
Agricultural Water Management Plan

Prepared Pursuant to Water Code Section 10826

Corcoran Irrigation District
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Corcoran, CA 93212

Adopted on June 8, 2021

Prepared by:
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Section I: Introduction

Corcoran Irrigation District (District) is a public agricultural water supplier serving approximately 40,000 irrigated acres. Because the District is an agricultural water supplier and the irrigated acreage in the District exceeds 25,000 acres, an Agricultural Water Management Plan (AWMP) is required. The District's AWMP was updated pursuant to the requirements of AB 1668 and the California Water Code. Subsequent updates to the District's AWMP will occur on or before April 1 in the years ending in six and one, with the next update occurring on April 1, 2026.

Description of Previous Water Management Activities

The District developed and implemented an Agricultural Water Management Plan in 2015 (adopted August 11, 2015). The District is located within a closed hydrologic basin, which by its nature, requires precise control of water applications. Previous water management activities include metered water deliveries, tailwater recirculation, and conjunctive groundwater use.

1. Coordination Activities

Table 1: Coordination Activities

Potential Interested Parties	Notified of AWMP Preparation	Notified of Public Meetings	Copy of Adopted AWMP Sent
Local City(s)	May 3, 2021		June 30, 2021
Local County(s)	May 3, 2021		June 30, 2021
Groundwater Management Entities			June 30, 2021
DWR			June 30, 2021
Local Newspapers (Corcoran Journal)		May 20, 2021 May 27, 2021	
California State Library			June 30, 2021

a. Notice of AWMP Preparation

A Notice of Preparation of this AWMP was sent on May 3, 2021 to the City of Corcoran and Kings County. Copies of the Notice of Preparation are included in Appendix A.

b. Public Participation

Notice of a public hearing about the proposed adoption of this AWMP was published in the Corcoran Journal on May 20, 2021 and May 27, 2021. No written comments were received from the public about this AWMP. A public hearing to receive comments on the AWMP was held on June 8, 2021. No member of the public attended the meeting and no public comments were received.

2. AWMP Adoption and Submittal

a. AWMP Adoption

A copy of the signed resolution adopting this AWMP is included in Appendix A.

b. AWMP Submittal

Within 30 days of adoption, an electronic copy of the AWMP was emailed to:

California Department of Water Resources at agwue@water.ca.gov
The California State Library at cslgps@library.ca.gov

Within 30 days of adoption, a copy of the adopted AWMP was transmitted to:

City of Corcoran
County of Kings
El Rico Groundwater Sustainability Agency
The Kings County Library
The California State Library
Department of Water Resources
The Kings County Local Agency Formation Commission

c. AWMP Availability

Copies of this AWMP are available from the District upon request.

3. AWMP Implementation Schedule

See Section VII for the Implementation Schedule.

Section II: Description of the Agricultural Water Supplier and Service Area

1. Physical Characteristics

a. Size of the service area.

The District was created in May of 1919 to provide irrigation water to agricultural lands within its boundaries. The District has a gross acreage of approximately 48,500 acres, which includes active agriculture, rural residences, and reservoirs. The District's assessed acreage is approximately 43,900 acres, of which approximately 40,000 acres is irrigable agriculture.

b. Location of the service area and water management facilities.

The District is located in the Central San Joaquin Valley of California (see Figure 1). It surrounds the City of Corcoran in south eastern Kings County. Figure 2 shows the District service area and principal irrigation facilities.

Irrigation facilities within the District include approximately 118 miles of canals and 2 miles of pipeline. The District operates five reservoirs with a total capacity of approximately 12,000 acre feet. These reservoirs are located at the northerly end of the district and are used to provide operational storage and delivery flexibility.

The District owns and operates 76 wells, which pump into the reservoirs to contribute to the District's water supply. The volume of groundwater pumped varies from year to year depending on the availability of surface water supplies. This is discussed in detail in Section III.

c. Terrain and soils

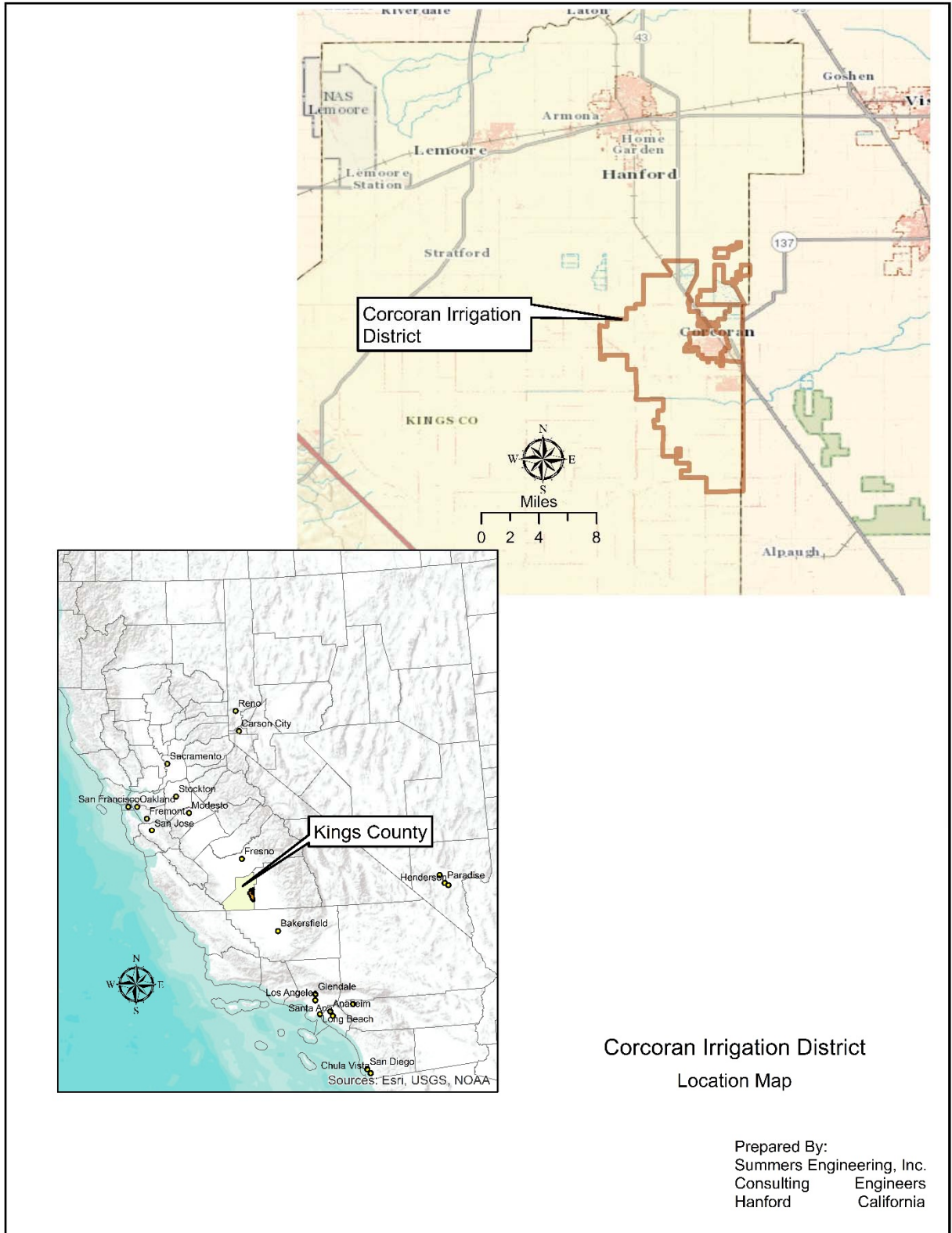
The District is located within the Northeast portion of the historic Tulare Lake Bed region. The topography of the District slopes gradually in a southwesterly direction from the District's outer northeasterly boundary towards the lowest region in the Tulare Lake Bed which is just to west of the District boundary. The lowest region within the Tulare Lake Bed is approximately 173 feet above mean sea level (MSL) and the elevation in the most north easterly portion of the District is approximately 227 feet above MSL. The City of Corcoran is at an approximate elevation of 205 MSL. The generally flat terrain has an average north-south slope of about 1.8 feet per mile and an east-west average slope of approximately 2.8 feet per mile. The District abuts the "closed" Tulare Lake Bed which has no natural outlet. It is important to note that no natural outflow from the historic Tulare Lake has occurred since the late 1870's. This is a result of the upstream diversions on the eastside of the San Joaquin Valley from the Kings, Kaweah, Tule Rivers and the Kern River to the south. It is also a result of the U.S. Army Corps of Engineers flood control projects on the tributaries. However, periodic flood waters still flow in roughly 1 out of every 7 years into the Tulare Lake Bed west of the District boundary.

The District is underlain by soils that are primarily poorly drained clays and clay/loam. The Corcoran Clay is an impermeable hydrologic barrier that ranges from 400 to 600 feet below the surface. The clay layer ranges in thickness from 50 to 200 feet. Recharge above the Corcoran Clay is possible, but the Corcoran Clay prevents direct recharge the aquifer below the Corcoran Clay within the District boundary. While methods for direct recharge of the aquifer below the Corcoran Clay exist, they are not economically feasible at this time. Groundwater above the Corcoran Clay in the southwesterly portion of the District is typically unusable due to the high salt concentrations.

d. Climate

The climate in the region is typical of the southern San Joaquin Valley. The Tulare Lake Bed region is semi-arid. Average annual rainfall is 7.2 inches. Spring seasons are usually mild with some wind, summers hot and dry, autumns cool and brisk, and winter seasons are typically characterized by fog and rain with temperatures seldom reaching the freezing point. Average precipitation and maximum and minimum temperatures were measured at the District office.

