

Columbia Canal Company Water Management Plan 2023 5 Year Update

Section I – Description of the District

	2023
District Name	Columbia Canal Company
Contact Name	Mike Gardner
Title	General Manager
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A. History

- a. Date District Formed: August 1926. Date of First Reclamation Contract: July 1939

Original Size Acres: 16,565. Current Year 2023.

- b. Current size, population, and irrigated acres

	2023
Size (acres)	16,561.58
Population Served (For Urban, number of connections)	None
Irrigated Acres	15,403

- c. Water supplies received in 2023

Water Source	AF
Federal urban water (Table 1)	
Federal agricultural water (Table 1)	38,147
State water (Table 1)	
Other Wholesaler (define) (Table 1)	
Local surface water (Tbl 1)	

Water Source	AF
Upslope drain water (Tbl 1)	
District groundwater (Tbl 2)	1,086
Banked water (Tbl 1)	
Transferred water (Tbl 1)	7,020
Recycled water (Tbl 3)	
Other (direct recharge) (Tbl 1)	
Total	46,253

- d. **Annual entitlement under each right and/or contract.** The Exchange Contract provides for the annual delivery of 59,000 acre-feet under a non-critical year. Under a critical year, deliveries may be reduced to 45,000 acre-feet (AF). Monthly water entitlements are also provided in the Exchange Contract.

	AF	Source	Contract #	Availability Period(s)
Reclamation Urban AF/Y				
Reclamation Agriculture AF/Y	59,000	Exchange Contract	11r-1144	January-December (12 months)
Other AF/Y				
Other AF/Y				

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

The historic use of Columbia land has been for the production of irrigated agricultural crops, and that use is protected and supported by the current exclusive agriculture (AE) zoning designation. No land use changes are anticipated within the Company's lands. No Madera County General Plan or Fresno County General Plan changes are proposed for the area.

- f. **Cropping patterns (Agricultural only).** The Columbia Canal Company cropping pattern has been changing since the late 1990's. Due to increased commodity value and increasing irrigation water costs, field/row cropping has given way to increasing orchard plantings/conversions. In 2000, there were 1,442 acres planted to orchards. That acreage increased to 11,350 in 2011. Orchards (Pomegranate, Almond, and Pistachio) total 13,511 acres in 2016 and 14,877 in 2023.

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

Original Plan (1993)		Previous Plan (2017)		Current Plan (2023)	
Crop Name	Acres	Crop Name	Acres	Crop Name	Acres
Alfalfa	2,167	Alfalfa	79	Alfalfa	213
Cotton	6,879	Pasture	420	Pasture	420
Melon	792	Cotton	65	Almonds	11,146
Pasture	402	Grapes	85	Pistachios	2,709
Wheat	969	Pomegranate	611	Pomegranates	501
Tomato	265	Almond	11,300	Pistachios Young	441
		Pistachios	1,600	Almonds Young	80
		Tomato	265		
Other (<5%)	2,526	Wheat	160	Other (<5%)	
Total	14,000	Total	14,622	Total	15,510

- g. **Major irrigation methods (by acreage) (Agricultural only):** The conversion to orchards has resulted in a distinct move from gravity and sprinkler irrigation to micro-irrigation systems. All orchard crops in Columbia are now irrigated with micro-irrigation systems. Some flood and furrow irrigation are also utilized on small number of crops.

Original Plan (1993)		Previous Plan (2017)		Current Plan (2023)	
Irrigation Method	Acres	Irrigation Method	Acres	Irrigation Method	Acres
Level basin		Level basin		Level basin	
Furrow	9,870	Furrow	2,125	Furrow	633
Sprinkler	4,130	Sprinkler		Sprinkler	
Low-volume		Low volume	12,517	Low volume	14,877
Multiple		Multiple		Multiple	
Other		Other		Other	
Total	14,000	Total	14,622	Total	15,510

B. Location and Facilities

See Attachment 1 for maps containing the following: incoming flow locations, turnouts (internal flow), and outflow (spill) points, conveyance system, storage facilities,

operational loss recovery system, district wells and lift pumps, water quality monitoring locations, and groundwater facilities.

a. Incoming flow locations and measurement methods

Location Name	Physical Location	Type of Measurement Device	Accuracy
Columbia Main Pumping Plant	Mendota Pool-Columbia Inlet Channel	Digital Meters	+/- 2%
Columbia-Mowry	Mendota Pool	Digital Meters	+/- 2%

b. Current year Agricultural Conveyance System

Miles of Unlined – Canal	Miles of Lined – Canals	Miles of Pipe	Miles - Other
2	54	None	None

c. Current year Urban Distribution System

Miles of AC Pipe	Miles of Steel Pipe	Miles of Cast Iron Pipe	Miles - Other
None	None	None	None

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

Name	Type	Capacity (AF)	Distribution or Spill
None	None	None	None

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

The Columbia distribution system is operated as a closed water delivery system and operational spills do not occur. Irrigation tail water is managed and reused on-farm and any tail water not captured returns to the drainage canals, where relift pumps move the water back into the conveyance system.

f. **Agricultural delivery system operation.** The Columbia water delivery system is operated as an on-demand system. Water users are required to place water

orders 24-hours in advance of any need. These orders are placed generally by 7:00 am each day, and the scheduled on/off is 24 hours later. Columbia does coordinate with water users on deliveries or off orders that need to be completed within a very short time frame (i.e., 2-4 hours' notice). If these unanticipated orders do not affect the operation of the general system, they can be accommodated on a case-by-case basis.

Scheduled	Rotation	Other (Describe)
None		

- g. **Restrictions on water source(s).** Columbia's contract water is subject to monthly allotments. If the demand is greater than what the Delta-Mendota Water Authority can deliver, Columbia must rely on grower groundwater wells to supplement the demand, or make an adjustment with another Exchange Contract District to use some of their canal space to allow increase in AF delivered. Winter rainfall can reduce annual water supply if not enough rain/snow is received in the Shasta watershed. This reduces water allocations south of the Delta and may affect crops within Columbia Canal Company. Endangered Species restrictions are in place in most years and those concerns must be met. This also can affect amounts available for crop irrigation. Drought conditions or contract limits can result in grower wells being allowed to pump into the canals that feed Mendota Pool, which in turn supplies water to Columbia. These pumped-in waters can be high in salt and can require additional management of the water so as not to adversely affect crops by applying salt loaded irrigation water.

Source	Restriction	Cause of Restriction	Effect on Operations
Surface Water	Summer Canal Flow Limits	Water Contract	Uneven water service
Surface Water	Delta export restrictions	Drought/Allocations	Crop water needs
Surface Water	Delta export restrictions	Endangered Species	Crop water supply
Surface Water	Mendota Pool Salinity	Delta/Canal pump-ins	Crop and Canal Management

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

Columbia Canal has lined to date 54 miles of earthen delivery canals with plastic liner and concrete. The next 5 years will see standard maintenance and minor repair to the existing lined canals. In some cases, several miles of old liner might have to be replaced.

C. Topography and Soils

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

The NRCS soil survey data indicates that soil slope ranges from 0 to 1 percent. Based on topographic mapping, the direction of fall in Fresno County is predominately from north to south. Madera County has fall from south to north at about 1 foot per mile. East to West land is flat within the District-very little slope. Soil slope has little effect on water operations within the delivery system, however, operation cost may increase due to water re-lift pumping required at several locations within the delivery system.

- b. District soil association map (Agricultural only)
See Attachment 9, District Soils Map

Soils in the vicinity of Columbia Canal Company are Columbia-Temple and Traver-Chino soil associations. Columbia land has been farmed since the early 1900's and reclaiming of those lands has included addition of soil amendments, deep tillage, and leaching to improve soil quality.

- c. Agricultural limitations resulting from soil problems (Agricultural only)

Soil Problem	Estimated Acres	Effect on Water Operations and Management
Salinity	500	Soil amendments added
High-water table	0	
High or low infiltration rates	0	
Other (define)	0	

D. Climate

1. **General climate of the district service area.** The climate in the vicinity of Columbia is characterized by cool winters and long, hot summers. Relative humidity levels of 15 percent are common during summertime afternoons and readings as low as 8

percent have been recorded. Relative humidity during wintertime averages 90 percent. July is the warmest month with an average temp of 81 degrees, maximum of 111 degrees. Daytime summer temps can exceed 100 degrees and frequently do. The frost-free growing season averages 350 days. Minimum temps below 28 degrees can occur in December, January and February, generally 5 days per month.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precip	2.2	1.21	2.03	.01	.38	0.0	1.13	1.66	.97	.71	.41	2.31	13.0
Avg.Temp	47.6	46.6	51.1	60.4	65.6	71.0	81.1	78.9	71.7	65.2	54.0	51.1	1.9
Max Temp	56.4	59.2	61.6	74.8	80.5	86.6	98.9	95.0	87.2	80.6	68.1	61.2	75.8
Min Temp	38.9	34.7	41.3	44.8	51.0	55.6	62.6	63.6	58.0	51.1	41.2	40.6	48.6
ETo	0	.80	2.99	5.94	6.68	7.44	8.73	7.19	5.25	3.13	0	0	48.1

Weather station ID: #7 Telles Data period: Year 2023 to Year 2023

ET Station ID: N/A Average annual frost-free days: 350

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

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

There are no microclimates within the Columbia service area.

E. Natural and Cultural Resources

a. Natural resource areas within the service area. NONE within the Service Area

Name	Estimated Acres	Description
N/A		

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

N/A

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

Name	Estimated Acres	Description
N/A		

F. Operating Rules and Regulations

- a. Operating rules and regulations

See Attachment 2, District Rules and Regulations (water related)

Water allocation policy (Agricultural only)

- b. Official and actual lead times necessary for water orders and shut-off

See Attachment 2, RULE 8, Page 6

Summary – Within Columbia, a water user may exceed his allocation in any given month. Under that circumstance, the user will have to pump groundwater to replenish the extra water delivered. A user who has land in another Exchange Contract District may transfer some of that water into Columbia to make up for any shortfall in his needs.

See Attachment 2, Rule 7, Page 5

Summary – Water Users are required to apply for water at least 24 hours in advance. Requests of less than 24-hour notice can be accommodated only if the request does not affect other water user orders and operation of the system is not affected.

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

See Attachment 2, Rule 10, Page 7

Summary – Return flows (tail-water) are required to be reused on-farm. Any flows that enter a district drainage ditch are re-lifted by pumps and placed back into the canal system at points where the water can be utilized within the delivery system by all users. Outflow from the District is not allowed (Ag waters) winter rainfall can be enough to enter the San Joaquin River if farm fields and ditches cannot adequately infiltrate the water into the Columbia groundwater basin.

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

See Attachment 2, Water Transfers Rules and Regulations: Attachment 11, San Joaquin River Exchange Contractors Water Authority Transfer Policy

Summary – Columbia allows water users to transfer irrigation water outside the Columbia boundary. The land must be fallowed and only the consumptive use from that fallowed land crop can be transferred. An application to transfer must be completed and submitted to the Board of Directors for approval. To date, no request has ever come before the Board for any Contract water transfer.

Exchange Contractors Water Authority may market any water from a member entity provided that water has been developed by various water conservation activities supported/funded by a member entity. This can include conversion to micro-irrigation systems and canal lining projects. The water is marketed under the authority of the CVPIA and the funds must be used by a member entity for future water conservation projects only.

G. Water Measurement, Pricing, and Billing

a. Agricultural Customers – Refer to BMP A.1. Information on water measurement for agricultural contractors is completed under BMP A.1 on page 4-15.

b. Urban Customers-None

a. Total number of connections 0

b. Total number of metered connections 0

c. Total number of connections not billed by quantity 0

d. Percentage of water that was measured at delivery point 0

e. Percentage of delivered water that was billed by quantity 0

f. Measurement device table

Meter Size and Type	Number	Accuracy* (+/- Percentage)	Reading Frequency (Days)	Calibration Frequency (Months)	Maintenance Frequency (Months)
5/8" - 3/4"	N/A				
1"					
1-1/2"					
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 as Attachment 3.

c. Agricultural and Urban Rates

- a. Current year agricultural and /or urban water charges - including rate structures and billing frequency. See Attachment 4. Annual charges collected from agricultural customers.

See Attachment 13 for current year rate ordinance.

- b. Annual charges collected from agricultural customers

Fixed Charges

Charges (\$ by unit)	Charge Units (\$/AF, etc)	Units Billed During Year (AF, etc)	Total \$ Collected (\$ times Units)
Tier 1-\$85	Per Acre	16,561.58	\$1,407,734.30

Please refer to the guidebook for information when completing the table.

Volumetric Charges. None

Charges (\$ by unit)	Charge Units (\$/AF, etc)	Units Billed During Year (AF, etc)	Total \$ Collected (\$ times Units)

Please refer to the guidebook for information when completing the table.

c. Describe the contractor's record management system

a. See attachment 4, Sample Water Bill

Water User records are recorded on an Excel spreadsheet, set up by month, with daily use by each farm unit recorded on the delivery chart. Excel is also used to keep track of water use records. All water delivery data is saved on iCloud. Water users are emailed daily water use records on a weekly basis. Annual allocation and pricing of entitlements are sent to all shareholders by January 1 of each year. Water changes during the irrigation season are sent to each user as any supply or cost per acre foot change occurs. Board action is required on any entitlement adjustments, price, amount, or otherwise.

H. Water Shortage Allocation Policies

Current year water shortage policies or shortage response plan – specifying how reduced water supplies are allocated. **See Attachment 2, Rule 8, page 6.**

In the event of a water allocation shortage, Columbia prorates the available supply to its water users by each acre receiving an equal share. If the district was to receive only 75% of its base allocation, $(59,000 \times 0.75) = 44,250$ af. That would equate to $44,250 \text{ af} / 16,561 \text{ acres} = 2.67 \text{ af/acre}$. Columbia can look for outside water, or it may attempt to find other water to supplement a shortage, or water users may search on the open market for water available in a short water year.

Current year policies that address wasteful use of water and enforcement methods. **See Attachment 2, Rule 10, Page 7.** Columbia does not allow waste of water to occur by any water user. If waste does occur and is not controlled by the farm unit being irrigated, delivery rights may be suspended.

I. Evaluate Policies of Regulatory Agencies Affecting the Contractor and Identify Policies that Inhibit Good Water Management

Discuss possible modifications to policies and solutions for improved water management

Columbia Canal Company can be affected by regulatory agencies who may, from time to time, implement policies or actions that inhibit management of water supplies or use of those supplies. Recent drought restrictions are one example, as is water supply allocations that are determined by the yearly snowpack in the Shasta watershed, and subsequent allocations south of the Delta. These issues and others are controlled by yearly weather and the Exchange Contract.

Section II – Inventory of Water Resources

A. Surface Water Supply

- a. Surface water supplies in acre feet, imported and originating within the service area, by month (Table 1)
See Chapter 5, Water Inventory Tables, Table 1
- b. Amount of water delivered to the district by each of the district sources for the last 10 years
See Chapter 5, Water Inventory Tables, Table 8

B. Groundwater Supply. Columbia, due to the ongoing drought of 2021-2022, reactivated two (2) deep wells to utilize in emergency situations of water needs within the district. Through the beginning of 2017, those wells have been tested and made operational. They have not been used to supplement water to District growers yet but can be utilized if the situation is needed.

- a. Groundwater extracted by the district and delivered, by month (Table 2) – See Chapter 5, Water Inventory Tables, Table 2

Groundwater basin(s) that underlies the service area.

The genesis of drafting the Basin Setting for the SJREC GSP Group started in the 1990's when the San Joaquin River Exchange Contractors Water Authority (SJRECWA) worked with Kenneth D. Schmidt and Associates (KDSA) on to develop reports on groundwater conditions in and around the Exchange Contractors service area. The groundwater conditions were further studied with KDSA in collaboration with the cities within the Exchange Contractors service area. These reports are referenced in Section 6 of this plan.

The Cities (Newman, Gustine, Los Banos, Dos Palos, Firebaugh, Mendota) and Counties (Merced, Madera, Fresno) have land use planning authority and are each respectively members of this GSP. This plan, consistent with the SGMA, reaffirms the land use planning authority maintains with the appropriate City and County and is a continuation of historical collaboration to manage water resources. The monitoring and management actions proposed in this plan have mostly been in place for years with coordination of the local agencies.

The Delta-Mendota Subbasin is part of the Central Valley Basin and extends from the town of Tranquility in the south up to the near the City of Tracy in the north and covers about 750,000 acres. The subbasin has two principal aquifers throughout the majority of the area separated by an aquitard termed the Corcoran Clay. The Upper Aquifer is typically the unconfined area above the Corcoran Clay. The Lower Aquifer is the confined area below the Corcoran Clay. The depth to the Corcoran Clay in this GSP ranges from a depth of 100 feet to 450 feet below ground

surface. The Corcoran Clay is deepest to the south and pinches out near the western boundary of the plan area. The definable bottom of the basin is consistent with the 1973 United States Geologic Survey report defined as an electrical conductivity of 3,000 micromhos per centimeter at 25°C to delineate the regional base of the fresh groundwater in the San Joaquin Valley. The depth below ground to the definable bottom of the basin ranges from 300 feet to 800 feet deep.

The primary beneficial users of groundwater are for agriculture and municipal water supply. Additional users of groundwater include domestic water supply, industry use and Groundwater Dependent Ecosystems (GDE). The lateral flow of groundwater in the upper aquifer generally flows to the east. In dry years there is a hydraulic divide in Stanislaus County and in Fresno County south of Dos Palos where water from the SJREC GSP Group flows to the west from the western boundary and flows east from the eastern boundary (refer to Appendix I for further details). In the lower aquifer groundwater typically flows east from the northern portion of the plan area. The southern portion of the plan area has lateral groundwater outflow from the lower aquifer to the south along the southwestern border and to the northeast from the eastern border. The lateral outflow of groundwater from the SJREC GSP area is indicative of sustainable pumping within the plan area. This is due to the significant recharge provided by the SJREC GSA. The primary sources of recharge include deep percolation of irrigation water and seepage from the unlined canals/ditches in the area. Additionally, some recharge is provided by precipitation and also recharge and recovery projects.

