated carbon steel (6" and larger).

Impellers

- Impellers are manufactured of high-impact plastic, capable of retaining their shape and accuracy over the life of the meter.
- Each impeller is individually calibrated at the factory to accommodate the use of any standard McCrometer register.
- The impeller and drive assembly are easily removed through the top flange connection. The meter flow tubes are coated with fusion-bonded epoxy for maximum corrosion protection, and integral flow straightening vanes reduce upstream flow turbulence.

Bearings

- Factory lubricated stainless steel bearings are used to support the impeller shaft.



Typical Applications

The McCrometer propeller meter is the most widely used flowmeter for municipal and wastewater treatment applications as well as agricultural and turf irrigation measurement. Typical applications include:

- Water and wastewater management
- Center pivot systems
- Sprinkler irrigation systems
- Drip irrigation systems
- Golf course and park water management
- Gravity turnouts from underground pipelines
- Commercial nurseries

- The shielded bearing design limits the entry of materials and fluids into the bearing chamber providing maximum bearing protection.

Register

The instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units. The register is driven by a flexible steel cable encased within a protective vinyl liner. The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flowrate indicator and totalizer.

SPECIFICATIONS

Performance

Accuracy / Repeatability	• ±2% of reading guaranteed throughout the full range • ± 1% over the reduced range • Repeatability 0.25% or better
Range	2" to 36"
Maximum Temperature	(Standard construction) 160°F constant
Pressure Rating	• Model MW500: 150 psi • Model MZ500: 300 psi

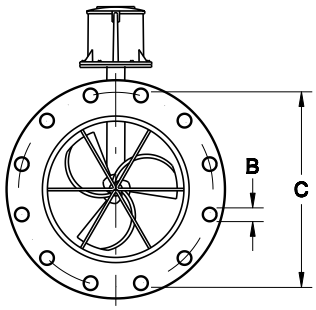
Materials

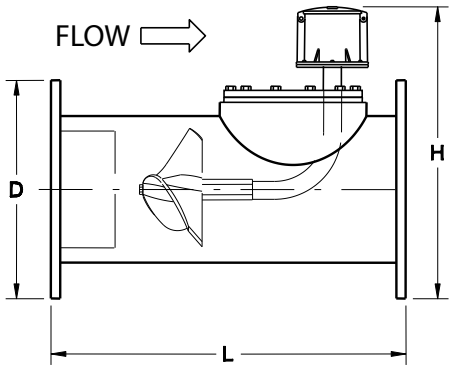
Top Plate	Stainless steel (2" to 4") or fusion-bonded epoxy coated carbon steel (6" and larger)
Top Plate Weldment	Stainless steel (2" to 4") or fusion-bonded epoxy coated carbon steel (6" and larger)
Spool	Carbon steel standard, stainless steel optional
Coating	Fusion-bonded epoxy
Body	Epoxy-coated carbon steel pipe conforming to ANSI/ASME pipe schedules
Magnets	(Permanent type) Alnico
Bearing Housing	• For models 2" to 16": 304 stainless steel standard, 316 stainless steel optional • For models 18" and larger: Brass standard, 316 stainless steel optional
Register	An instantaneous flowrate indicator and six-digit straight-reading totalizer are standard. The register is hermetically sealed within a die cast aluminum case. This protective housing includes a domed acrylic lens and hinged lens cover with locking hasp.
Impeller	Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter. High temperature impeller is optional.

Options

- International flange standards available
- Other than standard laying lengths available
- Register extensions available
- All stainless steel construction
- High temperature construction
- "Over Run" bearing assembly for higher-than-normal flowrates
- Electronic propeller meter available in all sizes of this model
- A complete line of flow recording/control instrumentation
- Certified calibration test results
- Canopy boot