Figure 1: Corcoran Irrigation District Location Map



Corcoran Irrigation District
Location Map

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Figure 2: Corcoran Irrigation District Map

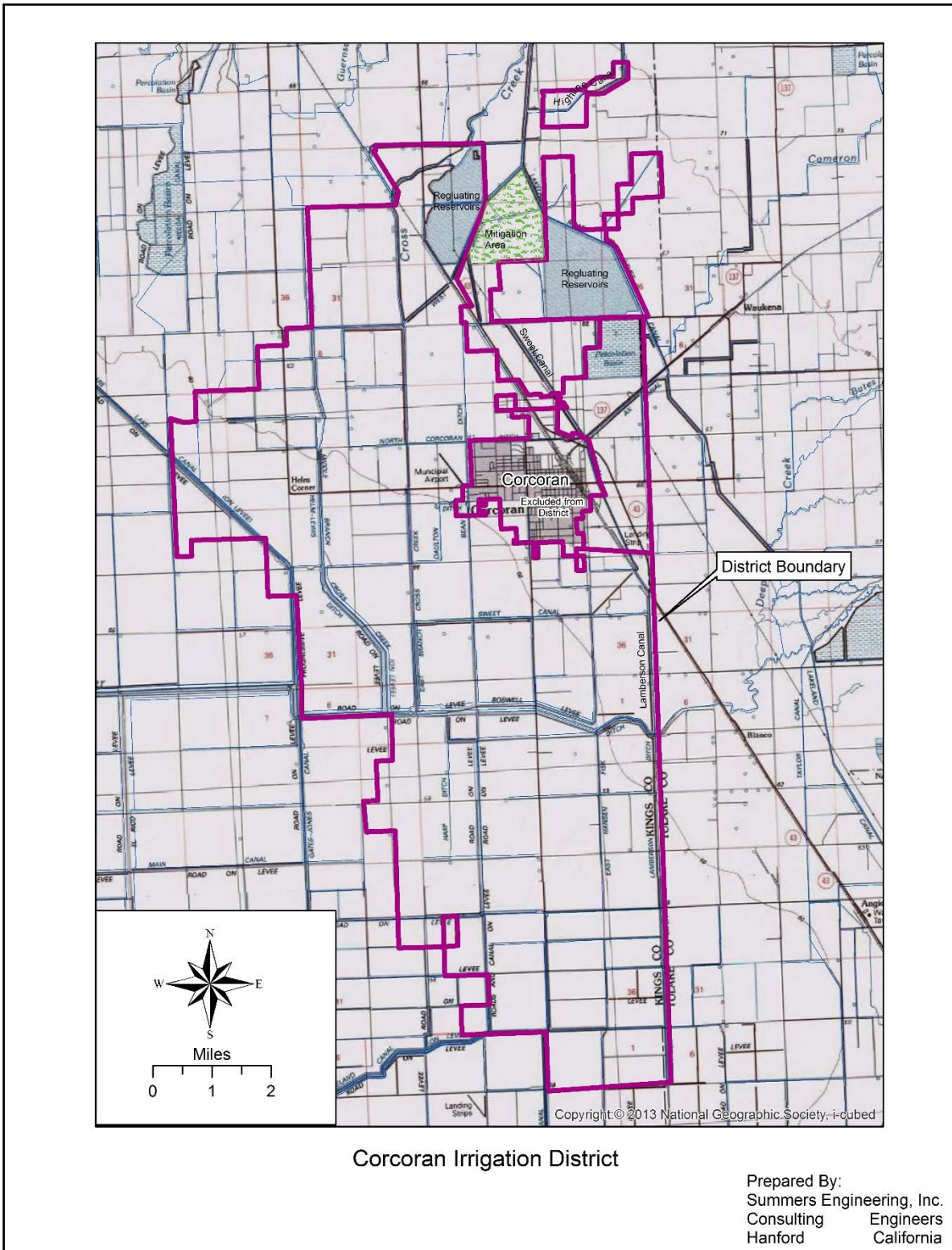


Table 1 indicates average monthly precipitation from 1940 to 2020. Monthly rainfall ranges from 0.0 to about 1.4 inches. About 70% of the rainfall typically occurs between the months of December to March. Maximum and minimum average monthly temperatures are listed in Table 2.

Table 2: Average Monthly Precipitation – 1940-2020

Month	Average Monthly Precipitation
January	1.44
February	1.36
March	1.20
April	0.67
May	0.22
June	0.04
July	0.01
August	0.02
September	0.12
October	0.37
November	0.66
December	1.12
Total	7.23

Source: Corcoran Irrigation District

Table 3: Average Temperatures

Month	Average High	Average Low	Monthly Average
	(°F)	(°F)	(°F)
January	58	37	47
February	64	39	51
March	70	43	57
April	77	47	63
May	84	53	69
June	93	59	77
July	100	64	82
August	96	63	80
September	91	57	74
October	81	49	65
November	68	39	53
December	59	35	45

Source: CIMIS Data (Station 15)

As reflected in Table 2, the 34-year average maximum and minimum temperatures occur respectively during July and December.

2. Operational Characteristics

a. Operating rules and regulations

A copy of the District's Rules and Regulations are included in Appendix B. The purpose of these rules is to provide guidance to the District Manager and staff for the economic and equitable service of water to all of the water users within the District. They outline the whole process for ordering, delivering, measuring, and billing for water. Some key points of the regulations are listed below:

- Water deliveries must be requested by the water user 48 hours in advance of delivery need.
- Water allocation is based on the water user's irrigated acreage as a percentage of the total District acreage. This provides an equitable allocation of water (on a per-acre basis) to all water users.
- Flow meters are required at all pumps and gravity turnouts.
- The District reserves the right to refuse water delivery to water users wasting or improperly using water.

b. Water delivery measurements or calculations

All water delivery points within the District are metered with propeller type flow meters. The majority of water deliveries (>90%) within District are made through mobile pump units. These pump turnouts are mobile, high-flow pump units with propeller meters incorporated into the discharge manifold to totalize delivered water. The pump units are owned, operated and maintained by the respective water user; however, their operation is contingent on a correctly installed and operating flow meter, which District staff check daily during operation.

The remaining gravity turnouts discharge water deliveries through a pipe section with an open flow meter to measure delivered water. All flow meters are factory certified to be within 5% accuracy. All meter installations are inspected by District Staff on a rotating basis. In the case where meters are broken or installed incorrectly, the District will withhold water deliveries until the meter is fixed or installation is corrected. It is the obligation of the water user to maintain and replace the flow meter as necessary.

c. Water rate schedules and billing

District Staff reads each turnout meter daily and uses the readings to calculate delivered water and the associated water bill. District billing is on a per Acre-foot basis with the water fee, comprising of the cost of water, conveyance, and other operations and maintenance costs. The water rate changes on an annual basis according to available surface water supplies. Water users are billed monthly for the delivered water.

d. Water shortage allocation policies

The Water shortage allocation policy is incorporated into the District's Rules and Regulations for the Rotation and Delivery of water (see Appendix B). The daily allocation is determined using the percentage of lands within the District. That

percentage is use to allocate a like percentage of the total daily water supply. The District has developed a Drought Management Plan Process which is applied in all years but becomes a crucial part of water supply planning during drought conditions.

3. Drought Plan

Current District Practices

- Early Planning: Early forecasts of likely surface water supplies are reviewed by the District Water Conservation Coordinator in late December and early January. The Water Conservation Coordinator uses this information along with known groundwater supplies to predict the total water available. The District then shares that information with water users so that they may begin planning for the year.
- Supply Update: A new surface water supply forecast is typically available in March, with allows the Water Conservation Coordinator to revise the water supply estimate and update water users. In extremely dry years, water users will modify their planting decisions to account for the reduced water supply. These modifications can include field fallowing or changes in crop selection to crops that require less water.
- Growing Season Operations: During the growing season, District Staff carefully account for all water delivered and scrutinize District water delivery operations and grower water use. Any operations that result in water waste are quickly corrected.

(a) Resilience Planning

1) Data and Indicators

Early forecasts of likely surface water supplies are reviewed by the District Water Conservation Coordinator in late December and early January. The Water Conservation Coordinator uses this information along with known groundwater supplies to predict the total water available. The District then shares that information with water users so that they may begin planning for the year.

A new surface water supply forecast is typically available in March, with allows the Water Conservation Coordinator to revise the water supply estimate and update water users. In extremely dry years, water users will modify their planting decisions to account for the reduced water supply. These modifications can include field fallowing or changes in crop selection to crops that require less water.

The District monitors hydrologic projections from local and state agencies (ex. Bulletin 120). District water users are informed of these conditions at board meetings and adjust cropping patterns accordingly.