The SJREC hold senior water rights on the San Joaquin River. In 1939, the predecessors to the Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District and Columbia Canal Company, collectively referred to as the San Joaquin River Exchange Contractors (SJREC), entered into an agreement with the federal government to not exercise their water rights on the San Joaquin River in exchange for a substitute water supply currently delivered via the Delta-Mendota Canal. The contract is commonly referred to as the "Exchange Contract". The primary water supply for this GSP is the surface water supply of the SJREC. The historic water budget for the Delta-Mendota Subbasin was defined as Water Years 2003-2012. This time period represented a near normal 10-year hydrologic cycle. The most accurate method to estimate changes in groundwater storage is to evaluate water level trends and specific yields for the upper aquifer. The SJREC GSP reviewed the results of the water budget analysis and compared to the measured changes in groundwater levels to double check the results of the computational water budget. The change in groundwater storage for the historic water budget averaged -13,000 acre-feet/year for the upper aquifer. The current water budget year was defined as Water Year 2013 and an overdraft of 37,000 acre-feet was observed. After the current water year, California entered into a record drought that had devastating impacts across the state. Even after going through the worst drought on record, the water levels in the SJREC service area had fully recovered by 2019 indicating full recovery of groundwater storage in the upper aquifer. The projected water budget followed sequentially after the current year and represents Water Years 2014-2070. Actual data was used in the projected water budget for years

2014-2017. To represent a long hydrologic cycle, historic data from Water years 1965-2017 were used as a baseline for conditions. Once the baseline was established, impacts from Climate Change and population growth were used to refine the projected modeled water budget. Additionally, existing projects and projects under development were analyzed. The net result of the projected water budget shows no change in groundwater storage for the upper aquifer through the planning and implementation horizon (2070). The lower aquifer water budget has significantly fewer parameters than the upper aquifer. Primarily the water budget consists of: 1) extractions from the lower aquifer, 2) flow through the Corcoran Clay between the upper and lower aquifers, 3) lateral groundwater inflow and 4) lateral groundwater outflow. It should be noted that a confined aquifer cannot simply add these four parameters together to determine the change in storage. The most accurate method to determine the change in groundwater storage of the lower aquifer is to determine how much subsidence has occurred below the Corcoran Clay which reduces the total volume of groundwater that can be stored. Inelastic land subsidence causes a permanent reduction in groundwater storage in the lower aquifer. As described in further detail later in this plan, the SJREC GSP have very minimal groundwater extractions that are well below the established sustainable yield for the subbasin. The change in groundwater storage for the historic, current, and projected water budgets are respectively - 10,000 acre-feet/year, -24,000 acre-feet, and -5,000 acre-feet/year. Land subsidence outside the Delta-Mendota subbasin is causing impacts in the Delta-Mendota Subbasin. The SJREC are working on several projects to mitigate land subsidence and further details are discussed in the plan. The key assumption in the projected water budget is that areas causing significant land subsidence outside the SJREC GSP area, will begin to ramp down their pumping from the lower aquifer to the point where subsidence has been mitigated between the 2030 and 2035 GSP updates.

Establishment of groundwater management areas for the SJRECWA was recommended by KDSA in the 1997 AB 3030 Groundwater Management Plan. That recommendation has carried through from the AB 3030 Groundwater Management Plan to the SGMA required Groundwater Sustainability Plan. In an effort to avoid confusion, the historic management areas established in 1997 will be reclassified, this GSP will refer to those "management areas" as "monitoring zones". This update is done in coordination with DWR staff to address deficiency #4. Removing the (11) management areas from the SJREC GSP will simplify review on how SMC's will allow for sustainable groundwater management through the planning and implementation horizon.

Basin Setting

Refer to the Hydrogeologic Conceptual Model and Groundwater Conditions Report for an in-depth description of the Basin in and around the SJREC GSP Group. The DWR has provided a more general description of the basin settings in the state through periodic updates to Bulletin 118. Bulletin 118 is California's official publication on the occurrence and nature of groundwater statewide. Bulletin 118 defines the boundaries and describes the hydrologic characteristics of California's groundwater basins and provides information on groundwater management and

recommendations for the future. Bulletin 118 provides the following information for the San Joaquin Valley Groundwater Basin – Delta-Mendota Subbasin 5-22.07:

Basin Boundaries and Hydrology:

The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

The Delta-Mendota Subbasin is in the San Joaquin Valley Groundwater Basin, located along the western edge of the San Joaquin Valley, and includes portions of San Joaquin, Stanislaus, Merced, Fresno, and Madera Counties. The Delta-Mendota subbasin is bounded on the west by the Tertiary and older marine sediments of the Coast Ranges. The northern boundary begins just south of Tracy in San Joaquin County. The eastern boundary generally follows the San Joaquin River and Fresno Slough; except it follows the Columbia Canal Company and Aliso Water District Boundaries on the east side of the San Joaquin River. The southern boundary is near the small town of San Joaquin. Average annual precipitation is nine to 11 inches, increasing northwards.

Hydrogeologic Information:

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the series of rivers, lakes, sloughs, and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley.

Water Bearing Formations:

The geologic units that comprise the ground water reservoir in the Delta-Mendota subbasin consist of the Tulare Formation, terrace deposits, alluvium, and flood-basin deposits. The Tulare Formation is composed of beds, lenses, and tongues of clay, sand, and gravel that have been alternately deposited in oxidizing and reducing environments (Hotchkiss 1971). The Corcoran Clay Member of the formation underlies the basin at depths ranging about 100 to 500 feet and acts as a confining bed (DWR 1981).

Terrace deposits of Pleistocene age lie up to several feet higher than present streambeds. They are composed of yellow, tan, and light-to-dark brown silt, sand, and gravel with a matrix that varies from sand to clay (Hotchkiss 1971). The water table generally lies below the bottom of the terrace deposits. However, the relatively large grain size of the terrace deposits suggests their value as possible recharge sites.

Alluvium is composed of interbedded, poorly to well-sorted clay, silt, sand, and gravel and is divided based on its degree of dissection and soil formation. The flood-basin deposits are generally composed of light-to-dark brown and gray clay, silt, sand, and organic materials with locally high concentrations of salts and alkali. Stream channel deposits of coarse sand and gravel are also included.

Groundwater in the Delta-Mendota subbasin occurs in three water-bearing zones. These include the lower zone, which contains confined fresh water in the lower section of the Tulare Formation, an upper zone which contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits, and a shallow zone which contains unconfined water within about 25 feet of the land surface (Davis 1959).

The estimated specific yield of this subbasin is 11.8 percent (based on DWR San Joaquin District internal data and Davis 1959). Land subsidence up to about 16 feet has occurred in the southern portion of the basin due to artesian head decline (Ireland 1964).

Name	Size (Square Miles)	Usable Capacity (AF)	Safe Yield (AF/Y)
Delta Mendota Subbasin	1,195	4,440,000	308,000 - 375,000

- b. **Map of district-operated wells and managed groundwater recharge areas**
See Attachment 1, for District Map of Groundwater Wells
- c. **Description of conjunctive use of surface and groundwater.** Conjunctive use of surface and groundwater has been used by several farm units within the Columbia delivery area. Groundwater is of average quality, EC of 1,100 ppm, and can be mixed with surface waters, EC of 700 ppm, to irrigate crops grown within Columbia. The total amount of potential groundwater available to Columbia growers has never been determined. Water levels did drop by 40 feet during drought years of 2012-16 but recovered to previous levels during the wet winter of 2016. Columbia does have two, newly constructed, potential recharge sites within the service area. Being adjacent to the San Joaquin River on the south and west, and the Chowchilla By-pass on the East, Columbia is in a favorable location to utilize recharge from these two sites, especially during snow-melt flood flows or heavy rain events.
- d. (Please review Guidebook definition of conjunctive use)
- e. **Groundwater Management Plan**
See Attachment 5, Groundwater Management Plan

- f. **Groundwater Banking Plan.** Columbia does not have any area suitable for groundwater banking, has no un-cropped area, and soils that are too sandy for banking.

C. Other Water Supplies

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

None

D. Source Water Quality Monitoring Practices

- a. Potable water quality (Urban only). None
- b. **Agricultural water quality concerns:** Yes (if yes, describe) Columbia's surface water supply generally meets the requirements of the Exchange Contract, however, from time to time, the Delta-Mendota Canal and Mendota Pool are used to wheel non-project water (groundwater) under Warren Act Contracts. This wheeled water is often of poor quality and can increase the salt concentration of Pool delivered water. Irrigation tail water can also contain salts and affect water which is pumped back into the delivery system.
- c. Description of the agricultural water quality testing program and the role of each participant, including the district, in the program

Reclamation maintains a strip recorder that monitors the electrical conductivity in the Mendota Pool. Columbia staff collects monthly samples throughout the District delivery system for analysis from local lab. Portable EC meters are also available to staff as needed.

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

Analyses Performed	Frequency	Concentration Range	Average
TDS	Continuous recorder	200-500 mg/l	350 mg/l
Ag Suitability	Monthly	200-1200 mg/l	400 mg/l

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

Analyses Performed	Frequency	Concentration Range	Average
Ag suitability	Annually-July	300-1200 mg/l	700 mg/l

E. Water Uses Within the District

- a. Agricultural

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

- b. Types of irrigation systems used for each crop in current year

Crop Name	Total Acres	Level Basin (Acres)	Furrow (Acres)	Sprinkler (Acres)	Low Volume (Acres)	Multiple Methods (Acres)	Other (Acres)
Alfalfa	213		213				
Almonds	11,146				11,146		
Pistachio	2,709				2,709		
Pomegranate	501				501		
Almonds Young	80				80		
Pasture	420		420				
Pistachio Young	441				441		
Total	15,510		633		14,877		

- c. Urban use by customer type in current year. None

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

d. Urban Wastewater Collection/Treatment Systems serving the service area.
None

Treatment Plant	Treatment Level (1,2,3)	AF	Disposal to/Uses
	Total		
Total discharged to ocean and/or saline sink			

e. Groundwater recharge in current year (Table 6)

Recharge Area	Method of Recharge	AF	Method of Retrieval
Canal system	flood	500	Pumping
Recharge #1	flood	20 af/day	Recharge Only
Recharge #2	flood	5 af/day	Recharge Only
	Total		

6. a. Transfers and exchanges **into** the service area in current year – None

From Whom	To Whom	AF	Use
	Total		

6. b. Transfers and exchanges **out** of the service area in current year – None

From Whom	To Whom	AF	Use
	Total		

7. Wheeling, or other transactions in and out of the district boundaries – None

From Whom	To Whom	AF	Use
	Total		

8. Other uses of water. None

Other Uses	AF

F. Outflow from the District (Agricultural only) Columbia has operated the conveyance/distribution facilities as a closed system since 2009. No outflow is allowed into the San Joaquin River. Irrigation tail water is managed on-farm or discharged into Columbia drains where it can be lifted back into the delivery system at several points within the canal system.

See Facilities Map, Attachment 1, for the location of surface tail water recovery points.

a. Surface and subsurface drain/outflow. None

Outflow Point	Location Description	AF	Type of Measurement	Accuracy (%)	% of Outflow	Acres Drained

Outflow Point	Where the Outflow Goes (Drain, River, or Other Location)	Type Reuse

b. Description of the Outflow (surface and subsurface) water quality testing program and the role of each participant in the program. None

c. Outflow (surface drainage & spill) Quality Testing Program. None

Analyses Performed	Frequency	Concentration Range	Average	Reuse Limitation

Outflow (subsurface drainage) Quality Testing Program. None

Analyses Performed	Frequency	Concentration Range	Average	Reuse Limitation

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. Columbia Canal Company is a member of the West San Joaquin River Water Coalition. This Coalition is tasked with the State requirement of reducing pesticides and sediments from entering into the San Joaquin River from the District's drains. Since Columbia does not allow any outflow into the San Joaquin River, the State requirement is being met. All water users are required to submit on-farm reporting documents dealing with Nitrogen use, farm operating plans and Irrigated Lands requirements. Columbia water users are at 91% reporting level for 2023.

G. Water Accounting (Inventory)

See Attachment 8 for Agricultural Water Inventory Tables and Instructions.

Section III – Best Management Practices (BMPS) for Agricultural Contractors

A. Critical Agricultural BMPs

- a. 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) 240
- b. Number of delivery points serving more than one farm 0
- c. Number of measured delivery points (meters and measurement devices) 240
- d. Percentage of water delivered to the contractor that was measured at a delivery point Percentage of water that was measured at delivery point 100%
- e. Total number of delivery points not billed by quantity 0
- f. Delivery point measurement device table

Measurement Type	Number	Accuracy* (+/- %)	Reading Frequency (Days)	Calibration Frequency (Months)	Maintenance Frequency (Months)
Orifices					
Propeller meters	82	2%	daily	Start of Season	Weekly
Weirs	35	4%	daily	Start of Season	Weekly
Flumes					
Venturi					
Metered gates	123	4%	daily	Start of Season	Weekly
Acoustic dopplers					
Other (define)					
Total	240				

* Documentation verifying the accuracy of measurement devices must be submitted with Plan and included in Attachment 3.

- b. Designate a water conservation coordinator to develop and implement the Plan and develop Annual Updates.

Name: Mike Gardner

Title: General Manager

Address: 6770 Ave 7 ½, Firebaugh, CA. 93622

Telephone: 209-829-9914 Email: mike@columbiacanalcompany.com

The General Manager fills this position currently.

Provide the job description and minimum qualifications

Provide or support the availability of water management services to water users. Columbia continues to support water management programs for the District. While local sources provide timely and accurate crop water use data and irrigation scheduling, there are multiple area-wide agencies and private firms that are constantly providing updated services for management of water and crops. These private businesses contact farming units almost weekly and Columbia supports their contact with area farms. Columbia reminds growers at the start of every irrigation season to be proactive in conservation programs, encourages well surveys and field/crop water use, ET data, and local University support.

On farm irrigation and drainage system evaluations using a mobile lab type assessment. Mobile labs continue to be available to District water users. Cal Poly offers summer evaluations with its mobile lab trailer and the Westside Coalition has available an evaluation program in conjunction with State required farm management plan and nitrogen management planning. The following table reflects Columbia's desired level of participation each year by District farm units. The process is voluntary at this time and no data is available that reflects how many acres or farm units participate in this program.

	Total in District	# Surveyed Last Year	# Surveyed in Current Year	# Projected for Next Year	# Projected 2 nd Year in Future
Irrigated Acres	15,403	15,403	15,403	15,403	15,403
Number of Farms	25	5	5	5	5

a. Timely field and crop-specific water delivery information to the water user

Columbia keeps daily water requests and daily deliveries for each farm unit within the delivery area. This information is used daily by growers to determine their current water entitlement and how much they have left during the current month. If a grower is running short, he has the option to turn on a groundwater pump or borrow water from a neighbor who will not use up his current monthly limit. **See Attachment 12, Monthly/Daily irrigation requests and use**

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

Real-time and normal irrigation scheduling is determined by the current growth of the crop, its daily Et requirement, and constraints on surface water supply. Growers look for certain stages of crop growth to begin an irrigation, they look at daily ET rates and determine if their 2 week application schedule is adequate or has hot weather increased the crop requirements. All the data a grower needs is available on the local radio news each morning, in the local newspapers, and at the nearest College or University. In Columbia's case, Fresno State University has daily ET data and support from the Center for Irrigation Technology.

- a. **Surface, ground, and drainage water quantity and quality data provided to water users.** Columbia Canal Company is a member of the San Joaquin River Exchange Contractors Water Authority, who can provide the daily, monthly, and yearly amounts allocated to each member unit, and the amount used by each entity, but not for an individual grower. That is the responsibility of the grower's own water district. Water quality is available from the Department of Water Resources for surface waters that enter Mendota Pool, and delivery water quality is available from the Delta-Mendota Water Authority. Many growers within Columbia like to have the area-wide numbers of quality and quantity everyone is expecting. While this information is available to all from many sources, Columbia is willing, and has obtained this information for District growers, and will continue to do so each irrigation season.
- c. Agricultural water management educational programs and materials for farmers, staff, and the public.

Program	Co-Funders (If Any)	Yearly Targets
Newsletter	Exchange Contractors	All CCC growers
ITRC-Cal Poly training	Cal Poly	All water users
Center for Irrigation Tech.	Fresno State	All water users
Ag Commissioner	Madera County	County growers

See Attachment 7 for samples of provided materials and notices

- d. Other. Dept. of Water Resources, USBR, Farm Bureau, Delta-Mendota Water Authority, USDA, Westside Coalition (all shareholders are members)

Pricing structure – based at least in part on quantity delivered. Adopt a water pricing structure based on the measured quantity delivered. Columbia Canal Company, formed as a mutual water company, bases its water price primarily on water delivered by entitlement of the landowners within the Company boundaries. Each year an allocation is made by the Bureau of Reclamation, based on the Exchange Contract and water year hydrologic conditions. Columbia landowners receive one share/acre. Normal allocation, 100% from Reclamation, is 59,000 acre feet. At 16,561 acres, there is approximately 3.2 AF available to each acre. (loss of 0.33 AF/acre to evaporation and seepage) When operation and maintenance costs are calculated, a grower pays for his share of the annual entitlement, if he uses it or not. His water entitlement is allocated by month, based on Exchange Contract restrictions and Canal capacity limits. This first level of price is the base operating costs to receive a water supply and pay for O&M costs. A grower may receive supplemental water, a second level basis, if he has a need and can purchase that water from a neighbor or outside supplier. In this second level scenario, a grower pays for the additional water, plus transportation costs, plus transfer fees and any other management costs. These are greater than his first level and can be substantial based on current hydrologic year and other restrictions. A grower can reduce his overall cost and water use by selling water to a neighbor who may have planted a higher water use crop (*alfalfa*) or the District may sell his water to another Water District or customer in need of additional water.