DIMENSIONS





MW500/MZ500	DIMENSIONS														
Meter and Nominal Pipe Size	**2**	**2 ½**	**3**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**24**	**30**	**36**
Minimum Flow. U.S. GPM	40	40	40	50	90	100	125	150	250	275	400	475	700	1200	1500
Maximum Flow U.S. GPM	250	250	250	600	1200	1500	1800	2500	3000	4000	5000	6000	8500	12,500	17,000
Max. Flow w/ Marathon Bearing				900	1800	2250	2700	3750	4500	6000	7500	9000	12750	18750	25500
Approx. Head Loss in Inches at Max. Flow	29.50	29.50	29.50	23.00	17.00	6.75	3.75	2.75	2.00	1.75	1.50	1.25	1.00	1.00	1.00
Standard Dial Face (GPM/Gal) *	250/ 10	250/ 10	250/ 10	1000/ 100	1800/ 100	2500/ 100	3000/ 1000	4000/ 1000	6000/ 1000	8000/ 1000	10000/ 1000	10000/ 10000	15000/ 10000	15000/ 10000	30000/ 10000
MW500															
Approx. Shipping Weight-lbs.	36	36	43	54	115	135	197	325	465	530	744	890	1,293	1450	1650
B (inches)	¾	¾	¾	¾	7/8	7/8	1	1	1 1/8	1 1/8	1 ¼	1 ¼	1 3/8	1 3/8	1 5/8
C (inches)	4 ¾	5 ½	6	7 ½	9 ½	11 ¾	14 ¼	17	18 ¾	21 ¼	22 ¾	25	29 ½	36	42 ¾
D (inches)	6	7	7 ½	9	11	13 ½	16	19	21	23 ½	25	27 ½	32	38 ¾	46
H (inches)	11 ¾	12 ¼	12 ½	15 ¼	16 ¼	18 ½	21 ¾	24 ¼	25 ¼	28 ½	29 ¼	32 ½	36 ¾	42 ¾	49 ¼
L (inches)	14	16	16	20	22	24	26	28	42	48	54	60	60	60	60
No. of Bolts per Flange	4	4	4	8	8	8	12	12	12	16	16	20	20	28	32
No. of Topplate Bolts	6	6	6	6	8	8	12	12	12	12	16	16	16	16	16
MZ500															
Approx. Shipping Weight-lbs.	50	55	62	90	145	220	340	430	650	820	1,315	1,508	2,165		
B (inches)	¾	7/8	7/8	7/8	7/8	1	1 1/8	1 ¼	1 ¼	1 3/8	1 3/8	1 3/8	1 5/8		
C (inches)	5	5 7/8	6 5/8	7 7/8	10 8/8	13	15 ¼	17 ¾	20 ¼	22 ½	24 ¾	27	32		
D (inches)	6 ½	7 ½	8 ¼	10	12 ½	15	17 ½	20 ½	23	25 ½	28	30½	36		
H (inches)	12	12 ½	12 7/8	15 ¾	17	19 ¼	22 ½	25	26 ¼	29 ½	32 ¾	34	38 ¾		
L (inches)	20	20	20	24	26	28	30	32	42	48	54	60	60		
No. of Bolts per Flange	8	8	8	8	12	12	16	16	20	20	24	24	24		

*Indicates the dial face range and multiplier

Note: Flanges meet ASTM-A-181 specs. Larger flowmeters on special order.

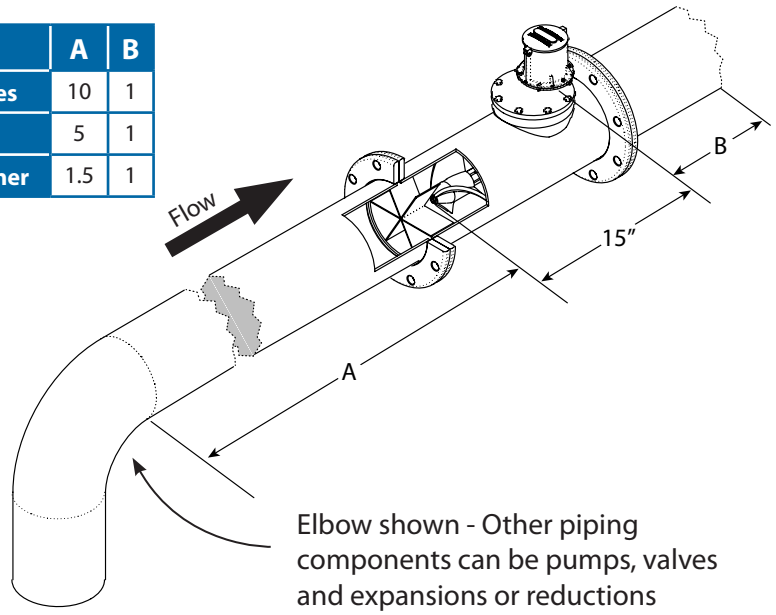
McCROMETER reserves the right to change design or specifications without notice.