2) Drought Vulnerability

Irrigated agriculture is vulnerable to drought. During wet periods, surface water runoff from local watersheds (Kings and Kaweah) provides a majority of irrigation water supplied in the District. During dry periods, surface water supplies are augmented with groundwater supply. Both Corcoran Irrigation District wells and private wells are used to irrigate crops in times of low surface water supply. In the past, a majority of District lands were devoted to annual crops with very little permanent plantings. Annual cropping patterns can be modified to suit hydrologic conditions, but permanent plantings require stable yearly water applications to survive.

Over the past five years, the percentage of District lands planted to permanent crops has increased from approximately 15% in water year 2015/16 to over 30% in water year 2019/20. As more lands in the District convert to permanent planting, the ability to adjust cropping patterns according to hydrologic conditions is lost, and the Districts vulnerability to drought increases. The district encourages growers to maintain a 60/40 split between annual and permanent crops, with the majority of crops being annual row crops, preserving the district's ability to shift cropping patterns in years of limited water supply. Description of the opportunities and constraints for improved drought resilience planning.

(A) Availability of New Technology or Information.

The District will utilize new technology and information as it becomes available. Past data and indicators used to identify drought conditions has proven effective and will continue to be utilized.

(B) Ability to obtain or use additional water supplies during drought.

The District has the ability to augment surface water supplies with District-owned wells and operates several reservoirs that provide some recharge of the shallow aquifer. In wet years, surface water runoff from local watersheds is stored in these reservoirs, contributing to groundwater recharge. Additional, water stored outside the irrigation season can be stored and used later. In the future, it is likely that fallowing of lands not planted to permanent crops will increase due to limitations on groundwater pump age imposed by the Sustainable Groundwater Management Act. While methods for direct recharge of the aquifer below the Corcoran Clay exist, they are not economically feasible at this time. However, it is possible that they may have to be utilized in the future.

(b) Drought Response Planning

1) Policies.

The District does not have any formal drought planning policies in place for declaring a water shortage. District Staff carefully account for all water delivered and scrutinize District water delivery operations and grower water use. Any operations that result in water waste are quickly corrected.

- 2) Methods and Procedures for the enforcement or appeal of, or exemption from, triggered shortage response actions.

The District does not implement any shortage response actions other than reducing water deliveries due to lack of supply.

- 3) Communication Protocols and Procedures

The District notifies water users of available supply at monthly Board meetings.

- 4) Impacts to District Revenue.

Drought conditions impact District revenue due to a reduction in water sales. The District maintains sufficient reserves for operations during drought.

Section III: Description of Quantity of Water Uses

1. Agriculture Water Use

All water use within the District is for agricultural purposes. The District water supplies come from the Kings and Kaweah Rivers and groundwater. Table 4 shows the monthly deliveries for WY 2015/16 - WY 2019/20.

Table 4: Annual Deliveries by Water Year

Month	WY 2015/16 Deliveries (acre feet)	WY 2016/17 Deliveries (acre feet)	WY 2017/18 Deliveries (acre feet)	WY 2018/19 Deliveries (acre feet)	WY 2019/20 Deliveries (acre feet)
October	3,029	2,298	2,689	3,252	2,483
November	1,514	930	296	585	350
December	4,999	5,004	5,165	2,827	1,754
January	4,193	5,103	5,442	4,105	6,632
February	6,305	2,847	6,340	3,351	6,628
March	5,196	3,527	3,341	3,285	2,954
April	5,710	3,493	7,550	5,514	3,935
May	4,042	5,788	5,734	4,590	5,659
June	15,006	15,902	16,839	14,049	13,899
July	15,031	17,245	14,891	15,015	12,478
August	12,337	12,080	14,076	14,686	12,220
September	3,844	6,633	2,235	3,604	4,561
Total	81,204	80,849	84,597	74,864	73,552
Surface Water	20%	92%	34%	82%	27%
Groundwater	80%	8%	66%	18%	73%

In wet years, the District is able to meeting irrigation demands primarily using surface water, and utilizes its groundwater supply in dry years.

a. Surface Water Supply

The current water allocation from the Kings River is based upon Kings River Water Association Administrative Agreements and allocation from the Kaweah River is based on Kaweah & St. Johns River Association Agreements. The Kings River water allocations provide a reliable water supply in most years. The Kaweah River

water allocations are typically only available during high-flow periods. The District's allocation is, in turn, allocated among its water Users based upon each of their respective owned/operated lands as a percent of the District's total acreage. Water users are required to make delivery requests 48 hours in advance due to the time it takes for water to flow from Pine Flat Dam to the District. When water demand exceeds supply, water may be allocated based on a percentage of the supply and the water user District acreage farmed.

During wet periods, there is typically a large amount of surface water from the Kings and Kaweah rivers available to the District, and little groundwater is required to meet irrigation demands. During dry periods, a much smaller volume of surface water is available, so the District relies on groundwater to meet irrigation demands.

b. Groundwater Supply

The District owns and operates groundwater wells which are used to augment surface water supplies in dry years.

c. Other Water Supplies

The District does not have additional water supplies at its disposal. However, it may purchase additional water supplies within the Kings or Kaweah systems when available.

While water transfers are not a typical part of District operations, the District will occasionally enter into water transfer agreements with nearby water agencies. These transfers are usually initiated to take advantage of delivery timing, to minimize system losses and to optimize water use. Growers may also transfer water into or out of the District. Transfers outside the District typically consist of privately pumped groundwater conveyed through District Canals. Transfers into the District consist of both surface water and privately pumped groundwater. Transfers of District supplies outside its boundaries is not allowed.

d. Water Uses within the Suppliers Service Area

Water use in the District is devoted entirely to irrigated agriculture except in extremely wet years where some environmental water use occurs and is described below.

2. Environmental Water Use

Through an agreement with Kaweah Delta Water Conservation District and the U.S. Army Corps of Engineers, the District maintains approximately 1,064 acres of shore bird habitat near the northerly end of the District between the East and West branches of the Lakeland Canal (see Figure 2). This area only receives excess flood waters and is therefore only irrigated during wet years. When the available, up to 2,150 acre-feet can be delivered and that water is retained to support the habitat for a minimum of 30 days.

3. Recreational Water Use

None of the District's water supply is dedicated to recreational water use.

4. Municipal Water Use

None of the District's water supply is dedicated to municipal or industrial water use at this time.

5. Groundwater Recharge Use

Although groundwater supplies are an important component of the District's overall water allocation, there is no set volume or percentage of the surface supplies dedicated to groundwater recharge. During periods of above normal runoff, surface supplies from the Kings and/or the Kaweah Rivers can be diverted to the District's reservoirs to recharge the upper groundwater aquifer (above the Corcoran Clay). Additional, recharge occurs from the unlined canals operated by the District. During wet periods, District water users will avoid using groundwater, allowing the aquifers to recharge. Deep percolation is unquantified. However, recharge of the Deep aquifer is assumed to generally occur in the easterly portion of the valley near the Sierra Nevada Mountains. Flows in Kings, Kaweah and other large conveyances may contribute to deep aquifer recharge.

Section IV: Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier

1. Water Supply Quantity

The District's water supply consists of surface water supplied through the Kings and Kaweah rivers and local groundwater pumped into the District's irrigation system. Table 5 shows total water supply for WY 2015/16-2019/20.

Table 5: Estimated Water Use in Corcoran Irrigation District

Water Year	Surface Supplies	Groundwater Supplies*	Total Deliveries
2015/16	18,945	74,835	93,780
2016/17	168,748	11,473	180,221
2017/18	33,712	57,795	91,507
2018/19	113,063	21,134	134,197
2019/20	21,156	57,494	78,650

*includes both Private and District groundwater supply

a. Surface Water Supply

The District's surface water supplies consist of water rights on the Kings and Kaweah Rivers. The Kings and Kaweah Rivers originate in the southern Sierras east of the District. These two rivers are regulated by dams constructed by the US Army Corps of Engineers in the 1950's and 1960's. The Kings River is the primary

local river water supply for the District. The District's Kaweah River water rights are primarily high-flow water rights and deliveries from that system tend to have substantial channel losses to the District. During extremely wet years, floodwaters from these two rivers along with the Tule and Kern Rivers will inundate lands within the Tulare Lake Bed. Flooding of cropland occurs on the average of one out of every seven years. During extreme flooding periods, flood flows will enter the Tulare Lake Bed, not only from the principal rivers mentioned, but also from uncontrolled streams such as Deer Creek, Poso Creek, White River, and runoff from the west side of the San Joaquin Valley. The District is able to use some of the residual floodwaters in Tulare Lake Bed for irrigation. The balance of these waters is lost to evaporation and aquifer recharge.

The Kings River water supplies are a reliable source of surface water to the District, and even in critically dry year types, some water from this system is available.

The Kaweah River water supplies available under the District's water rights are more erratic in nature and the volume available changes from year to year. In dry years, little to no water from the Kaweah system is available. During above-normal or wet years, the lack of reservoir capacity on the four major rivers on the east side of the Tulare Lake Bed results in flood releases from each of the respective reservoirs. Since the Tulare Lake Bed is a closed basin, inundation of cropland leads to decreased demand for surface waters. More surface reservoir capacity would provide greater storage for irrigation deliveries in subsequent years. It would also result in less groundwater pumping in a below-normal year by having more stored water for delivery.