Evaluate and improve efficiencies of district pumps. Describe the program to evaluate and improve the efficiency of the contractor's pumps. Columbia contracts with local pump companies to provide annual and as-needed pump maintenance and repair. Company pumps are maintained weekly and serviced on a regular basis by staff. All pumps are relift pumps and the Company has two deep wells that are maintained and ready for use if needed.

	Total in District	# Surveyed Last Year	# Surveyed in Current Year	#Projected for Next Year
Wells	2	2	2	2
Lift Pumps	8	8	8	8
Private Wells	61	61	61	61

B. Exemptible BMPs for Agricultural Contractors

(See Planner, Chapter 2, Addendum B for examples of exemptible conditions)

a. Facilitate alternative land use

Drainage Characteristic	Acreage	Potential Alternate Uses
High water table (<5 feet)	N/A	
Poor drainage	N/A	
Groundwater Selenium concentration > 50 ppb	N/A	
Poor productivity	N/A	

Describe how the contractor encourages customers to participate in these programs. Columbia does not have poor drainage nor high water tables. Selenium has not been a problem. Productivity is good. Participation is not necessary at this time for District growers.

b. Facilitate use of available recycled urban wastewater. N/A

Sources of Recycled Urban Waste Water	AF/Y Available	AF/Y Currently Used in District

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

Columbia has a Water Conservation Policy that encourages Shareholders to participate in a grant program to implement water conservation measures such as: Conversion to permanent irrigation system, improve tail-water return systems, underground pipe systems, concrete line ditches, and land leveling. The funding level is \$1 million per year and any shareholder can receive half the project cost with a maximum of \$75,000 per year.

See Attachment 14 for Water Conservation Grant Policy

Program	Description
Water Conservation Grant Program	Annual Grant Program

Incentive pricing. Describe incentive rate structure or other programs and

purpose. Consumptive use of 98% of Columbia's crops is nearly 4.0 acre-foot/acre. With most of the district now in trees, Company growers must now manage a tree industry that is a little shy of its total water need. With an annual allocation of 3.20 af/acre, the incentive is to manage your water supply for a crop that requires a little more, or face having to pump expensive groundwater or buy on the open market expensive surface water.

a. Line or pipe ditches and canals. Columbia has lined 54 miles of delivery canal system.

Canal/Lateral (Reach)	Types of Improvement	Number of Miles in Reach	Estimated Seepage (AF/Y)	Accomplished/Planned Date
7B Ditch	Concrete line	1.7	522	Completed
8A Ditch	Concrete line	0.91	284	Completed
Columbia Main	Membrane	15.1	2,910	Completed
Mowry	Concrete	0.45	140	Completed
Ridge Main	Membrane	7.9	2,460	Completed
River Ditch	Concrete	3.3	832	Completed
Road Ditch	Concrete	1.9	582	Completed

Canal/Lateral (Reach)	Types of Improvement	Number of Miles in Reach	Estimated Seepage (AF/Y)	Accomplished/Planned Date
Sausalito	Concrete	3.3	838	Completed
Stoddard	Concrete	1.1	350	Completed
Misc Distribution	Membrane	19.1	3,000	Completed

5. b. Construct/line regulatory reservoirs-Not anticipated

Reservoir Name	Location	Describe Improved Operational Flexibility and AF Savings

Increase flexibility in water ordering by, and delivery to, water users. Columbia, in conjunction with Reclamation, upgraded the power control system at the Columbia Main Pumping Plant during the 2015 water year, this state of the art upgrade has allowed ditch tenders to increase their reliability of the facility, make water flows (pump operation) more reliable and provide d increased flexibility with day to day water operations.

Construct and operate district spill and tailwater recovery systems. These systems are now used solely to capture tailwater and any ditch spills that occur only within District delivery system. No spill or tailwater is allowed by District policy to enter the San Joaquin River.

Distribution System Lateral	Annual Spill (AF/Y)	Quantity Recovered and Reused (AF/Y)
Buttonwillow lateral recovery pumps- 7 pumps	0	500-estimated
Mowry relift into Mendota Pool	0	50-100 estimated
Total		

Drainage System Lateral	Annual Drainage Outflow (AF/Y)	Quantity Recovered and Reused (AF/Y)
No system anticipated		
Total		

Describe facilities that resulted in reduced spill and tailwater

Does not apply

c. **Plan to measure outflow.** No outflow from the Distribution system is permitted.

- a. Total # of outflow (surface) locations/points _____
- b. Total # of outflow (subsurface) locations/points _____
- c. Total # of measured outflow points _____
- d. Percentage of total outflow (volume) measured during report year _____
- e. Identify locations, prioritize, determine best measurement method/cost, submit funding proposal _____

Estimated Cost (in \$1,000s)

Location and Priority	Current Year	Year 2	Year 3	Year 4	Year 5

Optimize conjunctive use of surface and groundwater.

Describe the potential for increasing conjunctive use of surface and groundwater. Columbia has recently re-activated 2 of the Company's deep wells to help with the water shortage situation. Recent heavy rains in the winter of 2023 will recharge groundwater basins and help optimize the groundwater and surface water supplies available to growers.

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. With 98% of the Canal system on drip systems, automation has been installed on nearly all the Company's lands and automation upgrade to the Main Pumping Plant was completed in 2015.

Facilitate or promote water customer pump testing and evaluation.

Columbia has an active pump testing program for both District pumps and water

users' pumps. This annual maintenance function is conducted each July and August. A Water Balance/Resource Management Plan was completed in 2023. Records are kept at the District office and any recommendations are dealt with by each pump owner or Columbia Canal Co.

See attachment 8 for report summary.

Mapping. *GIS mapping* of the distribution System was completed in 2013. Drainage, pump sites, and facilities were completed as well. Groundwater data was also incorporated into the District's GIS database.

Estimated Cost (in \$1,000s)

GIS Maps	Current Year	Year 2	Year 3	Year 4	Year 5
Layer 1 – Distribution system	18	5	0	0	0
Layer 2 – Drainage system	18	5	0	0	0
Suggested layers:					
Layer 3 – Groundwater information	15	2	2	2	2
Layer 4 – Soils map	Available	from	NRCS		
Layer 5 – Natural & cultural resources	None in	District			
Layer 6 – Problem areas	None at	this time			

C. Provide a 5-Year Budget for Implementing BMPs

a. Amount actually spent during current year 2023

Current Year BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A1	Measurement	\$0	0
A2	Conservation staff	\$15,000	0
A3	On-farm evaluation/water delivery info irrigation Scheduling Water quality Agricultural Education Program	\$21,494	0
A4	Quantity pricing	\$0	0
A5	Contractor's pumps	\$2,500	0
B1	Alternative land use	\$0	0
B2	Urban recycled water use	\$0	0

Current Year BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
B3	Financing of on-farm improvements	\$303,500	0
B4	Incentive pricing	\$0	0
B5	Line or pipe canals/install reservoirs	\$5,000	0
B6	Increase delivery flexibility	\$0	0
B7	District spill/tailwater recovery systems	\$0	0
B8	Measure outflow	\$0	0
B9	Optimize conjunctive use	\$0	0
B10	Automate canal structures	\$0	0
B11	Customer pump testing	\$1,496	0
B12	Mapping	\$18,400	0
	Total	\$367,390	0

b. Projected budget summary for the next year

Year 2 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A1	Measurement	\$0	0
A2	Conservation staff	\$15,750	0
A3	On-farm evaluation/water delivery info irrigation Scheduling Water quality Agricultural Education Program	\$22,569	0
A4	Quantity pricing	\$0	0
A5	Contractor's pumps	\$2,625	0
B1	Alternative land use	\$0	0
B2	Urban recycled water use	\$0	0
B3	Financing of on-farm improvements	\$318,675	0
B4	Incentive pricing	\$0	0
B5	Line or pipe canals/install reservoirs	\$200,000	0
B6	Increase delivery flexibility	\$0	0
B7	District spill/tailwater recovery systems	\$0	0
B8	Measure outflow	\$0	0
B9	Optimize conjunctive use	\$0	0
B10	Automate canal structures	\$0	0

Year 2 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
B11	Customer pump testing	\$1,571	0
B12	Mapping	\$19,320	0
	Total	\$580,510	0

c. Projected budget summary for the 3rd year

Year 3 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A1	Measurement	\$0	0
A2	Conservation staff	\$16,538	0
A3	On-farm evaluation/water delivery info irrigation Scheduling Water quality Agricultural Education Program	\$23,697	0
A4	Quantity pricing	\$0	0
A5	Contractor's pumps	\$2,756	0
B1	Alternative land use	\$0	0
B2	Urban recycled water use	\$0	0
B3	Financing of on-farm improvements	\$334,609	0
B4	Incentive pricing	\$0	0
B5	Line or pipe canals/install reservoirs	\$700,000	0
B6	Increase delivery flexibility	\$0	0
B7	District spill/tailwater recovery systems	\$0	0
B8	Measure outflow	\$0	0
B9	Optimize conjunctive use	\$0	0
B10	Automate canal structures	\$0	0
B11	Customer pump testing	\$1,649	0
B12	Mapping	\$20,286	0
	Total	\$1,099,535	0

d. Projected budget summary for the 4th year

Year 4 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A1	Measurement	\$0	0
A2	Conservation staff	\$17,364	0
A3	On-farm evaluation/water delivery info irrigation Scheduling Water quality Agricultural Education Program	\$24,882	0
A4	Quantity pricing	\$0	0
A5	Contractor's pumps	\$2,894	0
B1	Alternative land use	\$0	0
B2	Urban recycled water use	\$0	0
B3	Financing of on-farm improvements	\$351,339	0
B4	Incentive pricing	\$0	0
B5	Line or pipe canals/install reservoirs	\$200,000	0
B6	Increase delivery flexibility	\$0	0
B7	District spill/tailwater recovery systems	\$0	0
B8	Measure outflow	\$0	0
B9	Optimize conjunctive use	\$0	0
B10	Automate canal structures	\$0	0
B11	Customer pump testing	\$1,732	0
B12	Mapping	\$21,300	0
	Total	\$619,512	0

e. Projected budget summary for the 5th year

Year 5 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
A1	Measurement	\$0	0
A2	Conservation staff	\$18,233	0
A3	On-farm evaluation/water delivery info irrigation Scheduling Water quality Agricultural Education Program	\$26,126	0
A4	Quantity pricing	\$0	0
A5	Contractor's pumps	\$3,039	0
B1	Alternative land use	\$0	0
B2	Urban recycled water use	\$0	0
B3	Financing of on-farm improvements	\$368,906	0
B4	Incentive pricing	\$0	0
B5	Line or pipe canals/install reservoirs	\$210,000	0
B6	Increase delivery flexibility	\$0	0
B7	District spill/tailwater recovery systems	\$0	0
B8	Measure outflow	\$0	0
B9	Optimize conjunctive use	\$0	0
B10	Automate canal structures	\$0	0
B11	Customer pump testing	\$1,818	0
B12	Mapping	\$22,365	0
	Total	\$650,487	0

Section IV – Best Management Practices for Urban Contractors

A. BMP Compliance Methodology

Describe the methodology selected for BMP compliance: Traditional, Flexible, or GPCD. Provide a description of how water savings is being achieved through the selected methodology.

B. Foundational BMPs

a. 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

b. Education Programs

1.1. Public Information Programs

1.2. School Education Programs

C. Programmatic BMPs

c. Residential

- A.1) Residential assistance program
- A.2) Landscape water survey
- A.3) High-efficiency clothes washers (HECWs)
- A.4) Water Sense Specification (WSS) toilets
- A.5) Water Sense Specifications for residential development

d. Commercial, Industrial, and Institutional (CII)

e. Landscape

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

- a. The following tables for the traditional methodology, if flexible or GPCD methodology is chosen, adjust the following table accordingly. Amount actually spent during current year

Current Year BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
1	Utility Operations		
1.1	Operation Practices	\$0	0
1.2	Water Loss Control	\$0	0
1.3	Metering	\$0	0
1.4	Retail Conservation Pricing	\$0	0
2	Educational Programs		
2.1	Public Information Programs	\$0	0
2.2	School Educational Programs	\$0	0
3	Residential	\$0	0
4	CII	\$0	0
5	Landscape	\$0	0
	Total	\$0	0

- b. Projected budget summary for 2nd year

Year 2 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
1	Utility Operations		
1.1	Operation Practices	\$0	0
1.2	Water Loss Control	\$0	0
1.3	Metering	\$0	0
1.4	Retail Conservation Pricing	\$0	0
2	Educational Programs		
2.1	Public Information Programs	\$0	0
2.2	School Educational Programs	\$0	0
3	Residential	\$0	0
4	CII	\$0	0
5	Landscape	\$0	0
	Total	\$0	0

c. Projected budget summary for 3rd year

Year 3 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
1	Utility Operations		
1.1	Operation Practices	\$0	0
1.2	Water Loss Control	\$0	0
1.3	Metering	\$0	0
1.4	Retail Conservation Pricing	\$0	0
2	Educational Programs		
2.1	Public Information Programs	\$0	0
2.2	School Educational Programs	\$0	0
3	Residential	\$0	0
4	CII	\$0	0
5	Landscape	\$0	0
	Total	\$0	0

d. Projected budget summary for 4th year

Year 4 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
1	Utility Operations		
1.1	Operation Practices	\$0	0
1.2	Water Loss Control	\$0	0
1.3	Metering	\$0	0
1.4	Retail Conservation Pricing	\$0	0
2	Educational Programs		
2.1	Public Information Programs	\$0	0
2.2	School Educational Programs	\$0	0
3	Residential	\$0	0
4	CII	\$0	0
5	Landscape	\$0	0
	Total	\$0	0

e. Projected budget summary for 5th year

Year 5 BMP #	BMP Name	Budgeted Expenditure (not including staff time)	Staff Hours
1	Utility Operations		
1.1	Operation Practices	\$0	0
1.2	Water Loss Control	\$0	0
1.3	Metering	\$0	0
1.4	Retail Conservation Pricing	\$0	0
2	Educational Programs		
2.1	Public Information Programs	\$0	0
2.2	School Educational Programs	\$0	0
3	Residential	\$0	0
4	CII	\$0	0
5	Landscape	\$0	0
	Total	\$0	0

Year of Data [Enter data year here](#)

Table 1
Surface Water Supply

2023 Month	Federal Ag Water (acre-feet)	Federal non- Ag Water (acre-feet)	State Water (acre-feet)	Local Water (define) (acre-feet)	Other Water (acre-feet)	Transfers into District (acre-feet)	Upslope Drain (acre-feet)	Total (acre-feet)
Method								
January	0	0	0	0	0	0	0	0
February	984	0	0	0	0	0	0	984
March	520	0	0	0	0	0	0	520
April	2,417	0	0	0	0	0	0	2,417
May	4,111	0	0	0	0	0	0	4,111
June	4,701	0	0	0	0	0	0	4,701
July	6,325	0	0	0	0	0	0	6,325
August	6,036	0	0	0	0	0	0	6,036
September	4,149	0	0	0	0	0	0	4,149
October	6,475	0	0	0	0	0	0	6,475
November	2,429	0	0	0	0	0	0	2,429
December	0	0	0	0	0	0	0	0
TOTAL	38,147	0	0	0	0	0	0	38,147

Table 2
Ground Water Supply

2023 Month	District Groundwater (acre-feet)	Private Agric Groundwater (acre-feet)
Method		
January	0	0
February	0	0
March	0	0
April	0	0
May	0	300
June	0	75
July	0	140
August	0	130
September	0	217
October	0	156
November	0	68
December	0	0
TOTAL	0	1,086

*normally estimated

Table 3

Total Water Supply

2023 Month	Surface Water Total (acre-feet)	District Groundwater (acre-feet)	Recycled M&I (acre-feet)	Total District (acre-feet)
Method				
January	0	0	0	0
February	984	0	0	984
March	520	0	0	520
April	2,417	0	0	2,417
May	4,111	0	0	4,111
June	4,701	0	0	4,701
July	6,325	0	0	6,325
August	6,036	0	0	6,036
September	4,149	0	0	4,149
October	6,475	0	0	6,475
November	2,429	0	0	2,429
December	0	0	0	0
TOTAL	38,147	0	0	38,147

*Recycled M&I Wastewater is treated urban wastewater that is used for agriculture.