INSTALLATION

Standard installation is horizontal mount. If the meter is to be mounted in the vertical position, please advise the factory.

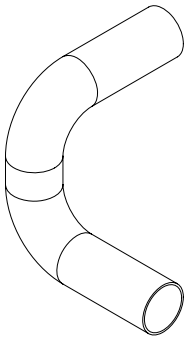
PIPE RUN REQUIREMENTS

Configuration	A	B
Without straightening vanes	10	1
With straightening vanes	5	1
With FS100 Flow Straightener	1.5	1

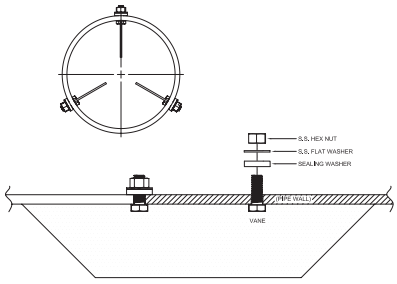


STRAIGHTENING VANES

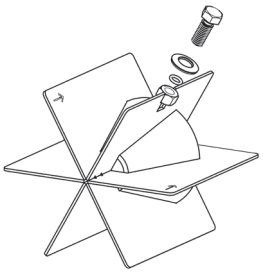
Special attention should be given to systems using two elbows "out of plane" or devices such as a centrifugal sand separator. These cause swirling flow in the line that affect propeller meters. Well developed swirls can travel up to 100 diameters downstream if unobstructed. Since most installations have less than 100 diameters to work with, straightening vanes become necessary to alleviate the problem. Straightening vanes will break up most swirls and ensure more accurate measurement. McCrometer actively encourages installing vanes just ahead of the meter. Straightening vanes are available in weld-in, bolt-in, and the FS100 Flow Straightener.



Elbows out of plane



Bolt-in straightening vanes



FS100 Flow Straightener

TOTALIZERS

Typical face plates

Standard register

Optional 7-wheel totalizer

FlowCom register

Mechanical Totalizer

The instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units. The register is driven by a flexible steel cable encased within a protective vinyl liner. The register housing protects both the register and cable drive system from moisture while allowing clear reading of the flowrate indicator and totalizer.

Digital Totalizer

The optional FlowCom register displays a flowmeter's flowrate and volumetric total. Available are optional outputs: scaled pulse and/or industry standard 4-20mA signal. The FlowCom can be fitted to any new or existing McCrometer propeller flowmeter.

Wireless Telemetry

The optional FlowConnect is designed specifically for wireless telemetry via either satellite or cellular data service. Manual meter reading is never required. It uses either the mechanical register or the digital register (both shown above).

You can determine how often readings are made and transmitted to the cloud database, which you can view on a PC or on a cell phone. The viewing utility provides data tools that can analyze flow rate, consumption, and possible anomalies in an irrigation system.