The District has five existing surface storage reservoirs. At this time it is preparing a Reservoir Master Plan to further improve and optimize its ability to store, recharge the aquifer above the Corcoran Clay, and improve its ability to efficiently deliver the additional water available during years of above normal water supply runoff. Additionally, the excess flood waters may be utilized for deep aquifer recharge in the future (ex. deep well injection.)

b. Groundwater Supply

The District is located within the southern portion of the Tulare Lake Subbasin (TLS) in Subbasin number 5-22-12 of the San Joaquin Valley Groundwater Basin, as detailed in the Department of Water Resources Bulletin 118, January 2006 Update. The TLS consists essentially of a shallow aquifer and a deep aquifer separated by the Corcoran Clay hydrogeologic barrier. The Corcoran Clay is located about 500 to 600 feet below the ground surface and ranges in thickness from about 75 to 150 feet within the central portion of the District. Flood basin deposits within the western portion of the District are relatively impermeable silt and clay with some interspersed silty sand lenses. Extending to the east the shallow surface soils include an increased percentage of silty sand layers with increasing permeability. The deeper, relatively impermeable Corcoran Clay layer prevents natural recharge the lower aquifer below the Corcoran Clay, and the shallow flood basin deposits of impermeable silts and clays limit widespread recharge of the shallow aquifers above the Corcoran Clay. However, recharge

from District reservoirs East of 43 has been observed and depth to groundwater decreased.

Due to the saline soils located on the periphery of the historic Tulare Lake, shallow groundwater lying beneath the District lands southwest of Highway 43 may be unusable. The District owns and operates 76 groundwater wells. District wells are located northeast of Highway 43 in the northeastern portion of the District. Groundwater pumped from the District well field is discharged into District canals and then into operational reservoirs for storage and then conveyed through the District canal systems to its water users.

In 1995, the District and several other public entities and private landowners located within and around the Tulare Lake Bed area joined together to establish the Tulare Lake Bed Coordinated Groundwater Management Plan (CGMP) under the provisions of AB 3030 chaptered in 1992. In July 2012 under the provisions of SB 1938, a Compliant Groundwater Management Plan ("Plan") was adopted. More recently, the Sustainable Groundwater Management Act (SGMA) was implemented and Groundwater Sustainability Agencies (GSAs) were formed. Corcoran Irrigation District lies within the El Rico GSA. The CGMP remains active.

c. Other Water Supplies

The District is also active in water exchange programs to more efficiently manage its Kings and Kaweah River water supplies. The District has surface storage reservoirs with a combined maximum capacity of 12,000 acre feet. A Reservoir Master Plan report is in preparation which will review and recommend modifications to the reservoirs to improve flood storage operations and recharge opportunities so the District can more efficiently capture and utilize flood releases from both the Kings and Kaweah Rivers. In wet years the District may undertake water exchanges with other agricultural entities which have a demand for water. In exchange, the District receives water from these entities at a later date or payment to purchase water during dry years. Prime examples of a beneficial water purchase are ones entered into with Kings River Water Association member units who may purchase water in wet years from the District but in dry years may not have enough stored water available for a water run. When the entities are willing, the District has purchased water supplies available during dry years to supplement their own supply and reduce the need for groundwater pumping. Kings River water transfers occur on a regular basis to better utilize the river supply. The District manages, reviews and balances its water supplies through water purchases and transfers to best serve its water users.

2. Water Supply Quality and Water Quality Monitoring Practices

In the past, water samples were collected at key surface and groundwater supply points and has them analyzed for electrical conductivity, pH, TDS, total nitrogen, and boron. The purpose of that monitoring was to provide water users with a general idea of the irrigation water quality they will receive and to monitor for long term trends. Surface water quality entering the District is monitored by Kings River Conservation District and Kaweah Delta Water Conservation District. Groundwater quality is

monitored as some level by the Irrigated Lands Regulatory Program and the Sustainable Groundwater Quality Management Act. Water Users in the District monitor water quality.

a. Surface Water Quality

Surface water samples were collected from the District’s Highline Canal, representing the water quality of only the incoming surface water, and at the Sweet and Lamberson Canals, representing surface water blended with groundwater pumped from wells and recirculated tailwater. Table 6 shows the water quality results for these sources from 2013. The District no longer monitors surface supply but it is monitored by other agencies (KRCD and KDWCD).

Table 6: Surface Water Quality Sample Results

Irrigation Year: 2013 Location	ECe ds/m	pH	TDS ppm	Total N ppm	Boron ppm
Highline @ Kansas Ave	0.05	7.6	32	<0.5	0.01
Sweet Canal @ Nevada Ave	0.17	9.2	109	<0.5	0.12
Lamberson Canal @ Plymouth Ave	0.29	8.8	186	<0.5	0.17

b. Groundwater Quality

The District’s groundwater supply comes from 76 District-owned wells. Table 7 shows the groundwater quality for wells at key locations within the District. The District no longer monitors groundwater quality at its wells. The results below are representative of District groundwater quality, and District water users monitor their groundwater quality as needed.

Table 7: Groundwater Quality Sample Results

Irrigation Year: 2013 Location	Aquifer Penetration*	E.C. ds/m	pH	TDS ppm	Total N ppm	Boron ppm
Well -- A	Shallow	0.268	8.6	201		< 0.1
Well -- B	Shallow	0.179	9.0	136		< 0.1
Well -- C	Shallow	0.294	8.7	213		< 0.1
Well -- D	Shallow	0.239	8.5	187		< 0.1
Well -- E	Deep	0.34	9.5	226		0.60
Well -- F	Deep	0.41	9.3	262	<0.5	0.31
Well -- G	Deep	0.30	9.3	192	<0.5	0.28
Well -- H	Deep	0.34	9.4	218	<0.5	0.33
Well -- I	Deep	0.39	8.4	250	<0.5	0.26
Well -- J	Deep	0.38	8.7	243	<0.5	0.34

* Shallow indicates well perforations above the Corcoran Clay. Deep indicates well perforations below the Corcoran Clay.

c. Other Water Supplies

There are no other water supplies monitored by the District. As noted earlier, tailwater discharges not recirculated by individual water users are assimilated into the District’s water supply, however these water sources are not independently monitored. The blended water quality (aggregate of surface supplies, groundwater supplies, and recirculated tailwater) is measured by the Sweet and Lamberson Canal samples.

Section V: Water Budget

1. Quantification of Water Supply

a. Agricultural Water Supplier’s Water Quantities

Agricultural water supplies (by source) are tabulated in Section III A (Tables 4 and 5). This summarizes all of the water supplied by the District to growers for irrigation. All of the water delivered by the District is used for agricultural purposes.

b. Other Water Sources Quantities

Average rainfall within the area is approximately 7.3 inches. The overall annual precipitation was determined from measurements taken by Corcoran Irrigation District. Approximately, 1.4 inches of the annual average precipitation of 7.3 inches is considered as effective precipitation.

2. Quantification of Water Uses

Crop Water Use

Using information from USDA’s CropScape and DWR’s 2018 Cropping Data, cropping patterns for Water Years 2015/16-2019/20 were developed and are shown in Table 8. Cotton is the primary row crop and tree crops include primarily Pistachios and some Almonds.

Table 8: District Cropping Patterns

Crop	Irrigated Acreage by Water Year (acres)				
	2015/16	2016/17	2017/18	2018/19	2019/20
Alfalfa	5,100	5,280	3,550	3,960	5,350
Cotton	15,230	14,920	14,550	16,560	12,890
Tomatoes	1,890	1,460	1,340	700	80
Trees	5,690	8,500	8,730	9,580	9,580
Vines	160	160	160	160	160
Wheat & Forage Crops	9,430	8,350	11,750	8,810	11,760
Safflower	3,040	1,870	460	770	720
Totals	40,540	40,540	40,540	40,540	40,540

Note: Wheat & Forage Crops include Wheat, Sorgum, Triticale and Oats

The primary use of applied water is to meet the crop evapotranspiration rates (ETc). ETc values were obtained using Irrigation Research and Technology's (ITRC) California Crop and Soil Evapotranspiration report (ITRC Report No R3-001). The District lies in Zone 16 of California Irrigation Management System's (CIMIS) Reference Evapotranspiration Map. ITRC's report tabulates ETc values for a given crop based on the reference ET zone.

Table 9: Crop Evapotranspiration

Crop	ETc (AF/Ac)
Alfalfa	3.50
Cotton	3.25
Tomatoes	2.50
Trees	3.50
Vines	2.80
Wheat & Forage Crops	1.50
Safflower	1.00

Using the cropping patterns shown in Table 8 and Crop Evapotranspiration values in table 9, the crop water demand was calculated and shown below.

Table 10: Crop Water Demand

Crop	Crop Consumptive use by Water Year (acre-feet)				
	2015/16	2016/17	2017/18	2018/19	2019/20
Alfalfa	17,850	18,480	12,430	13,860	18,730
Cotton	49,500	48,490	47,290	53,820	41,890
Tomatoes	4,730	3,650	3,350	1,750	200
Trees	19,920	29,750	30,560	33,530	33,530
Vines	450	450	450	450	450
Wheat & Forage Crops	14,150	12,530	17,630	13,220	17,640
Safflower	3,040	1,870	460	770	720
Total demand	109,640	115,220	112,170	117,400	113,160

Because the District sits within the Tulare Lake Basin, there is no natural outlet for tailwater or operational spills. Irrigation runoff (tailwater) is completely recaptured, either by the grower or by the District's irrigation system. In both cases, tailwater is recirculated as part of the irrigation supply, however it is not separately measured.