Precipitation Worksheet					Evaporation Worksheet				
2023	inches precip	ft precip	acres	AF/Year	2023	inches evap	ft evap	acres	
Jan	2.20	0.18	4.26	4.62	Jan	0.00	0.00	4.26	
Feb	1.21	0.10	1.87	2.03	Feb	0.80	0.07	1.87	
Mar	2.03	0.17	0.89	0.96	Mar	2.99	0.25	0.89	
Apr	0.01	0.00	1.44	1.56	Apr	5.94	0.50	1.44	
May	0.38	0.03	56.74	61.56	May	6.68	0.56	56.74	
Jun	0.00	0.00	30.48	33.07	Jun	7.44	0.62	30.48	
Jul	1.13	0.09	2.80	3.04	Jul	8.73	0.73	2.80	
Aug	1.66	0.14	2.03	2.21	Aug	7.19	0.60	2.03	
Sept	0.97	0.08	8.67	9.40	Sept	5.25	0.44	8.67	
Oct	0.71	0.06	6.94	7.53	Oct	3.13	0.26	6.94	
Nov	0.41	0.03	0.00	0.00	Nov	0.00	0.00	0.00	
Dec	2.31	0.19	0.00	0.00	Dec	0.00	0.00	0.00	
TOTAL	13.02	1.09	116.12	125.99	TOTAL	48.15	4.01	116.12	

Contractor name

Table 4

Agricultural Distribution System

2023 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)
7B Ditch	8,838	21	185,598	4.6	17.1	0	0	(12)
8A Ditch	4,784	17	81,328	2.0	7.5	0	0	(5)
B & B #1	2,150	18	38,700	1.0	3.6	0	0	(3)
B & B #2	4,467	14	62,538	1.6	5.8	0	0	(4)
Columbia Main	79,728	31	2,471,568	87.6	323.9	0	0	(236)
Mowry	2,385	20	47,700	33.1	122.3	0	0	(89)
Ridge Main	41,495	32	1,327,840	2.4	9.0	0	0	(7)
River Ditch	17,424	7	121,968	2.2	8.2	0	0	(6)
Road Ditch	9,846	9	88,614	7.8	28.7	0	0	(21)
Sausalito	17,160	22	377,520	7.5	27.9	0	0	(20)
Stoddard	5,900	19	112,100	0.0	0.0	0	0	0
Misc Distribution	100,800	3	302,400	0.0	0.0	0	0	0
TOTAL	294,977			149.8	553.8	0	0	(404)

55.867

Miles

Table 6

2023 District Water Inventory

Type of Water	Location of Information	
Water Supply	Table 3	45,167
Riparian ET	(Distribution and Drain)	minus 0
Groundwater recharge	(intentional - ponds, injection)	minus 4,931
Seepage	Table 4	minus 0
Evaporation - Precipitation	Table 4	minus 404
Spillage	Table 4	minus 0
Transfers out of District		minus 7,020
Water Available for sale to customers		32,812
Actual Agricultural Water Sales 2023	From District Sales Records	33,000
Private Groundwater	Table 2	plus 1,086
Crop Water Needs	Table 5	minus 44,976
Drainwater outflow	(tail and tile, not recycled)	minus 0
Percolation from Agricultural Land	(calculated)	(10,890)
Unaccounted for Water	(calculated)	(188)

Table 7

Influence on Groundwater and Saline Sink

2023		
Agric Land Deep Perc + Seepage + Recharge - Groundwater Pumping = District Influence		4,931
Estimated actual change in ground water storage, including natural recharge)		0
Irrigated Acres (from Table 5)		15,510
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

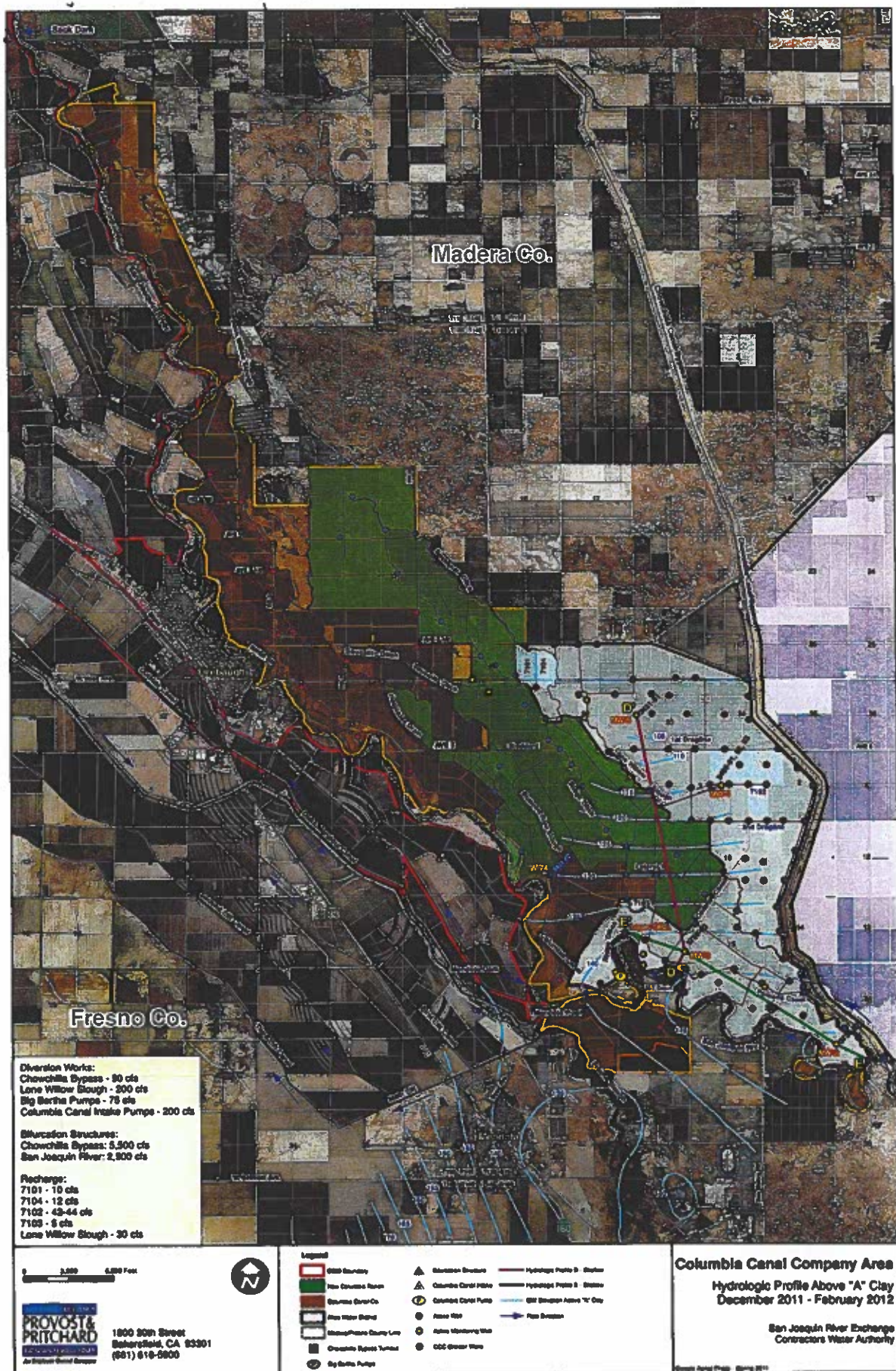
Table 8

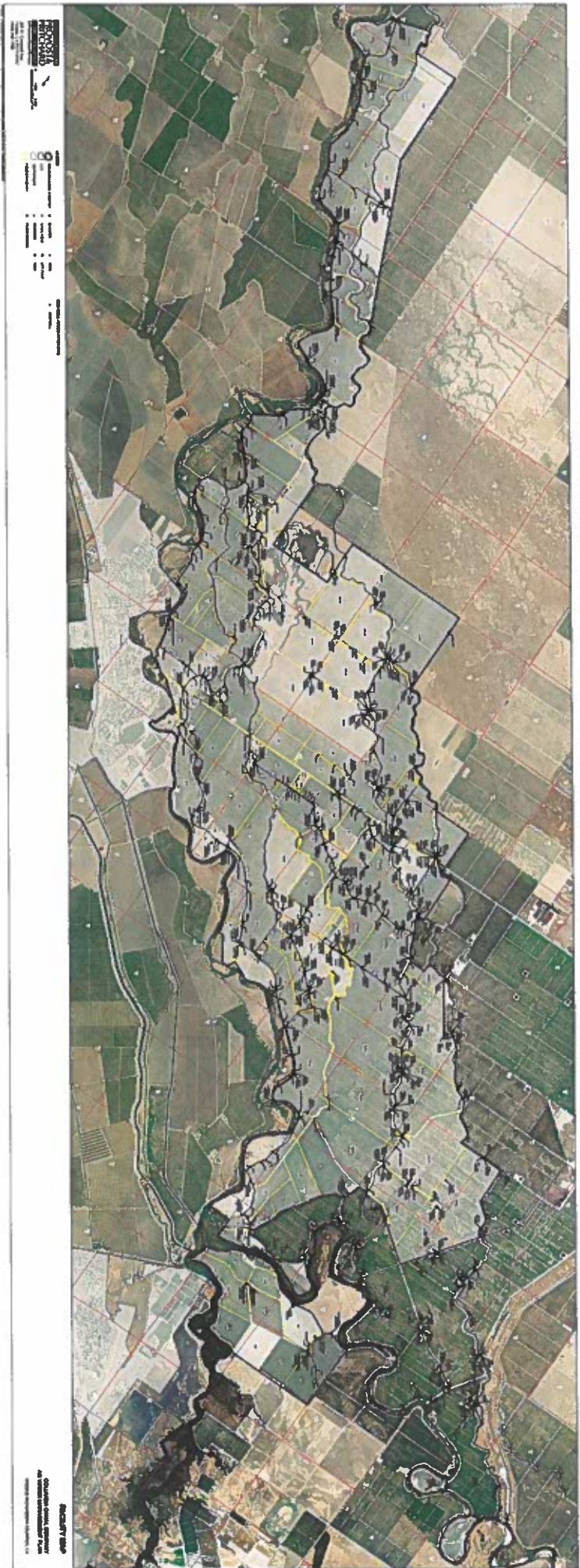
Annual Water Quantities Delivered Under Each Right or Contract

Year	Federal Ag Water (acre-feet)	Federal non- Ag Water. (acre-feet)	State Water (acre-feet)	Local Water (define) (acre-feet)	Other Water (acre-feet)	Transfers into District (acre-feet)	Upslope Drain (acre-feet)	Total (acre-feet)
2014	33,441	0	0	0	0	0	0	33,441
2015	31,549	0	0	0	0	0	0	31,549
2016	58,461	0	0	0	0	0	0	58,461
2017	60,415	0	0	0	0	0	0	60,415
2018	55,504	0	0	0	0	0	0	55,504
2019	58,637	0	0	0	0	0	0	58,637
2020	45,665	0	0	0	0	0	0	45,665
2021	40,097	0	0	0	0	0	0	40,097
2022	43,188	0	0	0	0	0	0	43,188
2023	38,147	0	0	0	0	0	0	38,147
Total	465,104	0	0	0	0	0	0	465,104
Average	46,510	0	0	0	0	0	0	46,510

ATTACHMENT 1

DISTRICT MAPS





ATTACHMENT 2

DISTRICT RULES AND REGULATIONS

RULES AND REGULATIONS

OF

COLUMBIA CANAL COMPANY

Firebaugh, California

"A Mutual Water Company

Since 1926"

July 8, 1993

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RULES AND REGULATIONS
OF
COLUMBIA CANAL COMPANY
Governing the Distribution
and Use of Water

ADOPTED BY THE BOARD OF DIRECTORS OF
THE COLUMBIA CANAL COMPANY
AT THE SPECIAL MEETING HELD ON APRIL 25, 1966

The Columbia Canal Company, hereafter called Company, is a Corporation, organized and existing under and by virtue of the laws of the State of California. It is a Mutual Water Company governed by a Board of Directors elected by the Stockholders. It makes no profit and is operated for the sole benefit of the lands within its boundaries. The benefits the stockholders can derive from the COMPANY will be measured by the extent to which they cooperate to make it a success.

These rules and regulations are consistent with the laws of California and have been adopted by the Board of Directors pursuant to its Articles of Incorporation and By-Laws to effect orderly and efficient distribution and use of the COMPANY'S water supply; to effect adequate and uniform drainage to the lands within the boundaries of the COMPANY; to define the responsibilities of the stockholders in the use of the COMPANY'S right-of-way and/or other properties, and to govern the collection of the charges and expenses incident to the COMPANY'S business.

Rule 1

MANAGEMENT

The Manager shall have the general management of the business of the Company, subject, however, to the control of the Board of Directors and to the extent provided by the By-Laws.

The Manager shall employ such ditch tenders and other personnel as may be required and authorized by the Board of Directors for the operation, maintenance and improvement of the system.

Rule 2

CONTROL OF WORKS

All diversion works, canals, ditches, headgates, drains, syphons, tail water pipes, spillways and other structures belonging to the COMPANY will be operated and maintained by the COMPANY, and their control and operation will be under the exclusive control of the authorized agents of the COMPANY. The location, number and size of gates for the distribution of water from the COMPANY'S canals and the manner of delivery therefrom, so as to secure safe and efficient operation thereof, and the location, number and size of tail-water pipes for discharge of tailwater into the COMPANY'S drains shall be determined by the Manager of the COMPANY or his duly authorized representative, subject to the approval of the Board of Directors. In no event, however will the COMPANY provide and/or maintain turnouts and tail-water pipes at its expense in canals and drains that are not owned and/or controlled

by the COMPANY.

All "COMMUNITY" ditches and drains and appurtenant structures to which the COMPANY holds easements shall also be under the exclusive control of the authorized agents of the COMPANY to the same extent as if they were owned in fee. It is emphasized that the COMPANY will only maintain and operate such 'COMMUNITY' irrigation, drainage and seepage ditches whose rights-of-way easements have been granted and recorded.

Rule 3

TAMPERING AND DAMAGE TO COMPANY FACILITIES

Manipulation of COMPANY weirs, headgates and other structures is forbidden, unless permission is given by the ditch tender or other authorized employee of the COMPANY. Cutting canal or drain banks and/or placing dams or other obstructions in COMPANY canals or drains is prohibited.

Removal of dirt from, or other use, of COMPANY-owned property or easements such as the placing of toe ditches, drainage ditches, fences, trees, pumping plants, structures or other obstructions upon the COMPANY'S rights-of-way is also prohibited unless done with permission of the COMPANY.

Stockholders shall not permit their livestock to feed or trespass upon the rights-of-way of COMPANY canals, drains or "COMMUNITY" ditches except with specific permission of the COMPANY. In cases where it is necessary to cross the right-of-way or to

move livestock from one point to another along COMPANY rights-of-way, permission to use the rights-of-way for that purpose must be obtained from the Management in advance. Any damage done to canal or ditch banks by stockholders in using them for a roadway, whether moving livestock, farming equipment or other vehicles, shall be the responsibility of those making such use of the property. If it is found necessary for the COMPANY to repair such damage, those responsible therefor shall pay all costs of such repairs, and in addition thereto, shall reimburse the COMPANY for its cost of litigation in such eventuality.

Rule 4

LIABILITY FOR DAMAGE

The COMPANY will not raise water to an excessive height in canals or for carelessness of any stockholder in the use of water or for failure on his part to maintain any ditch or structure therein for which he is responsible -- either wholly or in part.

Rule 5

TRESPASS ON COMPANY PROPERTY

Any stockholder or any other individual entering upon COMPANY property does so at his own risk.

Rule 6

IRRIGATION OF EXCESSIVELY HIGH GROUND

The COMPANY will not raise water to an excessive height in canals or ditches in order to give service to lands or private ditches of unreasonable elevation

Upon request made to the Management, the COMPANY will set a reference point of grade which will be the maximum elevation of land which can be serviced by that particular COMPANY canal or ditch.

Rule 7

APPLICATION FOR WATER

The "AMENDED CONTRACT FOR EXCHANGE OF WATERS" states, among other things, "The Contracting Entities (Columbia Canal Company being one of the Entities) shall furnish through the Contracting Entities Watermaster, estimates of their aggregate delivery requirements, and their daily delivery schedules for each weekly period; which shall be submitted to the United States at least 48 hours prior to the beginning of the delivery period."

Since the delivery schedule herein above referred to pertains to water delivered into Mendota Pool and not into the COMPANY'S canal system, stockholders and/or their tenants shall be required to apply for water at least three days in advance to the date water is wanted. However, water will be delivered on request when made less than three days before the date water is wanted provided

water is available and deliveries can be made without interference with other users and without undue waste of water or undue manipulation of weirs and gates.

Rule 8

ALLOCATION OF WATER

The daily entitlement to water of each owner of the capital stock of this COMPANY shall be in the proportion that the stock owned by him bears to the total number of shares of stock issued and outstanding, and that any stockholder owning more than one parcel of land may use his full daily entitlement of water on such of said parcels as he may desire, subject to a like right, in all other stockholders, and provided that the canal or canals used in transporting said water have the necessary carrying capacity.

When the daily entitlement does not constitute a practicable head of water, allocations shall be on a per acre-foot per month basis in the proportion that the stock owned by him bears to the total number of shares of stock issued and outstanding. The monthly allocation in acre-feet shall be a pro rata share, based on stock ownership, of the total water available to the COMPANY from all sources, including water recovered from its drains and wells, during the particular month for which the allocation is made through the Exchange Contract. In case of a shortage of water the same shall be divided pro rata among the stockholders of this COMPANY to the extent of the authorized capital stock of said COMPANY.

The COMPANY reserves the right to suspend service during any period of time when it is necessary to take water out of the canals for cleaning or other maintenance, repair or reconstruction work required.

Rule 9

METHOD OF DELIVERY

Water will be delivered in turn within "Community" ditch areas beginning at the head thereof. Any stockholder not able to use water in his regular turn on any run may receive water upon the completion of the delivery in his "Community" ditch, provided no undue loss of water is involved and there is no interference with deliveries to other stockholders.

Heads applied for may be altered by the COMPANY when necessary.

Stockholders will be required to use water continuously day and night until irrigation is completed and without waste at any time.

Rule 10

WASTE OF WATER

Stockholders, wasting water, either willfully, carelessly or on account of defective or inadequate ditches or structures, or on account of inadequate preparation of land for irrigation, may be refused further service until such conditions are remedied.

Rule 11

POINT OF DELIVERY

All measurements and deliveries of water shall be made at the point where the stockholder's lateral or ditch connects with the canal or ditch owned or controlled by the COMPANY.

Rule 12

UNAUTHORIZED TAKING OF WATER

Person interfering with the regulation of water in canals or ditches of the COMPANY are liable to criminal prosecution. If any person takes water without permission of the authorized agents of the COMPANY, he shall not only be subject to criminal prosecution, but shall forfeit his right to water on the next rotation or regular run of water.