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www.mccrometer.com

McCROMETER

Attachment D: District Sample Bill

COPY

SSJMUD

Southern San Joaquin Municipal Utility District
P. O. Box 279 Delano, California 93216
Phone: (661) 725 - 0610 FAX: (661) 725 - 2110

Amaretto Orchards
c/o Ag-Wise Enterpises
PO Box 9729
Bakersfield, CA 93389-9729

Invoice Date: 5/31/2019
Account Number: **253**
Invoice Number: 16299
Due Date: ***20th of Month***

Meter Number: **100401** ***Meter Entitlement:*** 0.00 ***YTD Used:*** 139.03 ***Remaining Entitlement:*** -139.03

Bureau of Reclamation Water Charge	$24.99	X	64.87 A.F. =	$1,621.10
Environmental Restoration Fee	$10.63	X	64.87 A.F. =	$689.57
Friant Surcharge	$7.00	X	64.87 A.F. =	$454.09
Power/Pumping Surcharge	$40.00	X	64.87 A.F. =	$2,594.80
Variable Cost Recovery & Trinity PUD	$87.38	X	64.87 A.F. =	$5,668.34
Total Charges for Meter No: **100401**				$11,027.91

Meter Number: **100403** ***Meter Entitlement:*** 0.00 ***YTD Used:*** 242.39 ***Remaining Entitlement:*** -242.39

Bureau of Reclamation Water Charge	$24.99	X	116.94 A.F. =	$2,922.33
Environmental Restoration Fee	$10.63	X	116.94 A.F. =	$1,243.07
Friant Surcharge	$7.00	X	116.94 A.F. =	$818.58
Power/Pumping Surcharge	$40.00	X	116.94 A.F. =	$4,677.60
Variable Cost Recovery & Trinity PUD	$87.38	X	116.94 A.F. =	$10,218.22
Total Charges for Meter No: **100403**				$19,879.79

NOTE: A PENALTY of 10% will be assessed on all balances, if payment for all water tolls including penalties and interest is not received in the office on or before 3:30 PM on the 20th of the month. District water will be shut off on the 27th of the month if payment for all water tolls is not received on or before 8:30 AM on the 26th of the month.

SSJMUD

Southern San Joaquin Municipal Utility District
P. O. Box 279 Delano, California 93216
Phone: (661) 725 - 0610 FAX: (661) 725 - 2110

Amaretto Orchards
c/o Ag-Wise Enterpises
PO Box 9729
Bakersfield, CA 93389-9729

Invoice Date: 5/31/2019
Account Number: **253**
Invoice Number: 16299
Due Date: ***20th of Month***

Meter Number: **100501** ***Meter Entitlement:*** 0.00 ***YTD Used:*** 271.15 ***Remaining Entitlement:*** -271.15

Bureau of Reclamation Water Charge	$24.99	X	129.33 A.F. =	$3,231.96
Environmental Restoration Fee	$10.63	X	129.33 A.F. =	$1,374.78
Friant Surcharge	$7.00	X	129.33 A.F. =	$905.31
Power/Pumping Surcharge	$40.00	X	129.33 A.F. =	$5,173.20
Variable Cost Recovery & Trinity PUD	$87.38	X	129.33 A.F. =	$11,300.86
Total Charges for Meter No: **100501**				$21,986.10

Meter Number: **100702** ***Meter Entitlement:*** 0.00 ***YTD Used:*** 236.73 ***Remaining Entitlement:*** -236.73

Bureau of Reclamation Water Charge	$24.99	X	106.91 A.F. =	$2,671.68
Environmental Restoration Fee	$10.63	X	106.91 A.F. =	$1,136.45
Friant Surcharge	$7.00	X	106.91 A.F. =	$748.37
Power/Pumping Surcharge	$67.00	X	106.91 A.F. =	$7,162.97
Variable Cost Recovery & Trinity PUD	$87.38	X	106.91 A.F. =	$9,341.80
Total Charges for Meter No: **100702**				$21,061.26

Total Entitlement:	**0 A.F.**	***Total Charges for All Meters:***	**$90,475.44**
YTD Used:	**1,112 A.F.**	***Balance Forward:***	**$.00**
Remaining Balance:	**-1,112 A.F.**	***Total Due:***	**$90,475.44**

NOTE: A PENALTY of 10% will be assessed on all balances, if payment for all water tolls including penalties and interest is not received in the office on or before 3:30 PM on the 20th of the month. District water will be shut off on the 27th of the month if payment for all water tolls is not received on or before 8:30 AM on the 26th of the month.