3. Annual Water Budget

Inflows

Effective Precipitation: Annual effective precipitation is presented below and was considered 20% of the December-May rainfall. An uncertainty factor of $\pm 35\%$ was estimated for this value.

Table 11: Effective Precipitation

Water Year	Total Precipitation (in)	Effective Precipitation (in)	Cropped Acreage (acres)	Effective Precip. Volume (acre-feet)
2015/16	7.11	0.98	37,900	3,100
2016/17	10.88	2.00	37,900	6,300
2017/18	3.57	0.71	37,900	2,300
2018/19	9.00	1.43	37,900	4,500
2019/20	7.46	1.34	37,900	4,200

Surface Water Diversions

Surface water diversions from the Kings and Kaweah System are summarized in Tables 4 & 5. Measurements are taken at the District's Highline Canal Parshall flume for Kings River Inflows and at California Highway 198 for inflows from the Cross Creek (Kaweah System). An uncertainty factor of 5% is estimated for the values tabulated below.

Table 12: Surface Water Diversions

Water Year	Surface Water Diversions (AF)		
	Kings	Kaweah	Total
2015/16	18,945	0	18,945
2016/17	111,945	56,803	168,748
2017/18	33,712	0	33,712
2018/19	91,347	21,716	113,063
2019/20	53,856	0	53,856

Groundwater Pumping

- a) Water Supplier Groundwater Pumping: The District owns and operates groundwater wells. During periods of low surface water supply, the District pumps groundwater to meet agricultural demands. An uncertainty factor of $\pm 10\%$ was assigned to privately pumped groundwater values.
- b) Private Groundwater Pumping: The pumped volume was measured by landowners in the District and is presented below. An uncertainty factor of $\pm 35\%$ was assigned to privately pumped groundwater values.

Table 13: Groundwater Pumping

Water Year	Water Supplier Groundwater Pumping (AF)	Private Groundwater Pumping (AF)
2015/16	68,004	6,831
2016/17	9,516	1,957
2017/18	53,619	4,176
2018/19	18,936	2,198
2019/20	53,856	3,638

Outflows

Surface water outflow: The District resides in a closed basin with no natural outlet. There are no surface water outflows.

Deep percolation outflow: There are no estimated deep percolation outflows from the District due subsurface conditions. Some percolation to the shallow aquifer does occur from the District’s storage ponds.

Evapotranspiration Outflow: Evapotranspiration outflows are shown in Table 10. The row crops listed above have been grown in Corcoran Irrigation District for decades. Due to market demand, a shift toward permanent crops has occurred over the past decade. Ultimately resulting in a steadily increasing summer water demand. Because cropping patterns are not currently tracked by the District, and CropScape was used as the primary data source for development of cropping patterns, there is some uncertainty in crop consumptive use. An uncertainty value of 10% was applied to the crop consumptive use values.

Shallow groundwater outflow: Shallow groundwater outflows originating from crop irrigation are minimal. The southerly portion of the District is primarily devoted to row crops, and irrigated using conventional irrigation methods. By contrast, the Northerly portion of the District is devoted primarily to permeant crops, and irrigated using high efficiency irrigation systems. While conventional irrigation methods tend to generate more seepage past the root zone than high efficiency systems, the low permeability soils in the southerly portion of the District require precise metering and control to avoid over-saturation of the root zone. In the more permeable north portion of the District, high efficiency irrigation systems limit seepage past the root zone. Seepage from District storage reservoirs has been observed; however, the reservoirs are filled infrequently. As such, seepage outflows from the reservoirs to the shallow aquifer are considered insignificant. Seepage estimates from District canals are included in other losses below.

Other Losses: Because a majority of District canals are unlined, some seepage from District facilities occurs. At this time, there is no available data to determine seepage

losses from District facilities. Evaporation and seepage losses from District facilities are estimated at 5% of the annual water supply delivered.

Table 14: District System Losses

Water Year	System Losses
2015/16	4,100
2016/17	4,000
2017/18	4,200
2018/19	3,700
2019/20	3,700

4. Identify Water Management Objectives

a. Identification of Water Management Objectives

The District's primary objective is to provide affordable and reliable irrigation supplies to agricultural water users within its boundary. Supplementary objectives include enhancing water conservation efforts through upgrades to District facilities and increasing flood storage. District system losses can be reduced by piping District canals, and flood storage can be increased by deepening existing reservoirs. In addition, the District maintains a fiscal reserve to purchase surface water supplies in dry years.

b. Prioritization of Water Management Objectives

The primary objective of providing an affordable and reliable water supply to its water users is the District's highest priority. Through conjunctive use, the District is able to deliver a relatively consistent annual water supply to its water users from a combination of groundwater and surface water supplies. Additionally, the District maintains a fiscal reserve that can be used to purchase surface water supply in dry years.

c. Actions implemented to reduce water loss

The District has installed several canal lift stations used to dewater District laterals when demand is low. The water is fed back into the District's main delivery canals and put to use elsewhere in the District rather than being lost to evaporation.

d. Actions implemented to meet other water management objectives

The District's flood storage reservoirs have been selected as a borrow site for California's High Speed Rail project. Excavation of the District's flood storage reservoirs is ongoing and will continue into the foreseeable future, and has increased the District's flood storage capacity.

Table 15: Water Budget Inflows (AF)

Inflow Component	AWMP Location for Supporting Calculations	How Quantified?	Uncertainty	How Quantified?	Water Year 15/16	Water Year 16/17	Water Year 17/18	Water Year 18/19	Water Year 19/20
Units	Page number or Section		Percent		Acre-feet per year	Acre-feet per year	Acre-feet per year	Acre-feet per year	Acre-feet per year
Effective Precipitation	Sec V.3 Table 11	estimated	35%	estimated	3,500	4,200	1,000	4,800	3,300
Water Supplier surface water diversions	Sec V.3 Table 12	measured	5%	measured	18,945	168,748	33,712	113,063	21,156
Water supplier groundwater pumping	Sec V.3 Table 13	n/a	10%	n/a	68,004	9,516	53,619	18,936	53,856
Private groundwater pumping	Sec V.3 Table 13	measured	35%	measured	6,831	1,957	4,176	2,198	3,638
Total			21%		97,280	184,421	92,507	138,997	81,950

Table 16: Water Budget Outflows

Outflow Component	AWMP Location for Supporting Calculations	How Quantified?	Uncertainty	How Quantified?	Water Year 15/16	Water Year 16/17	Water Year 17/18	Water Year 18/19	Water Year 19/20
Units	Page number or Section	Drop down (Measured, Calculated, Modeled, Estimated)	Percent	Drop down (Measured, Calculated, Modeled, Estimated)	Acre-feet per year	Acre-feet per year	Acre-feet per year	Acre-feet per year	Acre-feet per year
Crop Consumptive Use	Section V.3 Table 12	calculated	20%	estimated	103,280	108,850	106,750	111,280	107,260
Surface Outflows	n/a	estimated	0%		0	0	0	0	0
Deep Percolation	Section V.3	estimated	0%		0	0	0	0	0
Shallow Groundwater Outflow	Section V.3	estimated	0%		0	0	0	0	0
District System Losses	Section V.3 Table 14	estimated	15%	estimated	4,100	4,000	4,200	3,700	3,700
Total			7%		107,380	112,850	110,950	114,980	110,960

5. Quantifying Efficiency of Agricultural Water Use

Agricultural water use in the District was quantified over the past five (5) years using the Crop Consumptive Use fraction. In water years 2016/17 and 2018/19, flood flows were taken by the District. The District stored the floodwater in its reservoirs and utilized it in lieu of pumped groundwater.

The average evapotranspiration of applied water over water years 2015/16-2019/20 is 107,484 acre-feet.

The average annual applied water over water years 2015/16-2019/20 was 107,484 acre-feet. The average annual applied water considered the average annual inflow volume put to use within the District (119,031 acre-feet)

Table 17: Crop Consumptive Use Fraction

Evapotranspiration of Applied Water (ETAW)	Applied Water (AW)	Crop Consumptive Use Fraction (CCUF)
Acre-Feet per Year	Acre-Feet per Year	No units
107,484	119,031	90%

Section VI: Climate Change

The long-term impacts of climate change on the District are not known. It is anticipated that climate change will result in wide variations in precipitation, contributing further to the poor reliability of the District's surface water supply. The District expects to rely on its groundwater supplies to help make up for surface water shortfalls. In addition, improvements to existing reservoirs and the planned construction of new reservoirs will allow the District to capture flood water and either use it directly as a supply or to recharge groundwater. District growers also have the ability to fallow ground to reduce water demand in periods of severe drought.

Section VII: Water Use Efficiency Information

A. Efficient Water Management Practice (EWMP) Implementation and Reporting

The table below provides a brief summary of the EWMPs that DISTRICT has implemented. Details of each EWMP are provided after the table.