Rule 13

OWNERSHIP OF WATER

All water in COMPANY canals, drains or ditches, regardless of source, except privately owned well water being transported therein by permission of the COMPANY, is COMPANY water and is subject to diversion and use by the COMPANY for the benefit of its stockholders.

Rule 14

ACCESS TO LAND

The authorized agents or employees of the COMPANY shall have free access at all times to all lands irrigated from the COMPANY system for the purpose of examining the ditches, laterals or drains serving such lands and/or the flow of water therein, for the purpose of ascertaining the acreage of crops on lands irrigated or to be irrigated, or for any other COMPANY purpose.

Rule 15

NUISANCES

No material or substance of any nature, and particularly those that are or may become offensive to the senses or injurious to health or which do or may injuriously affect the quality of water, obstruct the flow of water, or result in the scattering of seeds or noxious weeds, plants or grasses, shall be placed or dumped in any ditch or on any right-of-way of the COMPANY, or be placed or left so as to roll, slide, flow, or be washed or blown into any ditch or on any right-of-way. Any violation of this rule will subject the offender to criminal prosecution. All employees of the COMPANY shall promptly report any violation of this rule, and the stockholders of the COMPANY are especially urged to cooperate in its enforcement.

Rule 16

STOCK WATER

The COMPANY shall not be required to furnish water for the exclusive purpose of watering stock.

Rule 17

COMPLAINTS OF STOCKHOLDERS

Complaints of any kind against the COMPANY or any of its personnel should be made in writing to the Management of the COMPANY promptly after the acts complained of have occurred. Stockholders and/or their tenants shall have the right to refer any complaints in writing or in person to the Board of Directors of the COMPANY.

Rule 18

CHARGES FOR OPERATION AND MAINTENANCE OF SYSTEM
(PORTION OF ARTICLE X OF BY-LAWS)

(1) The cost of maintenance and/or operation of the irrigation and drainage systems controlled, owned, or to be owned, by this Corporation, as well as the cost of such betterments and/or extensions as may be necessary to provide an adequate and uniform distribution of water to all stockholders, and to provide adequate and uniform drainage to the lands within the boundaries of this Corporation, shall be borne by all the stockholders in the proportion that the number of acres of land owned by each of them bears to the total number of acres of land under this Corporation's

system. The obligation to pay said costs and/or charges shall run with and bind the land described in the stock certificates, and any charges made or assessments levied shall be and constitute a lien on said land.

(2) The Secretary, or such other person as may be designated by the President, shall at times to be fixed by the Board of Directors, collect from each stockholder any sums of money which may be due pursuant to the provisions of the foregoing paragraph, or at the discretion of the Board of Directors. Assessments may be levied in the manner provided by law, to cover or defray such items of expense as may be necessary or proper for this Corporation to incur.

(3) All service charges and/or bills rendered by this Corporation must be promptly paid, and any stockholder who fails for a period of thirty (30) days to pay any lawful charge and/or bills rendered by this Corporation after the same has been rendered or demanded, shall not be entitled to demand or receive water or service of any kind from this Corporation. If such charge or bill is not paid within one (1) year after the same has been rendered or demanded, such stockholder shall forfeit all right to receive or demand water or service from this Corporation, and said stock shall become Columbia Canal Company Treasury Stock. At the discretion of the Board of Directors, said stock may be reissued after all lawful charges and/or assessments have been paid on said stock.

Rule 19

LOST CERTIFICATES

Stockholders shall pay a service charge of \$5.00 for transfer or replacement of one or more certificates of stock which may have been lost, stolen, destroyed or otherwise disappeared.

Rule 20

PENALTY FOR NON-COMPLIANCE

Refusal to comply with the requirements hereof, or transgression of any of the foregoing rules and regulations, or any interference with the discharge of the duties of any employee of the COMPANY, shall be sufficient cause for shutting off the water, and water will not again be furnished until full compliance has been made with all requirements hereof.

Rule 21

CHANGE IN RULES AND REGULATIONS

The Board of Directors reserves the right to change these Rules and Regulations by majority action of the Board at any regular or special meeting by adopting an appropriate resolution and spreading such resolution on the minutes of the COMPANY. Publication and dissemination of such changes by the printing of revised Rules and regulations will be limited to economically feasible intervals as determined by the Board.

There shall be maintained at the office of the COMPANY, however, a loose leaf master copy of these Rules and Regulations

including all changes made by the Board of Directors, which copy will be open to inspection at any time during office hours of the COMPANY.

SECTION 592 -- PENAL CODE OF THE STATE OF CALIFORNIA

"Every person who shall, without authority of the owner or managing agent, and with intent to defraud, take water from any canal, ditch, flume, or reservoir used for the purpose of holding or conveying water for manufacturing, agriculture, mining, irrigating or generation of power, or domestic use, or who shall without like authority, raise, lower, or otherwise disturb any gate or other apparatus thereof, used for the control or measurement of water, or who shall empty or place, or cause to be emptied or placed, into any such canal, ditch, flume or reservoir, any rubbish, filth or obstruction to the free flow of the water is guilty of a misdemeanor."

Checked by _____

GPO 978162

Tracy Office CVP Pump Test

Date: 7/13/2021 Time: 1000 Party: R MARTIN
 Owner: _____ District: _____
 Location: MOWRY #4

Pump Make: _____ Type: _____ Size: _____
 Discharge Size: _____ R.P.M. _____
 Motor: _____ Type: _____ Drive: _____ Drive: _____
 Watt-Hour Meter-Type: _____ No. _____
 Volts: _____ AMPS: _____ Disk K: _____ Meter C: _____
 H.P.K. _____ Revs: _____ Sics: _____ Meter Readings: _____

Heads

By Staffs Hand Levels Measurement

Test

By Pitot Tube

CMM in Open Channel _____

From Pump _____

Water Temp: _____ F

AT: _____ M. _____

Summary

C.F.S. Test 4.64 G.P.M. _____ Head: _____

C.F.S. Sparkling: 4.59 Departure: 1.01%

H.P. Input: _____ H.P. Output: _____ Effective: _____

K.W. Input _____

Sparling Meter Time (Seconds)

Start: 1 REV = 9.34

Sparling Meter Time (Seconds)

End: 1 REV = 9.63

Mean: 9.49

C.F.S. 4.59

Tapped 3/4 IPS 1 IPS or

1.C.C. _____

Comp MARTIN

Sheet 1 of 1 Sheets

Checked _____

Tracy Office CVP Pump Test

Date: 7/12/2021 Time: 0730 Party: R MARTIN

Owner: _____ District: _____

Location: MOWRY #3

Pump Make: _____ Type: _____ Size: _____

Discharge Size: _____ R.P.M. _____

Motor: _____ Type: _____ Drive: _____ Drive: _____

Watt-Hour Meter-Type: _____ No. _____

Volts: _____ AMPS: _____ Disk K: _____ Meter C: _____

H.P.K. _____ Revs: _____ Sics: _____ Meter Readings: _____

Heads

By Staffs Hand Levels Measurement

Test

By Pitot Tube

CMM in Open Channel _____ From Pump _____

Water Temp: _____ F AT: _____ M. _____

Summary

C.F.S. Test 3.97 G.P.M. _____ Head: _____

C.F.S. Sparkling: 4.03 Departure: .99%

H.P. Input: _____ H.P. Output: _____ Effective: _____

K.W. Input _____

Spalling Meter Time (Seconds)

Start: 1 REV = 10.94

Spalling Meter Time (Seconds)

End: 1 REV = 10.66

Mean: 10.80

C.F.S. 4.03

Tapped 3/4 IPS 1 IPS or

1.C.C. _____

Comp MARTIN

Sheet 1 of 1 Sheets

Checked _____

Tracy Office CVP Pump Test

Date: 7/12/2021 Time: 0930 Party: R Martin
 Owner: _____ District: _____
 Location: Mowry #1

Pump Make: _____ Type: _____ Size: _____
 Discharge Size: _____ R.P.M. _____
 Motor: _____ Type: _____ Drive: _____ Drive: _____
 Watt-Hour Meter-Type: _____ No. _____
 Volts: _____ AMPS: _____ Disk K: _____ Meter C: _____
 H.P.K. _____ Revs: _____ Sics: _____ Meter Readings: _____

Heads _____ By Staffs Hand Levels Measurement
 Test _____ By Pitot Tube
 CMM in Open Channel _____ From Pump _____
 Water Temp: _____ F AT: _____ M. _____

Summary

C.F.S. Test 4.17 G.P.M. _____ Head: _____
 C.F.S. Sparkling: _____ Departure: _____
 H.P. Input: _____ H.P. Output: _____ Effective: _____
 K.W. Input _____

Sparling Meter Time (Seconds) Start: 4.17 CFS x 1.4835 = 6.27 AF 24 HRS
 Sparling Meter Time (Seconds) End: 6.27 AF / 24 HRS = .34 AF 1 HOUR
 Mean: _____
 C.F.S. _____
 Tapped 3/4 IPS 1 IPS or 1.C.C. _____
 Comp Martin
 Sheet 1 of 1 Sheets Checked _____

Tracy Office CVP Pump Test

Date: 7/12/2021 Time: 1030 Party: R. MARTIN

Owner: _____ District: _____

Location: MOWRY #2

Pump Make: _____ Type: _____ Size: _____

Discharge Size: _____ R.P.M. _____

Motor: _____ Type: _____ Drive: _____ Drive: _____

Watt-Hour Meter-Type: _____ No. _____

Volts: _____ AMPS: _____ Disk K: _____ Meter C: _____

H.P.K. _____ Revs: _____ Sics: _____ Meter Readings: _____

Heads

By Staffs Hand Levels Measurement

Test

By Pitot Tube

CMM in Open Channel _____ From Pump _____

Water Temp: _____ F AT: _____ M. _____

Summary

C.F.S. Test 4.08 G.P.M. _____ Head: _____

C.F.S. Sparkling: _____ Departure: _____

H.P. Input: _____ H.P. Output: _____ Effective: _____

K.W. Input _____

Sparling Meter Time (Seconds)

Start: 4.08 CFS x 1.9835 = 8.09 AF 24 HRS

Sparling Meter Time (Seconds)

End: 8.09 AF / 24 HRS = .34 AF 1 HOUR

Mean: _____

C.F.S. _____

Tapped 3/4 IPS 1 IPS or

1.C.C. _____

Comp MARTIN

Sheet 1 of 1 Sheets

Checked _____

Tracy Office CVP Pump Test

Date: 7/13/2021 Time: 0730 Party: R MARTIN

Owner: _____ District: _____

Location: mowat #5

Pump Make: _____ Type: _____ Size: _____

Discharge Size: _____ R.P.M. _____

Motor: _____ Type: _____ Drive: _____ Drive: _____

Watt-Hour Meter-Type: _____ No. _____

Volts: _____ AMPS: _____ Disk K: _____ Meter C: _____

H.P.K. _____ Revs: _____ Sics: _____ Meter Readings: _____

Heads

By Staffs Hand Levels Measurement

Test

By Pitot Tube

CMM in Open Channel _____

From Pump _____

Water Temp: _____ F AT: _____ M. _____

Summary

C.F.S. Test 5.72 G.P.M. _____ Head: _____

C.F.S. Sparkling: 5.51 Departure: 1.04%

H.P. Input: _____ H.P. Output: _____ Effective: _____

K.W. Input _____

Sparling Meter Time (Seconds)

Start: 1 REV = 7.94

Sparling Meter Time (Seconds)

End: 1 REV = 7.89

Mean: 7.91

C.F.S. 5.51

Tapped 3/4 IPS 1 IPS or

1.C.C. _____

Comp MARTIN

Sheet 1 of 1 Sheets

Checked _____

ATTACHMENT 4

DISTRICT SAMPLE BILLS

COLUMBIA CANAL COMPANY

6770 Avenue 7 1/2
FIREBAUGH, CA 93622

Water Assessment
Invoice

DATE	INVOICE #
1/1/2023	2023-62

BILL TO

TERMS

DUE DATE

30 Days

1/31/2023

ITEM	DESCRIPTION	QTY	RATE	AMOUNT
Shares	Tier One - Surface Water - Up to 3.5 acre feet - \$85.00 per share Section 26 You may pay the full amount - It covers the 2023 year - The 1st quarter assessment must be paid by 1/31/2023 - One fourth of this invoice is \$189.12	8.9	85.00	756.50
1ST QTR DELINQUENT FEB 1			Total	\$756.50

Accounts not paid in 30 days are Delinquent & water delivery may be stopped, 1.5% per Month charged. Accounts Delinquent for 1 Year may have a lien placed on the property for Charges & Interest.

Phone #

(559) 659-2426

ATTACHMENT 5

GROUNDWATER MANAGEMENT PLAN

**UPDATED 3030 GROUNDWATER MANAGEMENT PLAN
FOR THE SAN JOAQUIN EXCHANGE CONTRACTORS**

**Prepared for:
San Joaquin River Exchange Contractors Water Authority
Los Banos, California**

**by
Kenneth D. Schmidt and Associates
Groundwater Quality Consultants
Fresno, California**

**February 2008
Adopted - April 4, 2008**

KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
600 WEST SHAW, SUITE 250
FRESNO, CALIFORNIA 93704
TELEPHONE (559) 224-4412

February 12, 2008

Mr. Steve Chadester
Executive Director
San Joaquin River Exchange
Contractors Water Authority
541 H Street
Los Banos, CA 93635

Re: Groundwater Management Plan

Dear Steve:

Submitted herewith is our report on Updated 3030 Groundwater Management Plan within the Exchange Contractors services area.

Sincerely yours,



Kenneth D. Schmidt
Geologist 1578
Certified Hydrogeologist 176

KDS/pe

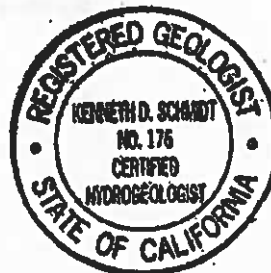


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UPDATE AB 3030 GROUNDWATER MANAGEMENT PLAN
FOR THE SAN JOAQUIN EXCHANGE CONTRACTORS

INTRODUCTION

General

The San Joaquin River Exchange Contractors Water Authority ("Exchange Contractors" or "Authority") is a Joint Powers Authority organized under the Joint Exercise of Power Act. The member agencies are Central California Irrigation District ("CCID"), Firebaugh Canal Water District ("FCWD"), Columbia Canal Company ("CCC") and San Luis Canal Company ("SLCC"). Each of the entities is a holder in common of certain priority water rights, which are the subject matter of an agreement executed on February 14, 1968, between the United States of America ("Bureau of Reclamation, Department of Interior" or "USBR") and the Exchange Contractors. The title of the agreement is the "Second Amended Contract for Exchange of Waters" (Contract No. Ilr-1144), commonly known and referred to as the "Exchange Contract". The Exchange Contract confers upon the USBR the right to utilize the subject water so long as USBR delivers specified quantities of substitute water at specified locations via the Delta-Mendota Canal.

The Authority

The Authority is empowered to administer and protect the jointly held water rights under the Exchange Contract and power

incidental, necessary and convenient thereto, administer operation under the Division of Water Agreement and represent the Exchange Contractors in many water matters, including, but not limited to, operation of the Central Valley Project, conjunctive use of groundwater and surface supplies, water conservation, reclamation, transfers, drainage, management of the San Francisco Bay-Delta Estuary, environmental considerations and related legislation, litigation, and administrative proceedings. The Exchange Contractors Water Authority is committed to managing its ground and surface water resources to replenish and preserve its groundwater.

AB 3030

The State Legislature enacted AB 3030 (Costa), the Groundwater Management Act, in 1992. The act was codified as Part 2.75, commencing with Section 10750 of Division 6 of the Water Code and became effective January 1, 1993.

1. The act applies to all groundwater basins in the state, except any portion of a groundwater basin that is subject to groundwater management by a local agency or a water master pursuant to other provisions of law, court order, judgement, or decree, unless the local or water master agrees.

2. It provides that any local agency, whose service area includes an applicable groundwater basin, may by ordinance or resolution,

adopt and implement a groundwater management plan within a part or all of its service area in accordance with certain procedures.

The Role of Groundwater in the Exchange
Contractors Water Operations

The conjunctive use of groundwater within the Exchange Contractors service area is required due to surface water delivery restrictions contained within the Exchange Contract. In addition, peak irrigation demands within certain areas exceed surface water distribution channel capacities. Groundwater is pumped and delivered into the system to make up capacity shortfalls.

1. The Exchange Contract provides both non-critical and critical surface water entitlement maximums on a per month basis, on a five-month basis (January, February, March, November, and December), and on a seven-month basis (April through October). In addition, monthly maximum instantaneous delivery flow rates are defined. Provisions are made to allow deliveries in excess of these rates if it can be done without detriment to the United States or its other obligations.

2. The Exchange Contract entitlement maximums and the instantaneous flow limits require conjunctive use of surface and groundwater to meet peak crop water demands during June, July, and August. While USBR has historically allowed instantaneous flow deliv-

eries (except in 1992) in excess of the limits, the five-month and seven-month entitlement maximums remain in effect. When USBR provides this flexibility, the Contractors must pump groundwater from District owned wells during April, May, and early June to "bank" sufficient Exchange Contract water for use during peak demands in June, July, and August. Groundwater pumpage from District owned wells must continue through June, July, and August, due to the seven-month Exchange Contract maximum for surface water. During the rest of the water year, there are sufficient quantities of surface water to meet crop water demands and provide necessary quantities for storage in the aquifer for use during the critical months.

3. During critical water years the necessity for conjunctive use of water increases. The seven-month surface water entitlement maximums decrease during critical water years. The five month maximums are not reduced.