Attachment E: District Water Shortage Plan

SSJMUD Water Shortage Plan

Attachment E is not applicable to the District. Per Section 1.H.1, the District's entitlement of Class 1 and Class 2 shall be distributed according to requests taken from water applications. During dry years, requests may be allocated proportionately to all applicants on the basis of the acreage entitled to receive water (See Attachment B, Section C(2))

Attachment F: District Groundwater Banking Plan

Not applicable at this time. SSJMUD plans to develop 280 acres of dedicated groundwater recharge facilities as part of its compliance with SGMA. These recharge facilities will use available CVP Class I and Class II water. Based on average historic hydrologic conditions, the District has adequate supply for its growers and for in-district groundwater recharge. The District has no plans to bank water on behalf of other districts or agencies.

Friant WATER AUTHORITY

eWATERLINE

APRIL 2020

MESSAGE FROM THE CEO

Jason Phillips
Chief Executive Officer

I realize this is a massive understatement, but it's been a strange and busy 2020. Historically, during the first few months of every year, among many other things, FWA staff spend time working with the US Bureau of Reclamation to ensure the Friant Division allocation is maximized. Just over a week ago, Reclamation announced an update to the initial Friant allocation for the second time this year. After starting the year with a 20% allocation for Class 1 supplies, the announcement increased the Class 1 allocation to 55%. Based on our modeling and analysis of the hydrology so far this year, and all of the other factors that Reclamation needs to consider when making these decisions, we think 55% is a fair allocation at this time.

Obviously, what has made this a strange year is the response to the COVID-19 pandemic. Like so many others, we have altered the manner in which we conduct our business, which hasn't been easy, but we have adapted well. Given the circumstances and what we have been forced to deal with, I am very proud of the FWA team's dedication to their responsibility to serve the eastside farmers and communities that rely on their efforts to keep the water flowing.

Adding to the strange nature of 2020 has been the action taken by the state of California in recent months. Astonishingly, the State of California filed a lawsuit (CNRA v. Ross) against the Federal government on February 20, 2020, challenging the Record of Decision on the Long-Term Operations of the Central Valley Project that Reclamation signed on Feb. 18, 2020. If successful, the states' effort would replace the 2019 BiOps, which were developed using the best available science, by career

Continued on page 2

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IN THE NEWS

TOILET PAPER SHORT -- FOOD ABUNDANT

by Dan Walters - CAL MATTERS | APRIL 15, 2020

The first few days of the coronavirus crisis revealed that the veneer of civilization may be thinner than we assumed.

Americans quickly stripped supermarket shelves of toilet paper, paper towels and other household commodities. The panicky, almost riotous, invasion of shoppers even moved one Sacramento grocery chain to hire off-duty police officers to stand by and keep order.

Several weeks later, toilet paper is still in short supply, but stores still have adequate, if not overly abundant, stocks of a much more important commodity — food. Farmers, farmworkers, truckers, food processors and grocers have continued to do their vital work, often at the personal risk of becoming infected.

What would happen were the situations to be reversed, with shelves of food empty while those with toilet paper still stocked? It would get very ugly very quickly and history tells us that the survival instinct would kick in and other commodities folks also have been stockpiling — guns and ammunition — would come into play.

That scenario, thankfully, is highly unlikely to occur, but we should be aware that the incredibly complex system that delivers foodstuffs to stores and then to our tables is feeling the strain.

The closure of restaurants, schools and other commercial purchasers of food is a heavy financial blow to everyone in the system. Farmers are plowing up fields of lettuce and other fresh produce for a lack of workers to harvest them, and customers to buy what they harvest. Dairy farmers still must milk their cows, but many are dumping what they produce due to sharply reduced demand not only for fluid milk but cheese and other dairy products too.