Table 18: Report of EWMPs Implemented/Plans

(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))		
EWMP No.*	Description of EWMP	Status of EWMPs
Critical EWMPs		
1	Water Measurement	Currently Implemented
2	Volume-Based Pricing	Currently Implemented
Conditionally Required EWMPs (locally cost-effective and technically feasible EWMPs)		
1	Alternate Land Use	Not Implemented – Infeasible.
2	Recycled Water Use	Not currently feasibly – under review.
3	On-Farm Irrigation Capital Improvements	In Progress – Grower initiated.
4	Incentive Pricing Structure	Not Implemented – Not Planned.
5	Infrastructure Improvements	In progress.
6	Order/Delivery Flexibility	Not Implemented – Infeasible.
7	Supplier Spill and Tailwater Systems	Implemented.
8	Conjunctive Use	Implemented.
9	Automated Canal Controls	In progress.
10	Customer Pump Test/Eval.	Implemented – Grower initiated.
11	Water Conservation Coordinator	Implemented.
12	Water Management Services to Customers	Implemented – Grower initiated.
13	Identify Institutional Changes	Implemented
14	Supplier Pump Improved Efficiency	Implemented
Notes: *EWMP numbers correspond to (Water Code §10608.48(c))		

Critical Efficient Water Management Practices:

Critical EWMP 1 – Water Measurement: The District measures 100% of its deliveries. Approximately 90% of the measurement points are propeller meters on pump discharge manifolds. The remaining 10% of the measurement points are open flow propeller meters installed at the ends of gravity pipelines. Propeller meters are certified by the manufacturer to be accurate within 5%. Meters are repaired or replaced as needed and DISTRICT will refuse to deliver water to any grower with a broken or improperly installed meter.

Critical EWMP 2 – Volume-based Pricing: The District utilizes volume-based pricing. District water users are billed according to the volume of water delivered. The volume of delivered water is measured by factory-certified, totalizing meters which are read monthly by District staff.

Conditional Efficient Water Management Practices:

EWMP 1 – Alternate Land Use: This EWMP is not applicable. There are no lands in the District where irrigation and farming activities contribute to significant drainage problems.

EWMP 2 – Recycled Water Use: The City of Corcoran and Corcoran State Prison generate treated wastewater which could be utilized for agricultural water supply. It is possible to deliver treated wastewater into the District and it is currently being evaluated.

However, recycled water is currently not delivered by the District and is currently not feasible because there is no agreement in place. Additionally, the quality of the treated wastewater effluent requires evaluation prior to use on crops for human consumption.

EWMP 3 – On-Farm Irrigation Capital Improvements: This EWMP is implemented by DISTRICT growers. Approximately 10% of the District is irrigated using high efficiency irrigation systems such as buried drip or micro-sprinklers. Growers are aware of the benefits of pressurized irrigation systems and are converting from conventional surface methods as the crop rotation and budget allow. The District does not have a financial incentive program to assist growers with irrigation system improvements and all irrigation improvements are funded and implemented by the growers. However recent conversion trends indicate a steady increase in the acreage irrigated with high efficiency irrigation system and the District expects to see 50% of the District acreage irrigated with such systems by 2020.

EWMP 4 – Incentive Pricing Structure: Legal counsel for the District has advised that incentive pricing systems, such as tiered water pricing, may be subject to Proposition 218 elections and need to be set according to actual service costs (see *Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano*, April 2015). Until this legal issue is clarified, the District does not plan to implement a specific incentive pricing structure. The District does set the price of water based on actual costs (including operations, maintenance, administration, and purchased water), some of which are fixed regardless of the available water supply. To that end, the price of water becomes proportional to the available volume of water. In drought years, a lower (or absent) surface water supply will result in a significantly higher unit price of water, which does create an incentive to adjust cropping patterns and reduce water demand.

EWMP 5 – Infrastructure Improvements: This EWMP is planned. The District is in the process of developing a five-year plan to construct improvements to key pump stations. These improvements will include the installation of variable frequency drives and SCADA automation on three pump stations that are critical to District water deliveries. These improvements will allow the District to exactly match water deliveries with demand and to monitor and control the pump stations remotely from the office. Details of this plan are still in progress and the costs and benefits have not yet been fully developed.

EWMP 6 – Order/Delivery Flexibility: This EWMP is not technically or financially feasible. The nature of the District's delivery system as well as the general topography of the area dictates the operation and order of delivery system. Surface water deliveries from the Kings and Kaweah rivers are managed by upstream water agencies and outside of District control. Conversion to an "on-demand" system would require the entire system to be replaced with a pressurized delivery system at a cost well beyond the District's resources.

EWMP 7 – Supplier Spill and Tailwater Systems: This EWMP has been implemented. The District does not generate any operational spills. All tailwater generated within the District is either recirculated by the individual water user or discharged back into the District's irrigation system for reuse as irrigation water. The volume of recirculated tailwater is not separately measured.

EWMP 8 – Conjunctive Use: This EWMP has been implemented. The District operates as a conjunctive use district by using groundwater as a supplemental water supply when surface supplies are insufficient to meet demand and relying on surface supplies in lieu of groundwater when possible. The District is in the process of developing a new Reservoir Master Plan, which will include activities and improvements specific to conjunctive use and groundwater management. This plan is expected to be completed within 12 months.

EWMP 9 – Automated Canal Controls: This EWMP is being implemented as part of EWMP 5, infrastructure improvements.

EWMP 10 – Customer Pump Evaluations: This EWMP has been implemented by the growers. Growers within the District understand the need to maintain efficient pumps and will schedule pump tests on an as needed basis to evaluate efficiency and make repairs. DISTRICT water users have not asked the District to participate in this process.

EWMP 11 – Water Conservation Coordinator: This EWMP has been implemented. The District Board of Directors has appointed Gene Kilgore, the District’s manager, as the Water Conservation Coordinator.

EWMP 12 – Water Management Services to Customers: This EWMP is not implemented by DISTRICT. The majority of water users within the District employ agronomists and other water management professionals directly. There is no demand for the District to provide this service.

EWMP 13 – Identify Institutional Changes: This EWMP has been implemented. DISTRICT holds monthly board meetings where water users can present concerns regarding District policies. At this time the District has not received any complaints or concerns from water users regarding its policies.

EWMP 14 – Supplier Pump Improved Efficiency: This EWMP has been implemented. The District participates in PG&E’s Advanced Pumping Efficiency Program (APEP) and regularly evaluates all of its pumps.

Schedule and Budget to Implement EWMPs.

The District or its water users have already implemented many of the listed EWMPs. Other EWMPs, particularly those related to infrastructure improvements and canal automation, are currently in the process of being planned and a detailed schedule or budget has not yet been developed.

Table 19: Schedule to Implement EWMPs

(Water Code §10608.56 (d))

EWMP	Implementation Schedule	Finance Plan	Budget Allotment
Critical			
1 – Water Measurement	Complete	Grower Financed	\$0
2 - Volume-Based Pricing	Complete		\$0
Conditional			
1 – Alternate Land Use	Not Applicable		
2 – Recycled Water Use	Under review.		
3 – On-Farm Irrigation Capital Improvements	In-progress: Grower Driven	Grower Financed	\$0
4 – Incentive Pricing Structure	Not Planned		
5 – Infrastructure Improvements	Planning in Progress	Not yet determined	Not yet determined
6 – Order/Delivery Flexibility	Not Planned		
7 – Supplier Spill and Tailwater Systems	Implemented	Grower & District Financed	\$0
8 – Conjunctive Use	Implemented		\$0
9 – Automated Canal Controls	Planned: see #5	Not yet determined	Not yet determined
10 – Customer Pump Test/Eval.	Grower Implemented	Grower Financed	\$0
11 – Water Conservation Coordinator	Implemented	\$0	\$0
12 – Water Management Services to Customers	Grower Implemented	Grower Financed	
13 – Identify Institutional Changes	Implemented	\$0	\$0
14 – Supplier Pump Improved Efficiency	Implemented	Included in Annual Maintenance Budget	
Total all EWMPs			

Section VIII: Supporting Documentation

1. Agricultural Water Measurement Regulation Documentation (as applicable)

A. Legal Certification and Apportionment Required for Water Measurement

The District has access to all measuring points. No Legal Certification is required.

B. Engineer Certification and Apportionment Required for Water Measurement

The District measures all deliveries volumetrically. No Engineer Certification is required.

C. Description of Water Measurement Best Professional Practices

Included in Appendix C.

D. Documentation of Water Measurement Conversion to Volume

Not applicable – all deliveries are metered volumetrically.

E. Device Corrective Action Plan Required for Water Measurement

See Appendix C.

Other Documents (as applicable)

No other documents are required.

2. Delta Plan Consistency

Corcoran Irrigation District does not receive water from a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta. The District's supplies include surface water from the Kings and Kaweah River systems, and groundwater pumped from District-owned wells.