4. Private well pumpage within the Exchange Contractors service area also fluctuates in response to the non-critical or critical surface supply. As shown in Table 1, the total groundwater pumpage within the Exchange Contractors service area averaged about 150,000 acre-feet per year from 1996 to 2006. The pumping ranged from about 80,400 acre-feet in 1998 to 212,000 acre-feet in 2004. Tiered water prices are analyzed yearly based on the annual "deep

TABLE 1-WELL PUMPAGE INSIDE AND OUTSIDE OF THE CCID

CCID# WELLS (NO.)	TOTAL NO. OF WELLS SUB- DIVIDED IN AREAS (NO.)	USING BASIC METHODOLOGY FOR CALCULATIONS										1948 AVERAGE WELL WELLS WELLS (NO.)	1948 DATA AS A PERCENT OF AVG. (% of 1948)	2000 PUMPAGE			
		1986 REV. 2002	1987 REV. 2002	1988 REV. 2002	1989 REV. 2002	1990 REV. 2002	1991 REV. 2002	1992 REV. 2002	1993 REV. 2002	1994 REV. 2002	1995 REV. 2002			WELL LOCATION BREAKDOWN			
		1986 REV. 2002	1987 REV. 2002	1988 REV. 2002	1989 REV. 2002	1990 REV. 2002	1991 REV. 2002	1992 REV. 2002	1993 REV. 2002	1994 REV. 2002	1995 REV. 2002			ALL WELLS (NO.)	WELLS IN (NO.)	WELLS OUT OF (NO.)	WELLS PUMP AREA (NO.)
12	A	1,858	12,887	4,089	11,816	11,897	14,527	11,409	12,018	17,395	8,886	3,788	33%	3,788	3,788	0	0
7	B	5,532	18,531	5,625	12,850	15,858	17,829	12,104	15,977	17,891	7,872	7,424	55%	7,424	7,424	0	0
4	C	12,887	13,883	4,089	10,316	13,388	14,398	8,809	14,343	21,352	11,887	12,814	101%	12,814	12,814	0	0
1	D	2,872	4,318	2,834	3,462	2,850	2,868	2,868	2,861	2,861	1,882	187	7%	187	187	0	0
28	E	20,773	28,883	5,886	27,043	32,356	32,356	32,356	32,356	32,356	32,356	11,888	40%	11,888	11,888	0	0
4	F	373	373	373	373	373	373	373	373	373	373	343	84%	343	343	0	0
9	G	5,538	5,538	5,538	5,538	5,538	5,538	5,538	5,538	5,538	5,538	5,538	100%	5,538	5,538	0	0
10	H	4,843	10,888	5,832	5,831	30,340	24,882	23,108	15,888	22,588	8,881	11,887	73%	11,887	11,887	0	0
10	I	727	727	727	727	727	727	727	727	727	727	1,188	160%	1,188	1,188	0	0
80	J	288	12,716	14,194	14,327	14,327	14,327	14,327	14,327	14,327	14,327	20,881	71%	20,881	20,881	0	0
84	O/S A	12,716	12,716	12,716	12,716	12,716	12,716	12,716	12,716	12,716	12,716	12,716	100%	12,716	12,716	0	0
83	O/S B	11,777	12,888	5,741	11,887	7,718	7,718	7,718	7,718	7,718	7,718	7,881	67%	7,881	7,881	0	0
194	O/S C	27,191	41,302	18,821	32,340	32,340	32,340	32,340	32,340	32,340	32,340	20,887	60%	20,887	20,887	0	0
2	O/S D	3,294	3,294	3,294	3,294	3,294	3,294	3,294	3,294	3,294	3,294	3,294	100%	3,294	3,294	0	0
18	O/S E	1,116	4,302	3,786	387	824	1,438	621	3,481	3,481	3,481	878	38%	878	878	0	0
28	O/S G	64	1,329	10	949	1,887	2,837	3,809	3,807	3,808	1,483	2,438	203%	2,438	2,438	0	0
2	O/S H																
5	O/S I																
5	O/S J																
TOTALS		115,278	188,739	89,404	144,391	191,688	204,465	144,884	188,332	212,915	121,481	128,918		37,283	37,283	91,635	2,000

NOTE: 1. PUMPAGE BY C.C.I.D. COMBINED IN THE CENTRAL CALIFORNIA IRRIGATION DISTRICT. 2. PUMPAGE OUTSIDE C.C.I.D. INCLUDES ALL DEEP WELLS WITHIN CITY LIMITS IN ADDITION TO DEEP WELLS USED FOR IRRIGATION ARE. 3. THIS ORIGINAL STUDY INCLUDED ALL KNOWN DEEP WELLS IN RIVER FROM MARSHALL ROAD (CROWN LANDING) TO THE CAMP 13 AREA, EXCA COMBINATION, AND BY USING PART OR AVERAGE PUMP TEST CORRECTION DATA, OR FROM REQUESTED DATA. THOSE IN THE SAN LUIS CANAL COMPANY AREA, THEN GROWTH FOR THE AREA BETWEEN THE SAN LUIS AND DELTA RIVERS CANAL, OR THE WELLS. 4. AREA A ONLY THIS REVISION WELLS THE SAN LUIS C.C. AND THE COLLIN IN ADDITION THESE ARE SOME WELLS IN THE POOL PUMPAGE AREA AS OF 1971. 5. UP TO 1971 THERE WERE 118 WELLS IN THE POOL PUMPAGE AREA AS OF 1971. 6. DATA WAS CALCULATED USING A NEW METHODOLOGY IN RESPONSE TO POLE JETTER DATA, FOR THE PRESENT 1995 AND 2000 WERE REDONE THE SAME WAY. 7. DATA IS INCOMPLETE IN THE COLUMBIA CANAL COMPANY AREA. 8. PUMPAGE IS CALCULATED FROM THE AVERAGE PUMPAGE OF POLES, HOUR, PROPELLER AP METERS AND OR RIVER FROM MARSHALL ROAD (CROWN LANDING) TO THE CAMP 13 AREA, EXCA COMBINATION, AND BY USING PART OR AVERAGE PUMP TEST CORRECTION DATA, OR FROM REQUESTED DATA. 9. UP TO 1971 THERE WERE 118 WELLS IN THE POOL PUMPAGE AREA AS OF 1971. 10. DATA WAS CALCULATED USING A NEW METHODOLOGY IN RESPONSE TO POLE JETTER DATA, FOR THE PRESENT 1995 AND 2000 WERE REDONE THE SAME WAY.

REPRESENTS A -18% (INCREASE OR DECREASE OVER THE PREVIOUS 10 YR. RUNNING AVG.)

TABLE C.C.I.D. COMBINED PUMPAGE

For 2000 =	0.19	AP / AC
For 2001 =	0.28	AP / AC
For 2002 =	0.28	AP / AC
For 2003 =	0.28	AP / AC
For 2004 =	0.28	AP / AC
For 2005 =	0.28	AP / AC
For 2006 =	0.28	AP / AC
For 2007 =	0.28	AP / AC
For 2008 =	0.28	AP / AC
For 2009 =	0.28	AP / AC
For 2010 =	0.28	AP / AC
For 2011 =	0.28	AP / AC
For 2012 =	0.28	AP / AC
For 2013 =	0.28	AP / AC
For 2014 =	0.28	AP / AC
For 2015 =	0.28	AP / AC
For 2016 =	0.28	AP / AC
For 2017 =	0.28	AP / AC
For 2018 =	0.28	AP / AC
For 2019 =	0.28	AP / AC
For 2020 =	0.28	AP / AC

1998 --	0.19	AP / AC
1999 --	0.28	AP / AC
2000 --	0.28	AP / AC
2001 --	0.28	AP / AC
2002 --	0.28	AP / AC
2003 --	0.28	AP / AC
2004 --	0.28	AP / AC
2005 --	0.28	AP / AC
2006 --	0.28	AP / AC
2007 --	0.28	AP / AC
2008 --	0.28	AP / AC
2009 --	0.28	AP / AC
2010 --	0.28	AP / AC
2011 --	0.28	AP / AC
2012 --	0.28	AP / AC
2013 --	0.28	AP / AC
2014 --	0.28	AP / AC
2015 --	0.28	AP / AC
2016 --	0.28	AP / AC
2017 --	0.28	AP / AC
2018 --	0.28	AP / AC
2019 --	0.28	AP / AC
2020 --	0.28	AP / AC

well" study. This mechanism has been effectively utilized to implement conjunctive use of ground-water from both private and District owned wells.

5. In the FCWD, the groundwater has become unusable for agricultural purposes because of high levels of total dissolved solids (TDS), boron, and selenium. FCWD is able to provide surface water capacity to the other Exchange Contractors in return for their cooperation in utilizing groundwater during periods in which FCWD needs amounts of water in excess of that available from its share of the Exchange Contract supply. As a result, groundwater within CCID, SLCC, and CCC is conjunctively used, not simply with the surface deliveries within the service areas for those specific entities, but also within service areas of the other entities, as the availability of surface water under the Exchange Contract is not sufficient to meet crop water demands.

Entrix, Inc. (2007) reported on the Environmental Assessment/Initial Study for the Groundwater Pumping/Water Transfer Project for 25 consecutive years. The primary source of of the water to be transferred is pumpage of poor quality shallow groundwater in the area west and northwest of Firebaugh. The easterly and northeasterly migration of the poor quality groundwater above the Corcoran Clay has been identified as a major groundwater management concern in Madera County.

GENERAL CONDITIONS OF THE EXCHANGE CONTRACTORS GROUNDWATER BASIN

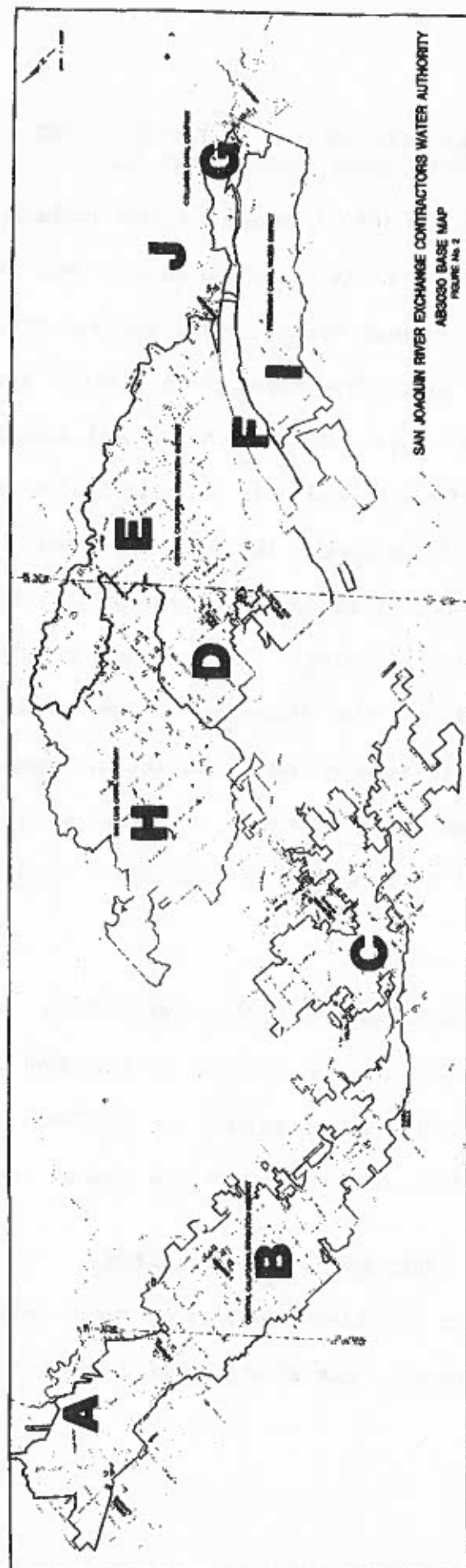
Figure 1 is the AB 3030 basemap of the Exchange Contractors service area. The service area is divided into sub-areas of generally similar aquifer, water supply, and drainage characteristics. Detailed evaluations of the groundwater conditions within the boundaries was performed by Kenneth D. Schmidt and Associates in 1997 ("Groundwater Conditions in and near Central California Irrigation District") and in 2007 "Update on Groundwater Conditions in the San Joaquin River Exchange Contractors Service Area". The evaluations included: 1) subsurface geologic conditions, 2) depth to water, water-levels elevations, the direction of groundwater flow, and water-level trends, 3) aquifer characteristics, based on numerous pump tests and aquifer tests on about two dozen wells, 4) land surface subsidence, and 5) groundwater quality in both the upper and lower aquifers.

DEMANDS ON THE GROUNDWATER BASIN

In addition to the yearly demands placed upon groundwater to meet the conjunctive use requirements to supplement the Exchange Contract surface water, other demands are placed upon the basin.

Surface Water Transfers

Each of the four entities comprising the Exchange Contractors have developed and adopted transfer policies as shown in Attachment



A. All water transfers have potential impacts on the aquifer. Three types of transfers are possible based on: 1) groundwater substitution, 2) fallowing of crops, and 3) conservation. Of these, groundwater substitution has the highest potential impact to groundwater. CCID, FCWD, and SLCC allow groundwater substitution type transfers, but the CCC does not allow groundwater substitution. Its policy states that "no transfer of groundwater to areas outside the Company service area will be approved and no transfer of surface water without fallowing the land to which such surface supply would have been delivered will be approved."

Groundwater Pumping into the Delta-Mendota Canal

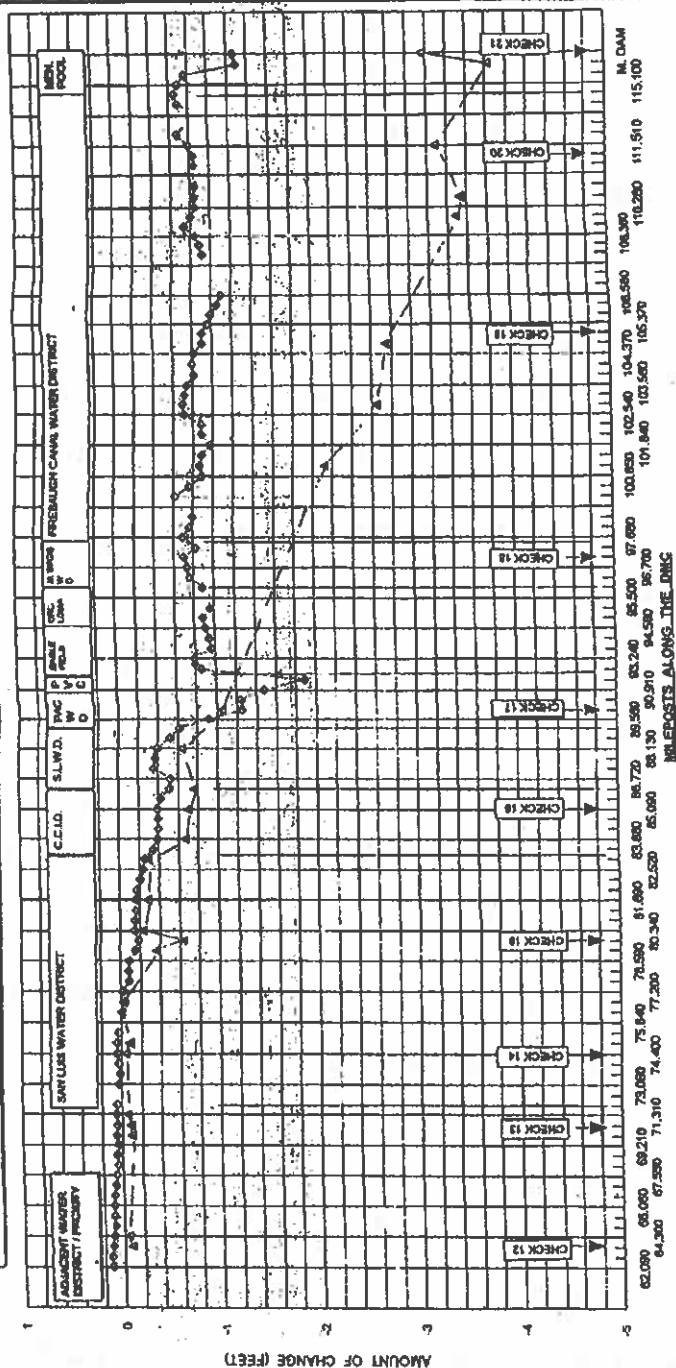
The San Luis and Delta-Mendota Water Authority (SL&DMWA) has administered a program to allow groundwater pumping into the Delta-Mendota Canal for drought contingency. Figure 1, (the AB 3030 basemap), shows the groundwater pumping management areas developed by the SL&DMWA groundwater management committee. The potential impacts to the Exchange Contractors are 1) degradation of the surface water quality delivered through the Delta-Mendota Canal, and 2) land surface subsidence along the CCID outside canal and the Delta-Mendota Canal. High salinity and boron concentrations have been problems in many wells. For the most part, the pumped water is generally not suitable for use on crops without blending with the better quality surface water. Land surface subsidence along the

Outside Canal was discussed by KDSA (1997). The CCID is presently undertaking a five million dollar improvement project on the Outside Canal, to raise banks and replace structures due to subsidence. Subsidence along the Delta-Mendota Canal is shown in Figure 2.

Groundwater Pumping into the Mendota Pool

The Mendota Pool, on the San Joaquin River, is the location where the Exchange Contractors receive most of the substitute water under the Exchange Contract. For almost two decades, there has been concentrated groundwater pumping in the Mendota Pool area. The magnitude of the pumping depends in large part on the yearly allocations by the USBR to Central Valley Project agricultural contractors. In response to reduced allocations, groundwater pumped near the Mendota Pool is introduced into the Pool and either delivered to adjacent Central Valley Project agricultural contractors directly through pumping facilities or given credit for the groundwater pumped into the Pool and, in exchange, the USBR provides deliveries to Westlands Water District. The potential impacts of the pumping program are water quality degradation, well interference, and land surface subsidence affecting the Exchange Contractors gravity canal system headworks facilities and the Mendota Dam.