California is, as everyone should know, the nation's top agricultural producer, but we have often tended to take that fact for granted. In certain circles — especially among

Continued on page 2

EVENTS AROUND THE VALLEY

MAY 28
FWA Board of Directors Meeting
Via WebEx
CLICK FOR INFO ▶

JUNE 10-11
3rd Annual GSA Summit
CLICK FOR INFO ▶

JUNE 17
California Water Commission
Sacramento, CA
CLICK FOR INFO ▶

JULY 28-31
ACWA Summer Conference
Monterey, CA
CLICK FOR INFO ▶

Message from CEO Continued

scientists and staff within the federal government, with those issued in 2008 and 2009 that the CVP and State Water Project have been operating under for more than a decade. As a reminder, the data has shown the 2008 and 2009 BiOps failed on many fronts, but most significantly, they failed the water users of the state, and the fish and wildlife whose populations have been on a steady decline of the past decade. Because of this, FWA filed a motion to intervene in CNRA v. Ross on behalf of the Federal government to defend the 2019 BiOps.

As if that wasn't frustrating enough, and adding to the drama, the state of California made the decision to issue a separate Incidental Take Permit (ITP) for operations of the State Water Project. What this means is that for the first time in history, the Federal and State water projects, which provide water for almost 30 million people and thousands of farms, are being operated in an uncoordinated, conflicting, and frankly, confusing manner. This decision by the state has generated an enormous amount of opposition from agencies and organizations (FWA included) representing water users up and down the state, and the Metropolitan Water District of Southern CA and the State Water Contractors Association. It has also drawn opposition from a broad and bipartisan group of state and federal legislators. The opposition coalition looks similar to the coalition that opposed and helped secure a veto of Senate Bill 1(SB1) in 2019. Which begs the question… if the Newsom Administration thought SB1 was bad water policy in 2019 (bad enough to require his veto signature, by the way), what has changed? Only time, and lawsuits unfortunately, will tell.

Needless to say, for next month's edition of the FWA eWaterline, I hope to be able to report back with more positive news. But regardless, we will provide an update so that you are aware of what's happening regarding California's water supply.

CLICK HERE to read April 3, 2020 letter from State Legislature to Governor Newsom regarding ITP

CLICK HERE to read April 7, 2020 letter from Congress to Governor Newsom regarding ITP

CLICK HERE to read April 15, 2020 letter from Congress to Governor Newsom regarding coordinated operations

CLICK HERE to read April 20, 2020 letter from Metropolitan Water District to DFW and DWR regarding ITP

CLICK HERE to read April 28, 2020 letter to Senator Feinstein from Interior Secretary Bernhardt

Article continued from page 1

environmental and social justice activists — farmers are dismissed as greedy despoilers. They wrongly imply that there's no need for large-scale industrial agriculture, and that small-scale organic farmers can meet our needs.

This crisis should tell us otherwise and whenever it ends, we should emerge with a new appreciation for those who grow, harvest, process and deliver our food — and show that regard in tangible ways.

We should end the decades of bickering over water and build the new storage and conveyance projects that will give farmers what they need to maintain and enhance production as well as meet the demands of families and other water users.

We should honor the men and women who work in the fields while most of us shelter in place to avoid infection. They should be fairly paid for performing the difficult and often hazardous tasks that put food on our tables, even if it means higher retail prices.

We should, as with water, end the decades of bickering over immigration and provide undocumented immigrants — as many as three million in California alone — who work in the fields, in construction and in myriad other important industries a dignified pathway out of the shadows and into legalized status and citizenship.

Concurrently, we should make it easier and more lucrative for foreign nationals who wish to work seasonally in California agriculture to come here. It's shameful that President Donald Trump's administration is contemplating a reduction in guest worker wages to ease the financial burden on farmers. That sends precisely the wrong message because a shortage of reliable labor is one of agriculture's biggest headaches.

Some say the coronavirus crisis changes everything. It should change our complacent and sometimes hostile attitudes about agriculture.

ALSO IN THE NEWS:

From Water Wrights: A Dairyman's View on Water April 27, 2020

From The Sun: Valley, L.A. water users hit Newsom with three lawsuits over water policy

From The Sun: Bernhardt: Newsom's water gambit "potentially unlawful"

From The Sun: In new filing, Becerra seeks to halt Trump's Valley water boost

From the Department of Water Resources: California enters summer with precipitation and snowpack below average

From E&E News: Trump opens floodgates, and acrimony swamps Calif.