Appendix A: Preparation and Adoption Documents

Notice of Preparation

Resolution of Adoption

DIRECTORS

PETER A. RIETKERK, PRESIDENT
MICHAEL A. BOYETT
DOUGLAS DEVANEY
MATHEW O. GILKEY
ERIK HANSEN

GENE KILGORE
MANAGER-TREASURER

TAMMY STEPHENS
OFFICE ADMINISTRATOR
ASSESSOR AND TAX COLLECTOR

MISTY VASQUEZ
HUMAN RESOURCES

Corcoran Irrigation District

P.O. BOX 566 - CORCORAN, CALIFORNIA 93212
TELEPHONE (559) 992-5165 - FAX (559) 762-7227

May 3, 2021

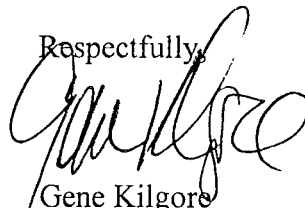
County Clerk
Count of Kings
Kings County Government Center
1400 W. Lacey Blvd.
Hanford, CA 93230

**Re: Corcoran Irrigation District Agricultural Water Management Plan Update
Notification**

In accordance with the requirements of the Water Conservation Act of 2009 (SBx7-7), you are being notified that Corcoran Irrigation District is preparing a draft update of the District's Agricultural Water Management Plan (AWMP). This draft AWMP will update the District's 2015 AWMP.

If you want to provide a comment, please submit those in writing to the District by May 31, 2021.

Respectfully,



Gene Kilgore
General Manager

DIRECTORS

PETER A. RIETKERK, PRESIDENT
MICHAEL A. BOYETT
DOUGLAS DEVANEY
MATHEW O. GILKEY
ERIK HANSEN

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MANAGER-TREASURER

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P.O. BOX 566 - CORCORAN, CALIFORNIA 93212
TELEPHONE (559) 992-5165 - FAX (559) 762-7227

May 3, 2021

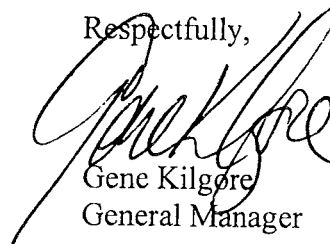
City Clerk
City of Corcoran
City Hall
832 Whitley Avenue
Corcoran, CA 93212

**Re: Corcoran Irrigation District Agricultural Water Management Plan Update
Notification**

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If you want to provide a comment, please submit those in writing to the District by May 31, 2021.

Respectfully,



Gene Kilgore
General Manager

Affidavit of Publication

STATE OF CALIFORNIA,

COUNTY OF KINGS--SS

Robert A. Atilano....., being first duly sworn, Deposes and says that at all times hereinafter mentioned, he was a citizen of the United States, over the AGE of eighteen years, and a resident of said county, and was at and during all said times the principal clerk to the printer and the publisher of THE CORCORAN JOURNAL, a newspaper of general circulation, printed and published weekly in the City of Corcoran in said County of Kings, State of California; adjudicated as such by order Number 11739 of the Superior Court of the State of California in and for the County of Kings on January 28, 1952; that said THE CORCORAN JOURNAL is and was at all times herein mentioned a newspaper of general circulation as that term is defined by section 6000 of the Government Code, and, as provided by said section, is published for the dissemination of local and telegraphic news and intelligence of general character, having a bonafide subscription list of paid subscribers, and is not devoted to the interests, or published for the entertainment or instruction of a particular class, profession, trade, calling, race or denomination, or for the entertainment and instruction or any number of such classes, professions, trades, callings, races or denominations; that at all times said newspaper had been established, printed and published in the City of Corcoran, in said County and State, at regular intervals, for more than one year preceding the first publication of the notice herein mentioned; that the

CORCORAN IRRIGATION DISTRICT
Public Notice-AWMP

Of which the annexed is a printed copy, was printed and published in said newspaper at least 2 week(s), as follows, and the date of first publication was

May 20, 27, 2021

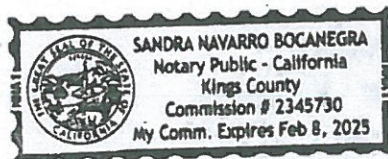
R. Atilano

CALIFORNIA JURAT WITH AFFIANT STATEMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Kings,

Subscribed and sworn to (or affirmed) before me on this day of June, 2021,
by Robert A. Atilano, proved to me on the basis of satisfactory evidence to be the
person(s) who appeared before me.



Signature: *Sandra Navarro Bocanegra*

PUBLIC NOTICE

PUBLIC NOTICE

In accordance with the requirements of the Water Conservation Act of 2009 (SBx7-7) and AB 1668, notice is hereby given that Corcoran Irrigation District (CID) has prepared a Draft 2020 Agricultural Water Management Plan (AWMP). This AWMP updates CID's 2015 AWMP. The Draft AWMP will be available for review on May 31, 2021 at the CID office located at 1150 6 1/2 Avenue. The District Board of Directors will hold the public hearing on June 8, 2021 at 10:30 a.m. at the CID office, to consider the adoption of the updated AWMP. You are encouraged to provide written comments before the public hearing, but comments will be heard at the public hearing. Written comments can be emailed to gkilgore@corcoranid.com or mailed to Corcoran Irrigation District, P.O. Box 566 Corcoran, Ca 93212. The Board of Directors invites and encourages interested parties to participate in this public hearing. Upon conclusion of the public comments the Board of Directors will consider the adoption of the updated Draft Agricultural Water Management Plan.

Publish: May 20, 27, 2021.

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
CORCORAN IRRIGATION DISTRICT**

RESOLUTION NO. 2021- 3

**Adoption of 2020 Agricultural Water Management Plan
and Amendment to the 2015 Agricultural Water
Management Plan**

WHEREAS, the Corcoran Irrigation District (“District”) is a California irrigation district and is the type of entity required under California law, had adopted and implemented an Agricultural Water Management Plan (AWMP) in 2015 pursuant to the Water Conservation Act of 2009(SBx7-7) and AB1668 in which the Department of water Resources (DWR) accepted the Plan; and

WHEREAS, the AWMP update conformed to the reorganized framework presented in “A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2020 AWMP” issued by DWR in August 2020 to assist in preparing a AWMP in which was referenced while preparing by the District’s consulting engineers; and

WHEREAS, the requirements in SBx7-7 are intended to encourage agricultural water supplies to assess current efficient water management practices, to evaluate additional practices that may conserve water, and to require a certain level of accurate measurement of water. Thus, allowing water suppliers to identify best management practices and implement them to improve the efficient and effective use of water; and

WHEREAS, in Section VIII these practices of been reviewed and implemented or planned to be implemented to better serve the District; and

WHEREAS, the District is an authorized local agency and may therefore adopt and implement the AWMP; and

WHEREAS, the District's 2020 AWMP Update was prepared by the District's consulting engineers at the direction of the Board of Directors; and

WHEREAS, on May 20, 2021 and May 27, 2021, notice of a public hearing to consider adoption of the Updated AWMP was duly published in the *Corcoran Journal*, a newspaper of general circulation within the boundaries of the District;

WHEREAS, on June 8, 2021, the Board of Directors of the District held a public hearing for the purposes as described in the aforementioned published notice; and

WHEREAS, after hearing the staff report on the Agricultural Water Management Plan and holding the public hearing regarding the same, the Board of Directors of the District found it to be in the best interest of the District to have the Agricultural Water Management Plan to comply with the statutory requirements and to guide and direct its activities,

NOW, THEREFORE, on a motion made by Director DeVaney, seconded by Director Gilkey, and carried, the Board of Directors of the District resolved to adopt the 2020 Updated Agricultural Water Management Plan, a copy of which is attached hereto and marked "Exhibit A," as its agricultural water management plan and to authorize all further steps required by law to finalize it.

IT IS FURTHER RESOLVED that the General Manager of the District, Gene Kilgore, and all other officers of the District be authorized to take all action and do all other things reasonably necessary to consummate the adoption and implementation of the Updated Agricultural Water Management Plan.

PASSED AND ADOPTED this 8th day of June 2021 by the following vote:

AYES: Rietkerk, Gilkey, Boyett, DeVaney

NOES:

ABSTAIN:

ABSENT: Hansen

APPROVED:

A handwritten signature in cursive script that reads "Peter Rietkerk". The signature is written in black ink and is positioned above a horizontal line.

Peter Rietkerk, Board President

CERTIFICATE AUTHORIZING RESOLUTION

I, Gene Kilgore, hereby certify as follows:

1. That I am the Secretary of the Corcoran Irrigation District; and
2. That the foregoing resolution, consisting of three pages, including this page, is a true and correct copy of a resolution of the Board of Directors of the Corcoran Irrigation District passed at the meeting of the Board of Directors regularly held on June 8, 2021, at the District's principal executive office, located in Corcoran, California.

IN WITNESS WHEREOF, I have signed this certificate this **8th** day of **June 2021**, at the District's principal executive office.



Gene Kilgore, Secretary

Appendix B: Third Amended Rules and Regulations of the Corcoran Irrigation District

THIRD AMENDED RULES AND REGULATIONS OF THE CORCORAN IRRIGATION DISTRICT

These Third Amended Rules and Regulations were adopted by the Board of Directors (Directors) of the Corcoran Irrigation District on December 12, 2017 under authority provided pursuant to California Water Code Sections 22225 and 22257

These rules and regulations are intended to assist the Directors and District employees in giving economic management and equitable service of water to all water users in the District. It is the hope of the Directors that all water users will familiarize themselves with these rules and regulations and assist in the business of the District—that of conveyance and supply of water for irrigation.

These rules and regulations are sufficiently elastic to permit the District Manager to vary the method of water distribution to suit local soil and crop conditions. As new conditions arise, it may be necessary to change or amend these rules and regulations. The Directors invite all water users to provide suggestions to better improve the District's purpose.