The Mendota Pool Group (MPG) transfer pumping began in 1989 to



SOME CHANGE DATA IS MISSING BECAUSE MORE BATS WERE USED IN 1987 THAN WERE AVAILABLE IN 1987.

ANALYSIS OF CHANGES FROM USING USERHIST AND USERHIST4 DATA

1500+ THAN WERE AVAILABLE IN 1997.

FIGURE 2-SUBSIDENCE ALONG THE DELTA-MENDOTA LAND

make up for some of the cutbacks in deliveries of Central Valley Project and State Water Project surface water during the drought. The greatest MPG transfer pumping was during 1991-1992 and 1994. There was little MPG transfer pumping between 1995 and 1999, except for a four-month period in 1997.

A pilot pumping and monitoring program was undertaken in 1999 to determine the impacts of MPG transfer pumping on water users within the San Joaquin River Exchange Contractors Water Authority (SJREC) and Newhall Land and Farming Company (NLF) service areas. Extensive monitoring of pumpage, water levels, water quality, and compaction was initiated in 1999 and continues to the present. This led to a settlement agreement, that provided for continued MPG pumping, constrained by the results of monitoring and other factors.

Annual reports are prepared on the results of the monitoring. The results of monitoring have been used to revise the pumping program to mitigate adverse impacts. For example, pumpage from the lower aquifer has been limited, primarily due to drawdowns and land surface subsidence.

Migration of Poor Quality Groundwater

Water-level elevation contours for the upper aquifer (above the Corcoran Clay) were provided by KDSA (1997 and 2007). These maps indicate that groundwater enters the upper aquifer from up-

slope areas along virtually all the west and southwest boundaries of the Exchange Contractors service area. Certain areas west and southwest of the Exchange Contractors boundaries contain poor quality groundwater. The areas include 1) areas recharged by creeks south of Los Banos Creek and north of Panoche Creek, 2) the area southwest of Firebaugh-Mendota, and 3) the area south of Orestimba Creek.

Urban Groundwater Pumpage

Urban groundwater issues facing the Cities within the Exchange Contractors service area were summarized in KDSA (1997). In addition, cooperative groundwater studies have been done during the past two decades by the CCID and the Cities of Mendota, Los Banos, Gustine, and Newman. The Mendota study was completed in February 1999. Studies in Los Banos were completed in 1991 and updated in 1998. Studies in Gustine and Newman were completed in 1992 and updated in 2001. High manganese concentrations in well water have been a problem in Firebaugh and Mendota. High salinity water was also a problem in Mendota, prior to several years ago. As a result of the Mendota study (KDSA, 1999), the City developed a new well field in the mid-2000's, to mitigate water quality degradation coming from the area west of Mendota. The City of Dos Palos developed a surface water supply because of the poor chemical quality of the groundwater. In and near Los Banos, Newman, and Gustine,

groundwater of suitable quality for public supply has been developed through test hole exploration programs. However, a number of potential well sites have been found to be unsuitable. Plans are to update the Los Banos study within the next year.

ELEMENTS OF THE PLAN

The elements of the original plan were divided into two categories. Implementation of each of the elements proceeded concurrently.

Monitoring, Data Acquisition, and Evaluation

This element is subdivided into 1) regional activities, and 2) site specific (being done to address specific groundwater issues).

Regional Activities

Overall or regional activities to be conducted by the Exchange Contractors include the following.

Coordination with Other AB 3030 Groundwater Management Plan and Cooperation. The Central Valley Project agricultural contractors located upslope of the Exchange Contractors service area have developed two regional groundwater management plans through the San Luis and Delta-Mendota Water Authority (Stoddard & Associates, 1996 a and b). As part of these plans, Stoddard & Associates (1999 a and b) prepared associated groundwater monitoring plans. Both of

the management plans are being updated in 2007. In order to monitor the larger connected groundwater basin, future regional monitoring would include a coordinated data gathering effort with the upslope areas. In addition, Madera County is developing an Integrated Water Management Plan for the area downgradient of the Exchange Contractors service area. This plan focuses on overdraft in non-Districted areas. A program will be pursued such that the necessary study is accomplished and water-level measurements and water sampling results will be coordinated and gathered by each respective agency and shared.

Water Levels. Water-level elevation maps will be prepared approximately every five years. Data gaps in the existing monitoring plan were filled in accordance to the recommendations contained in the KDSA 1997 report. As part of the 2007 update by KDSA, a water-level elevation and direction of groundwater flow map was prepared for the upper aquifer for Spring 2006. Significant changes from previous maps were discussed in the text. Sufficient data were not available to prepare an updated map for the lower aquifer for the entire service area for 2006.

Water-level hydrographs were provided for a number of wells in the KDSA 1997 report. These were evaluated for the period 1962-89, which was considered a representative long-term period. As part of this plan update, the CCID updated many of these hydrographs. The

KDSA 2007 hydrogeologic report update contains a detailed discussion by subarea of the water-level trends for 1962-2005.

Aquifer Characteristics. The Exchange Contractors have continued to obtain specific capacity values from pump tests for wells within the Districts. As part of the updated plan, a specific capacity map was prepared by CCID for the mid-2000's, and this was presented in the 2007 hydrogeologic report update. Updated maps for specific capacities will be prepared about every five years.

Pumpage. Annual measurements and estimates of pumpage have been continued. Pumpage has been determined for each subarea, and divided into the upper aquifer, the lower aquifer, and composite (from both aquifers). Table 1 provided a pumpage update through 2006.

Subsidence. Three compaction recorders now being operated in the area. One is at Yearout Ranch, southeast of Mendota, which is operated by CCID, as part of the MPG monitoring program. A second is the Fordel recorder, adjacent to the Mendota Airport, which is operated by the MPG. The third is along the DMC near Russell Avenue, which is operated by the SL&DMWA. Information on the first two recorders is provided in the annual monitoring reports for the MPG program.

In addition, the Scripts Institute has established a con-

tinuous land surface elevation monitoring station (CORS) at a site about one mile southeast of Mendota. This monitoring will provide additional information on subsidence near Mendota.

Groundwater Quality. At least every five years, water samples are obtained from numerous selected wells for analysis of key constituents. Maps will be periodically prepared to show the geographic distribution of selected constituents in the upper and lower aquifers. As part of the 2007 update, an updated map of electrical conductivity was prepared. This map was generally similar to the previous map, and evidence was presented that indicated the northeasterly flow of poor quality groundwater has continued in the Mendota-Firebaugh area. As part of the 2007 update, water quality hydrographs were prepared for electrical conductivity of water from district supply wells and other selected wells. These hydrographs will be updated every several years in the future.

Site Specific Activities

These activities are to be accomplished in response to specific groundwater issues. Many of the activities will be accomplished cooperatively with other entities or made a requirement of pumping program.

Surface Water Transfers. For well water substitution transfer request the following hydrogeologic items will be required:

1. Locations and types of wells in vicinity, including domestic and stock wells.
2. Subsurface geologic conditions, extent of confinement, and possibly impacted aquifers. Existing sections could be used if they are near the proposed project and representative of conditions at the project site.
3. Depth to water, direction of groundwater flow, and any changes that would occur. Existing water-level maps and hydrographs are expected to be suitable in most cases. However in areas where data gaps are present water-level measurements and preparation of local maps are expected to be necessary.
4. Long-term water-level trends and the status of groundwater overdraft.
5. Aquifer characteristics.
6. Potential for land surface subsidence, particularly where groundwater is confined.
7. Overall water budgets (consumptive use versus recharge) for the pre-existing situation for the proposed project.
8. Groundwater quality, identification of problem constituents, and the potential migration of poor quality groundwater.

9. Subsurface drainage problems and the possible beneficial impacts of the proposed project.

10. Drawdown projections due to the proposed project.

11. A technical report by a certified hydrogeologist including supporting tables, illustrations, and appendices. The report will document pre-existing conditions and evaluate possible hydrogeologic impacts of the proposed transfer.

Pool Pumpers. A process is now in place to monitor the effects of MPG pumping in order to monitor potential impacts from future pumping and in cooperation and participation with other entities. As discussed previously, annual reports on the results of monitoring are prepared.

Delta-Mendota Canal Pumpers. In order to monitor potential impacts from future pumping the following monitoring is needed.

1. Annual water-level maps for each zone being pumped.
2. Continuous water-level recorders.
3. Annual pumpage.
4. Annual reports of the compaction recorder located at Russell Avenue.

5. Water quality maps prepared every five years.

6. Water-level and quality hydrographs.

Cities. Focused groundwater quality studies will be periodically performed. In the case of Mendota, Newman, Gustine, and Los Banos, this will require periodic updates of the joint studies previously accomplished. Firebaugh will require a new study. Attachment B contains a copy of the sample MOU to be utilized outlining the scope of work and subdivision of costs.

Migration of Poor Quality Groundwater. As compilation and analyses of regional monitoring activities identify areas or pockets of migration of poor quality groundwater, more focused monitoring in these areas may be needed. Case by case evaluation of risk to the groundwater will be made, and site specific monitoring will be developed as necessary.

Water Banking. There is potential for water banking in the Exchange Contractors service area, exclusive of FCWD and the Camp 13 Drainage District. Water banking could involve direct recharge in basins or stream channels, or in-lieu recharge. In-lieu recharge generally involves delivering water to users who would otherwise have pumped groundwater. When pumping is decreased, water levels tend to recover. Later, groundwater is pumped and delivered to the

banking partner(s). The in-lieu type of recharge has been practiced for years in the Semitropic WSD, and is particularly applicable in areas where subsurface geologic conditions aren't favorable for intentional recharge.

Areas considered to have potential for direct recharge include parts of the Columbia Canal Water Co., where depth to the shallow groundwater is generally more than about 30 feet. There are several areas along the west side of the CCID where direct recharge by basins or stream channels may be possible. Included are the fans of Los Banos Creek and Orestimba Creek, where permeable deposits are present, groundwater salinity is relatively low, and depth to water is adequate to allow recharge.

Hydrogeologic studies are necessary to better delineate the storage space available and to develop well recovery programs in target areas. Other potentially competing activities, such as gravel mining, need to be carefully addressed. In some areas, such as parts of the Columbia Canal Co. service area, depth to the shallowest groundwater is not well known. In such areas, exploratory borings can be used to evaluate potential restricting layers above the water level and the depth to groundwater. Pilot percolation tests are normally done, using relatively small basins, to determine probable long-term percolation rates for larger basins. Mounding calculations can be done, once the transmissivity of the

shallowest saturated deposits is known, to determine the water-level rise expected due to various amounts of recharge.

In-lieu recharge normally involves expanding District surface water delivery facilities to areas previously served by groundwater pumpage. The banking partners normally pay for these facilities and in wet years their excess water is delivered to farmers who then decrease their groundwater pumpage. When the banking partners need water returned, it is pumped from wells and delivered to the banking partners, or exchanges of surface water supplies can also be used.

Development of Drought Contingency Strategies

Drought contingency strategies are necessary during times when multiple critical water years occur, or when the USBR cannot provide delivery capacity flexibility during the seven moth period. An itemized list of drought period procedures will be developed and adopted. Such a list might include:

1. Reducing irrigation demand peaks through water ordering strategies.
2. Purchase of private well water and an associated emergency notification and purchase procedure.
3. Maximum pumping from drainage wells and tailwater return pumps.

4. Borrowing space and or water from other Exchange contractors.
5. Provide economic incentives for growers to pump wells not plumbed into the canal system.

REFERENCES

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ATTACHMENT 6

ANNUAL AG WATER QUALITY REPORT

August 24, 2023

Adam Hoffman
San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

RE: Panel 3 - AG SUITABILITY
23G0129

Enclosed are the results of analyses for samples received by our laboratory on 7/13/2023. If you have any questions concerning this report, please feel free to contact me.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Sincerely,



Chue Moua
Project Manager

cmoua@applinc.com
559-862-2155

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San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
23G0129-01	Boundary Drain #1	Water	07/13/2023 06:37	07/13/2023
23G0129-02	Salt Slough & Sand Dam #2	Water	07/13/2023 06:47	07/13/2023
23G0129-03	SLCC Intake @SJR #3	Water	07/13/2023 07:19	07/13/2023
23G0129-04	CCC Pumps @SJR #4	Water	07/13/2023 09:55	07/13/2023
23G0129-05	SJR @ Mendota Dam #5	Water	07/13/2023 08:43	07/13/2023
23G0129-06	CCID Main @ Bass Ave. #6	Water	07/13/2023 09:00	07/13/2023
23G0129-07	DMC @ Check 21 #7	Water	07/13/2023 09:05	07/13/2023
23G0129-08	CCID Outside @ Bass Ave. #8	Water	07/13/2023 09:10	07/13/2023
23G0129-09	FCWD Intake @ Bass Ave. #9	Water	07/13/2023 09:15	07/13/2023

San Joaquin River Exchange Cont
 PO Box 2115
 Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
 Project Number: N/A
 Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results

Sample: Boundary Drain #1
23G0129-01 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	0.21	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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WetLab

SPECIFIC CONDUCTANCE	620	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
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San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results (Continued)

Sample: Salt Slough & Sand Dam #2
23G0129-02 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
Metals								
BORON (B)	0.089	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540
Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
WetLab								
SPECIFIC CONDUCTANCE	390	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results (Continued)

Sample: SLCC Intake @SJR #3
23G0129-03 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	ND	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
CALCIUM (CA)	3.3	0.050		mg/L	07/21/23	1	EPA 200.7	BCG0539
MAGNESIUM (MG)	1.3	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
POTASSIUM (K)	1.1	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SODIUM (NA)	2.2	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540
SODIUM ADSORPTION RATIO	ND	0.30	0.10	mg/L	07/21/23	1	SARcalc	BCG0539

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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WetLab

TOTAL DISSOLVED SOLIDS	11	10		mg/L	07/14/23	1	EPA 160.1	BCG0375
CHLORIDE	ND	1.0	0.080	mg/L	07/14/23	1	EPA 300.0	BCG0469
NITRATE	ND	0.50	0.044	mg/L	07/14/23	1	EPA 300.0	BCG0469
SULFATE	1.7	1.0	0.090	mg/L	07/14/23	1	EPA 300.0	BCG0469
PH	7.6 HT5	0.11	0.10	pH Units	07/14/23	1	EPA 9040C	BCG0388
Temperature C	24 HT5	0.11	0.10		07/14/23	1	EPA 9040C	BCG0388
BICARBONATE AS CaCO3	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
CARBONATE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
HYDROXIDE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
SPECIFIC CONDUCTANCE	31	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
TOTAL ALKALINITY AS CaCO3	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results

(Continued)

Sample: CCC Pumps @SJR #4
23G0129-04 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	ND	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
CALCIUM (CA)	2.3	0.050		mg/L	07/21/23	1	EPA 200.7	BCG0539
MAGNESIUM (MG)	0.54	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
POTASSIUM (K)	0.71	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SODIUM (NA)	1.7	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540
SODIUM ADSORPTION RATIO	ND	0.30	0.10	mg/L	07/21/23	1	SARcalc	BCG0539

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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WetLab

TOTAL DISSOLVED SOLIDS	17	10		mg/L	07/14/23	1	EPA 160.1	BCG0375
CHLORIDE	ND	1.0	0.080	mg/L	07/14/23	1	EPA 300.0	BCG0469
NITRATE	ND	0.50	0.044	mg/L	07/14/23	1	EPA 300.0	BCG0469
SULFATE	ND	1.0	0.090	mg/L	07/14/23	1	EPA 300.0	BCG0469
PH	7.4 HT5	0.11	0.10	pH Units	07/14/23	1	EPA 9040C	BCG0388
Temperature C	24 HT5	0.11	0.10		07/14/23	1	EPA 9040C	BCG0388
BICARBONATE AS CaCO3	12	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
CARBONATE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
HYDROXIDE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
SPECIFIC CONDUCTANCE	25	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
TOTAL ALKALINITY AS CaCO3	12	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results (Continued)

Sample: SJR @ Mendota Dam #5
23G0129-05 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	ND	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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WetLab

SPECIFIC CONDUCTANCE	30	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
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San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results (Continued)

Sample: CCID Main @ Bass Ave. #6
23G0129-06 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
Metals								
BORON (B)	ND	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
CALCIUM (CA)	3.5	0.050		mg/L	07/21/23	1	EPA 200.7	BCG0539
MAGNESIUM (MG)	1.4	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
POTASSIUM (K)	1.2	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SODIUM (NA)	2.4	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540
SODIUM ADSORPTION RATIO	ND	0.30	0.10	mg/L	07/21/23	1	SARcalc	BCG0539

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
WetLab								
TOTAL DISSOLVED SOLIDS	ND	10		mg/L	07/14/23	1	EPA 160.1	BCG0375
CHLORIDE	ND	1.0	0.080	mg/L	07/14/23	1	EPA 300.0	BCG0469
NITRATE	ND	0.50	0.044	mg/L	07/14/23	1	EPA 300.0	BCG0469
SULFATE	1.6	1.0	0.090	mg/L	07/14/23	1	EPA 300.0	BCG0469
PH	7.3 HT5	0.11	0.10	pH Units	07/14/23	1	EPA 9040C	BCG0388
Temperature C	24 HT5	0.11	0.10		07/14/23	1	EPA 9040C	BCG0388
BICARBONATE AS CaCO ₃	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
CARBONATE AS CaCO ₃	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
HYDROXIDE AS CaCO ₃	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
SPECIFIC CONDUCTANCE	31	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
TOTAL ALKALINITY AS CaCO ₃	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results (Continued)

Sample: DMC @ Check 21 #7
23G0129-07 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	0.41	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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WetLab

SPECIFIC CONDUCTANCE	660	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
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San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results

(Continued)