From Stanford - Water in the West: Fair Water

Kern Groundwater Authority & Kern County Farm Bureau

invites you to the...

SGMA Open House

Sustainable Groundwater Management Act

A "One-Stop-Shop" for groundwater users with interests throughout the Kern Subbasin to meet with representatives from subbasin GSAs and water/irrigation districts, and from the State Water Resources Control Board & California Department of Water Resources to discuss the Kern Subbasin Groundwater Sustainability Plans and future SGMA implementation.

Tuesday, May 14, 2019 from 5:30 to 7:30 p.m.

Location: Kern Ag Pavilion (3300 E. Belle Terrace, Bakersfield, CA 93307)

Participating groundwater sustainability agencies (GSAs) and water/irrigation districts that will have tables at the event:

Kern Groundwater Authority

- Arvin Community Services District (ACSD)
- Arvin-Edison Water Storage District (AEWSD)
- Cawelo Water District (CWD)
- City of Shafter
- County of Kern
- Kern County Water Agency (KCWA)
- Kern-Tulare Water District (KTWD)
- Kern Water Bank Authority (KWBA)
- North Kern Water Storage District (NKWSD)
- Rosedale-Rio Bravo Water Storage District (RRBWSD)
- Semitropic Water Storage District (SWSD)
- Shafter-Wasco Irrigation District (SWID)
- Southern San Joaquin Municipal Utility District (SSJMUD)
- Tejon-Castaic Water District (TCWD)
- West Kern Water District (WKWD)
- Westside District Water Authority (WDWA)
- Wheeler Ridge-Maricopa Water Storage District (WRMWSD)

Henry Miller Water District GSA

Buena Vista Water Storage District GSA

Olcese Water District GSA

Kern River GSA

- Kern Delta Water District
- City of Bakersfield
- Improvement District No. 4

Co-hosted by:

KERN GROUNDWATER AUTHORITY

KERN COUNTY FARM BUREAU

For questions about the event, email ppoire@kerngwa.com or call the Kern County Farm Bureau at (661) 397-9635.

Kern Groundwater Authority & Kern County Farm Bureau

invites you to the...

GSP Public Review Open House

Sustainable Groundwater Management Act & Groundwater Sustainability Plan (GSP)

A "One-Stop-Shop" for groundwater users with interests throughout the Kern Subbasin to meet with representatives from subbasin GSAs and water/irrigation districts to discuss the Kern Subbasin Groundwater Sustainability Plans during the 90-day public review period.

Thursday, September 26, 2019 from 5:30 to 7 p.m.

Location: Kern Ag Pavilion (3300 E. Belle Terrace, Bakersfield, CA 93307)

Participating groundwater sustainability agencies (GSAs) and water/irrigation districts that will have tables at the event:

Kern Groundwater Authority

- Arvin Community Services District (ACSD)
- Arvin-Edison Water Storage District (AEWSD)
- Cawelo Water District (CWD)
- City of Shafter
- Eastside Water Management Area
- Kern County Water Agency (KCWA)
- Kern-Tulare Water District (KTWD)
- Kern Water Bank Authority (KWBA)
- North Kern Water Storage District (NKWSD)
- Rosedale-Rio Bravo Water Storage District (RRBWSD)
- Semitropic Water Storage District (SWSD)
- Shafter-Wasco Irrigation District (SWID)
- Southern San Joaquin Municipal Utility District (SSJMUD)
- Tejon-Castaic Water District (TCWD)
- West Kern Water District (WKWD)
- Westside District Water Authority (WDWA)
- Wheeler Ridge-Maricopa Water Storage District (WRMWSD)

Henry Miller Water District GSA

Buena Vista Water Storage District GSA

Olcese Water District GSA

Kern River GSA

- Kern Delta Water District
- City of Bakersfield
- Improvement District No. 4

Co-hosted by:

KERN GROUNDWATER AUTHORITY

KERN COUNTY FARM BUREAU

For questions about the event, email ppoire@kerngwa.com or call the Kern County Farm Bureau at (661) 397-9635.

Attachment G: Communications and Engagement