Employees of the District are expected to be courteous and considerate in all their interactions with the public and all water users must exercise the same consideration in their interactions with District employees.

All taxpayers and water users should feel a personal interest in helping to keep down expenses. This can be accomplished if water users will stop small leaks in their systems, report problems with the District's conveyance system or facilities, and minimize backing water up in District canals.

RULES AND REGULATIONS

1. **Management of System** - The operation and maintenance of the conveyance systems and facilities of the District shall be under the exclusive management of the District Manager, appointed by the Directors. No person not authorized by the District Manager shall interfere with the operation of any part of the conveyance system.
2. **District Manager and Assistants** - The District Manager shall employ such canal operators and other assistants required for the operation and maintenance of the system.
3. **Application for Water** - On or before March 1st of each year, each water user shall file with the District Manager a written application on forms supplied by the District, specifying the number of acres to be irrigated, the kind of crop and the acreage of each, the location of the land to be irrigated, and the area served by each distribution lateral. No water will be delivered until the completed application form is delivered to the District.
4. **Rotation and Delivery of Water** - At the Directors discretion, water may be delivered by a prorated allocation to water users. The quantity of water delivered to each water user will be based on the water user's irrigated acreage percentage of the total District acreage and the water available. Thus, the prorated allocation of water available to a water user is determined by dividing the water user's irrigated acreage, located within the District, by the total District acreage, and multiplying the quotient by the total amount of acre feet of the expected daily available water supply.
5. **Quality of Water** - Water supplied by the District is provided for agricultural water only. Water provided by the District is in a raw, untreated condition and is not fit for human consumption or any other domestic use.
6. **Disclaimer for Failure of District to Deliver Water** - Delivery of water will be on an interruptible and non-dependable basis. Water will only be provided to water users as such times and in such a manner as the District, at its sole discretion, may decide. The District shall not be responsible or liable for its failure to deliver water to any water user or for any damages, consequential or otherwise, resulting from such failure.
7. **Water Allotment and Charges** - Each year the Board of Directors shall establish the quantities of water available for each acre of service, the charges for water, the terms for the transfer of water, and any other provisions or charges for service as the Board may find appropriate.

All water charges and assessments, and other irrigation or related charges shall be due and payable as stated by Board Resolution and notices in billing statements.

8. **Charges for Water** - Water users shall be charged for all water diverted into a canal for requested irrigation deliveries, except for growers with stationary diversion facilities or when two or more growers are diverting in the same system. In this

case, the growers' meter shall be used to determine water deliveries. Water users shall retain ownership of tailwater and no charges shall be applied. When there are two or more water users on a canal, tailwater diverted back into the canal, ownership shall revert to the District. After the District has closed the headgate, water users shall have 48 hours to use the residual water in the canal. After 48 hours, the District may dewater the canal back into the nearest District main conveyance system. In years when the District sales water outside District boundaries, the tailwater generated at that time from District water may be conveyed outside the District. However, all costs to lift, pump and convey the tailwater shall be borne by the water user. Conveying tailwater generated by District water to adjacent lands within the District is permitted and only subject to the District's canal use charge.

9. **Quantity of Water to be Supplied** - The head of water requested by and delivered to a water user may vary, so long as the variation does not adversely affect another water user. The water user who is first in time has priority unless water demand exceeds supply or capacity, thereby requiring the District Manager to begin allocating water supply or channel capacity. In no case, will a head of water less than two (2) cubic feet per second be delivered to a water user.
10. **Condition of Water Users Land and Ditches** - Water users will be required at all times to keep their ditches and facilities for conveying and distributing water in good condition and free from weeds, so that water can be conveyed without undue loss either of water or human resources. The District Manager shall have the right to refuse to deliver water to a water user whose ditches, structures / or land is so impaired that water cannot be distributed economically.
11. **Use and Care of Water** - Water must be used continuously by the water user throughout the period of the run, both day and night. If water is wasted or improperly used, the District Manager may refuse further delivery of water until the cause of waste is removed or repaired.
12. **Liability of District** - The District shall not be liable for damage resulting directly or indirectly from any water user's failure to divert water as requested, either in a private ditch or in a District conveyance facility.
13. **Access to Water User's Ditches and Land** - The District Manager, authorized canal operators and assistants shall at all times have access to the ditches of water users or the lands irrigated with District's water.
14. **Complaints of Service** - Complaints of service or of the action of District canal operators or other employees of the District, shall be made in writing and filed with the District Manager. Complaints of service or actions of the District Manager shall be made in writing and filed with the District President.
15. **Use of Right-of-Way by Water User** - The rights of way occupied by District conveyance systems and structures shall not be used by water users for growing of crops or any other purpose except by written permission of the Directors. Canal banks shall not be disturbed; fences, gates, bridges or any other structure shall not be built on or across District rights-of-way, conveyance systems or property without such written permission.

16. **Additional Diversion Outlets** - Additional diversion outlets or other structures may be constructed or placed in District conveyance systems only when written authority from the Directors is first granted. Construction or placement of an additional diversion outlet or other structure is to be performed by the District staff or under their direction and at the sole expense of the water user.
17. **Length of Irrigation System** - Water will be provided in the conveyance systems of the District when it is available for distribution and required by water users, except for such times that are necessary for cleaning or repairing of systems or structures. Maintenance and system improvements may be scheduled when demand is the lowest, if possible, and water users will be given 30 days written notice of such activities.
18. **Abatement of Nuisance** - No yard waste, tree or bush pruning, garbage, refuse, dead animal, sewage or animal excrement from any source, including any livestock containment area, shall be placed in or be allowed to be spilled or drained into any water conveyance system of the District. Any person found violating the above rule will be prosecuted to the full extent of the law.
19. **Request for Water Used** - All water users requesting water must sign and deliver to the District a water ticket 48 hours before a water delivery is made by the District, specifying the head of water requested, times of delivery, crop and acres covered.
20. **Prepayment of Water Charges by Delinquent Water Users** - A water user who has an outstanding water charge that is more than thirty (30) days overdue will be required to pay the charge in full, including all late fees, and pay a retainer charge equivalent to the previous largest water invoice. The retainer shall be held for 180 days before such water user is provided additional water.
21. **Failure to Pay Charges** - The District may refuse to furnish water to any parcel of land if outstanding charges for water or services already furnished or rendered to such land (including any accrued interest and penalties) have not been paid in full by the District's prescribed payment date.

All charges placed on an individual parcel of land are the responsibility of the Landowner. In accordance with the provisions of Section 25806 of the Water Code, delinquent water service charges and/or assessments, together with all imposed penalties, for a parcel of land will be made a lien on the subject real property.

22. **Total Water Available** – When demand exceeds the available water supply, water supply may be allocated, based on water user's percentage of District acres farmed. (Refer to Regulation #4 to determine percentage)
23. **In Period of Extreme Drought** – During a drought period, it may be necessary to allocate water supply or conveyance system capacity. Allocations will be percentage based. (Refer to Regulation #4 to determine percentage)
24. **Canal or Storage Use** - Subject to available capacity and District operations, the District's conveyance systems may be used to convey or store private water. A wheeling charge, set by the Directors may be assessed per acre-foot of private water

conveyed or stored. Under no circumstance shall the conveyance or storage of private water permitted if, in any way, it adversely affects the conveyance or storage of District water or District operations.

25. **Water Measurements** - Operable flow meters or other means to accurately record and measure water shall be installed on all District diversion structures, as well as pumps or other devices that extract water from District facilities and conveyance systems. Pumps or other extraction devices that do not have an operable flow meter may be charged at the pump's or device's manufactured maximum pumping design capacity. District employees shall, at all times, have access to water measurements and water measurement devices that measure flow of District water.
26. **Modification** - The Directors may modify these rules and regulations temporarily to meet special conditions or permanently as they deem it in the best interest of the District.

Appendix C: Water Measurement Practices and Corrective Actions

Description of Water Measurement Best Practices and Corrective Actions.

All turnouts within Corcoran Irrigation District (DISTRICT or District) are metered with totalizing propeller meters. The vast majority of delivery turnouts are through mobile pumping units which are owned and operated by the water users. Because of the mobile nature of these systems, anywhere between 60 and 100 of these pump turnouts may be operating within the District at any given time. These account for approximately 90% of the turnouts within DISTRICT and all of them are required to have correctly installed and operating meters in order to take deliveries.

The remaining 10% (two meters) are installed as open flow propeller meters at the end of a submerged pipe downstream of the turnout. As with the pump turnouts, correctly installed and operating meters are required at these turnouts in order to take deliveries. District staff has direct access to each meter.



Typical mobile pumping system.



Typical open-flow meter installation. Note the weir wall placed to keep the pipe full.

Collection of Water Delivery Data: Each meter includes a totalizer that records the delivered volume of water in acre feet. District Staff visit each meter monthly to record the totalizer value, which is entered into the DISTRICT data system, where the delivered water is calculated for billing.

Irrigated Acreage: Water users within DISTRICT are required to report their cropped (irrigated) acreage at the beginning of the water year.

Corrective Actions/Quality Control Procedures: Meters are visually inspected during each meter reading to confirm that they are operating correctly. If a meter is discovered to be not operating or installed correctly, the delivery is stopped until the water user corrects the problem. Installation and maintenance of the meters are the responsibility of the water user.