Sample: CCID Outside @ Bass Ave. #8
23G0129-08 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	ND	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
CALCIUM (CA)	3.6	0.050		mg/L	07/21/23	1	EPA 200.7	BCG0539
MAGNESIUM (MG)	1.6	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
POTASSIUM (K)	1.3	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SODIUM (NA)	2.2	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540
SODIUM ADSORPTION RATIO	ND	0.30	0.10	mg/L	07/21/23	1	SARcalc	BCG0539

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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WetLab

TOTAL DISSOLVED SOLIDS	19	10		mg/L	07/14/23	1	EPA 160.1	BCG0375
CHLORIDE	ND	1.0	0.080	mg/L	07/14/23	1	EPA 300.0	BCG0469
NITRATE	ND	0.50	0.044	mg/L	07/14/23	1	EPA 300.0	BCG0469
SULFATE	1.8	1.0	0.090	mg/L	07/14/23	1	EPA 300.0	BCG0469
PH	7.3 HT5	0.11	0.10	pH Units	07/14/23	1	EPA 9040C	BCG0388
Temperature C	24 HT5	0.11	0.10		07/14/23	1	EPA 9040C	BCG0388
BICARBONATE AS CaCO3	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
CARBONATE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
HYDROXIDE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
SPECIFIC CONDUCTANCE	32	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
TOTAL ALKALINITY AS CaCO3	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Sample Results (Continued)

Sample: FCWD Intake @ Bass Ave. #9
23G0129-09 (Water)

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
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Metals

BORON (B)	ND	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
CALCIUM (CA)	3.4	0.050		mg/L	07/21/23	1	EPA 200.7	BCG0539
MAGNESIUM (MG)	1.4	0.025		mg/L	07/21/23	1	EPA 200.7	BCG0539
POTASSIUM (K)	1.1	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SODIUM (NA)	2.1	0.50		mg/L	07/21/23	1	EPA 200.7	BCG0539
SELENIUM (SE)	ND	0.0010		mg/L	08/08/23	1	EPA 200.8	BCG0540
SODIUM ADSORPTION RATIO	ND	0.30	0.10	mg/L	07/21/23	1	SARcalc	BCG0539

Analyte	Result/Qual	PQL	MDL	Units	Date Analyzed	DF	Method	Prep Batch
---------	-------------	-----	-----	-------	---------------	----	--------	------------

WetLab

TOTAL DISSOLVED SOLIDS	ND	10		mg/L	07/14/23	1	EPA 160.1	BCG0375
CHLORIDE	ND	1.0	0.080	mg/L	07/14/23	1	EPA 300.0	BCG0469
NITRATE	ND	0.50	0.044	mg/L	07/14/23	1	EPA 300.0	BCG0469
SULFATE	1.7	1.0	0.090	mg/L	07/14/23	1	EPA 300.0	BCG0469
PH	7.3 HT5	0.11	0.10	pH Units	07/14/23	1	EPA 9040C	BCG0388
Temperature C	24 HT5	0.11	0.10		07/14/23	1	EPA 9040C	BCG0388
BICARBONATE AS CaCO3	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
CARBONATE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
HYDROXIDE AS CaCO3	ND	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427
SPECIFIC CONDUCTANCE	32	3.0	1.1	umhos/cm @ 25C	07/19/23	1	SM2510B	BCG0523
TOTAL ALKALINITY AS CaCO3	14	2.0	0.85	mg/L	07/17/23	1	SM2320B	BCG0427

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

EPA 160.1

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0375 Batch Matrix: Water Preparation: EPA 160.1

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
SLCC Intake @SJR #3	23G0129-03	07/14/23 06:51	100.00	100.00
CCC Pumps @SJR #4	23G0129-04	07/14/23 06:51	100.00	100.00
CCID Main @ Bass Ave. #6	23G0129-06	07/14/23 06:51	100.00	100.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/14/23 06:51	100.00	100.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/14/23 06:51	100.00	100.00
Blank	BCG0375-BLK1	07/14/23 06:51	100.00	100.00
LCS	BCG0375-BS1	07/14/23 06:51	100.00	100.00
LCS Dup	BCG0375-BS1	07/14/23 06:51	100.00	100.00

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

EPA 9040C

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0388

Batch Matrix: Water

Preparation: EPA 9040C

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
SLCC Intake @SJR #3	23G0129-03	07/14/23 12:43	40.00	40.00
CCC Pumps @SJR #4	23G0129-04	07/14/23 12:48	40.00	40.00
CCID Main @ Bass Ave. #6	23G0129-06	07/14/23 12:52	40.00	40.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/14/23 12:55	40.00	40.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/14/23 12:58	40.00	40.00

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PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

SM2320B

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0427 Batch Matrix: Water Preparation: SM2320B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
SLCC Intake @SJR #3	23G0129-03	07/17/23 08:34	25.00	25.00
CCC Pumps @SJR #4	23G0129-04	07/17/23 08:37	25.00	25.00
CCID Main @ Bass Ave. #6	23G0129-06	07/17/23 08:40	25.00	25.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/17/23 08:43	25.00	25.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/17/23 08:47	25.00	25.00
Blank	BCG0427-BLK1	07/17/23 08:08	25.00	25.00
LCS	BCG0427-BS1	07/17/23 08:11	25.00	25.00
LCS Dup	BCG0427-BSDI	07/17/23 08:18	25.00	25.00

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

EPA 300.0

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0469 Batch Matrix: Water Preparation: EPA 300.0

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
SLCC Intake @SJR #3	23G0129-03	07/14/23 10:20	1.00	1.00
CCC Pumps @SJR #4	23G0129-04	07/14/23 10:36	1.00	1.00
CCID Main @ Bass Ave. #6	23G0129-06	07/14/23 10:52	1.00	1.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/14/23 11:09	1.00	1.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/14/23 11:25	1.00	1.00
Blank	BCG0469-BLK1	07/14/23 09:30	1.00	1.00
LCS	BCG0469-BS1	07/14/23 09:14	1.00	1.00
LCS Dup	BCG0469-BSD1	07/14/23 12:37	1.00	1.00

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

SM2510B

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0523 Batch Matrix: Water Preparation: SM2510B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
Boundary Drain #1	23G0129-01	07/19/23 10:42	40.00	40.00
Salt Slough & Sand Dam #2	23G0129-02	07/19/23 10:44	40.00	40.00
SLCC Intake @SJR #3	23G0129-03	07/19/23 10:46	40.00	40.00
CCC Pumps @SJR #4	23G0129-04	07/19/23 10:47	40.00	40.00
SJR @ Mendota Dam #5	23G0129-05	07/19/23 10:59	40.00	40.00
CCID Main @ Bass Ave. #6	23G0129-06	07/19/23 10:49	40.00	40.00
DMC @ Check 21 #7	23G0129-07	07/19/23 10:51	40.00	40.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/19/23 10:53	40.00	40.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/19/23 10:55	40.00	40.00
Blank	BCG0523-BLK1	07/19/23 10:32	40.00	40.00
LCS	BCG0523-BSI	07/19/23 10:35	40.00	40.00
LCS Dup	BCG0523-BSDI	07/19/23 10:36	40.00	40.00
FCWD Intake @ Bass Ave. #9	BCG0523-DUPI	07/19/23 10:57	40.00	40.00

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

EPA 200.7

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0539 Batch Matrix: Water Preparation: EPA 200.7

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
Boundary Drain #1	23G0129-01	07/20/23 07:27	50.00	25.00
Salt Slough & Sand Dam #2	23G0129-02	07/20/23 07:27	50.00	25.00
SLCC Intake @SJR #3	23G0129-03	07/20/23 07:27	50.00	25.00
SLCC Intake @SJR #3	23G0129-03	07/20/23 07:27	50.00	25.00
CCC Pumps @SJR #4	23G0129-04	07/20/23 07:27	50.00	25.00
CCC Pumps @SJR #4	23G0129-04	07/20/23 07:27	50.00	25.00
SJR @ Mendota Dam #5	23G0129-05	07/20/23 07:27	50.00	25.00
CCID Main @ Bass Ave. #6	23G0129-06	07/20/23 07:27	50.00	25.00
CCID Main @ Bass Ave. #6	23G0129-06	07/20/23 07:27	50.00	25.00
DMC @ Check 21 #7	23G0129-07	07/20/23 07:27	50.00	25.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/20/23 07:27	50.00	25.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/20/23 07:27	50.00	25.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/20/23 07:27	50.00	25.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/20/23 07:27	50.00	25.00
Blank	BCG0539-BLK1	07/20/23 07:27	50.00	25.00
Blank	BCG0539-BLK1	07/20/23 07:27	50.00	25.00
LCS	BCG0539-BS1	07/20/23 07:27	50.00	25.00
LCS Dup	BCG0539-BSD1	07/20/23 07:27	50.00	25.00

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

PREPARATION BATCH SUMMARY

EPA 200.8

Laboratory: APPL, LLC

Client: San Joaquin River Exchange Cont

Batch: BCG0540 Batch Matrix: Water Preparation: EPA 200.8

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
Boundary Drain #1	23G0129-01	07/20/23 07:27	50.00	25.00
Salt Slough & Sand Dam #2	23G0129-02	07/20/23 07:27	50.00	25.00
SLCC Intake @SJR #3	23G0129-03	07/20/23 07:27	50.00	25.00
CCC Pumps @SJR #4	23G0129-04	07/20/23 07:27	50.00	25.00
SJR @ Mendota Dam #5	23G0129-05	07/20/23 07:27	50.00	25.00
CCID Main @ Bass Ave. #6	23G0129-06	07/20/23 07:27	50.00	25.00
DMC @ Check 21 #7	23G0129-07	07/20/23 07:27	50.00	25.00
CCID Outside @ Bass Ave. #8	23G0129-08	07/20/23 07:27	50.00	25.00
FCWD Intake @ Bass Ave. #9	23G0129-09	07/20/23 07:27	50.00	25.00
Blank	BCG0540-BLK1	07/20/23 07:27	50.00	25.00
LCS	BCG0540-BS1	07/20/23 07:27	50.00	25.00

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Quality Control

Metals

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Method: EPA 200.7

Batch: BCG0539 - EPA 200.7

Blank (BCG0539-BLK1)

Prepared: 07/20/23 07:27 Analyzed: 07/21/23 13:32

BORON (B)	ND	0.025		mg/L						
CALCIUM (CA)	ND	0.050		mg/L						
MAGNESIUM (MG)	ND	0.025		mg/L						
POTASSIUM (K)	ND	0.50		mg/L						
SODIUM (NA)	ND	0.50		mg/L						

LCS (BCG0539-BS1)

Prepared: 07/20/23 07:27 Analyzed: 07/21/23 13:36

BORON (B)	0.263			mg/L	0.250		105	85-115		
CALCIUM (CA)	26.5			mg/L	25.0		106	85-115		
MAGNESIUM (MG)	26.4			mg/L	25.0		106	85-115		
POTASSIUM (K)	5.28			mg/L	5.00		106	85-115		
SODIUM (NA)	26.3			mg/L	25.0		105	85-115		

LCS Dup (BCG0539-BSD1)

Prepared: 07/20/23 07:27 Analyzed: 07/21/23 13:41

BORON (B)	0.262			mg/L	0.250		105	85-115	0.449	20
CALCIUM (CA)	26.3			mg/L	25.0		105	85-115	0.620	20
MAGNESIUM (MG)	26.4			mg/L	25.0		106	85-115	0.0465	20
POTASSIUM (K)	5.27			mg/L	5.00		105	85-115	0.0433	20
SODIUM (NA)	26.3			mg/L	25.0		105	85-115	0.119	20

Method: SARcalc

Batch: BCG0539 - EPA 200.7

Blank (BCG0539-BLK1)

Prepared: 07/20/23 07:27 Analyzed: 07/21/23 13:32

SODIUM ADSORPTION RATIO	ND	0.30	0.10	mg/L						
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Method: EPA 200.8

Batch: BCG0540 - EPA 200.8

Blank (BCG0540-BLK1)

Prepared: 07/20/23 07:27 Analyzed: 08/08/23 13:34

SELENIUM (SE)	ND	0.0010		mg/L						
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San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Quality Control
(Continued)

Metals (Continued)

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BCG0540-BS1)					Prepared: 07/20/23 07:27 Analyzed: 08/08/23 13:37					
SELENIUM (SE)	0.100			mg/L	0.100		100	85-115		

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Quality Control (Continued)

WetLab

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Method: EPA 160.1

Batch: BCG0375 - EPA 160.1

Blank (BCG0375-BLK1)					Prepared & Analyzed: 07/14/23 09:50					
TOTAL DISSOLVED SOLIDS	ND	10		mg/L						
LCS (BCG0375-BS1)					Prepared & Analyzed: 07/14/23 09:50					
TOTAL DISSOLVED SOLIDS	216			mg/L	221		97.7	80-120		
LCS Dup (BCG0375-BSD1)					Prepared & Analyzed: 07/14/23 09:50					
TOTAL DISSOLVED SOLIDS	220			mg/L	221		99.5	80-120	1.83	20

Method: SM2320B

Batch: BCG0427 - SM2320B

Blank (BCG0427-BLK1)					Prepared & Analyzed: 07/17/23 08:08					
BICARBONATE AS CaCO ₃	4.64	2.0	0.85	mg/L						
CARBONATE AS CaCO ₃	ND	2.0	0.85	mg/L						
HYDROXIDE AS CaCO ₃	ND	2.0	0.85	mg/L						
TOTAL ALKALINITY AS CaCO ₃	4.64	2.0	0.85	mg/L						
LCS (BCG0427-BS1)					Prepared & Analyzed: 07/17/23 08:11					
BICARBONATE AS CaCO ₃	235			mg/L	250		93.8	90-110		
TOTAL ALKALINITY AS CaCO ₃	253			mg/L	250		101	90-110		
LCS Dup (BCG0427-BSD1)					Prepared & Analyzed: 07/17/23 08:18					
BICARBONATE AS CaCO ₃	237			mg/L	250		94.8	90-110	1.04	20
TOTAL ALKALINITY AS CaCO ₃	256			mg/L	250		102	90-110	0.962	20

Method: EPA 300.0

Batch: BCG0469 - EPA 300.0

Blank (BCG0469-BLK1)					Prepared & Analyzed: 07/14/23 09:30					
SULFATE	ND	1.0	0.090	mg/L						
NITRATE	ND	0.50	0.044	mg/L						
CHLORIDE	ND	1.0	0.080	mg/L						

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Quality Control (Continued)

WetLab (Continued)

Analyte	Result/ Qual	PQL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BCG0469-BS1)					Prepared & Analyzed: 07/14/23 09:14					
SULFATE	26.8			mg/L	25.0		107	87-112		
NITRATE	23.8			mg/L	22.2		107	88-111		
CHLORIDE	26.3			mg/L	25.0		105	90-110		
LCS Dup (BCG0469-BSD1)					Prepared & Analyzed: 07/14/23 12:37					
NITRATE	23.7			mg/L	22.2		107	88-111	0.437	15
SULFATE	26.7			mg/L	25.0		107	87-112	0.0842	15
CHLORIDE	26.3			mg/L	25.0		105	90-110	0.195	20

Method: SM2510B

Batch: BCG0523 - SM2510B

Blank (BCG0523-BLK1)

Prepared & Analyzed: 07/19/23 10:32

SPECIFIC CONDUCTANCE ND 3.0 1.1 umhos/cm @ 25C

LCS (BCG0523-BS1)

Prepared & Analyzed: 07/19/23 10:35

SPECIFIC CONDUCTANCE 1120 umhos/cm @ 25C 1000 112 80-120

LCS Dup (BCG0523-BSD1)

Prepared & Analyzed: 07/19/23 10:36

SPECIFIC CONDUCTANCE 1110 umhos/cm @ 25C 1000 111 80-120 0.0897 20

Duplicate (BCG0523-DUP1)

Source: 23G0129-09

Prepared & Analyzed: 07/19/23 10:57

SPECIFIC CONDUCTANCE 32.0 umhos/cm @ 25C 32.0 0.156 20

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Notes and Definitions

Item	Definition
HT5	Sample received with insufficient holding time to meet holding time
U	Not detected
Dry	Sample results reported on a dry weight basis.
MDL	Method Detection Limit (only displays if reported to the MDL)
ND	Analyte NOT DETECTED at or above the reporting limit.
DF	Dilution Factor
DL	Detection Limit
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
PQL, Practical Quantitation Limit = Method Reporting Limit (MRL).	

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

**WORK ORDER****23G0129**

Printed: 08/24/2023 7:44 pm

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Chue Moua
PO Number:

Report To:

San Joaquin River Exchange Cont
Adam Hoffman
PO Box 2115
Los Banos, CA 93635
Phone: (209) 827-8616
Fax: (209) 827-9703

Invoice To:

San Joaquin River Exchange Cont
Adam Hoffman
PO Box 2115
Los Banos, CA 93635
Phone: (209) 827-8616
Fax: (209) 827-9703

Date Received: 07/13/2023 03:20 PM
Date Due: 07/27/2023 (10.00 day TAT)

Logged In By: Melody Horton
Received By: Melody Horton

Analysis	Comments
23G0129-01 Boundary Drain #1 [Water] Sampled 7/13/2023 6:37:00AM	
200.7	B only
200.8	Se only
SM 2510B	NONE
23G0129-02 Salt Slough & Sand Dam #2 [Water] Sampled 7/13/2023 6:47:00AM	
200.7	B only
200.8	Se only
SM 2510B	NONE
23G0129-03 SLCC Intake @SJR #3 [Water] Sampled 7/13/2023 7:19:00AM	
160.1	NONE
200.7	B,Ca,Mg,K,Na
200.8	Se only
300.0 Chloride	NONE
300.0 Nitrate	NONE
300.0 Sulfate	NONE
9040C	NONE
BICARBONATE AS CaCO3 SM 2320B	NONE
CARBONATE AS CaCO3 SM 2320B	NONE
HYDROXIDE AS CaCO3 SM 2320B	NONE
SARcalc	NONE
SM 2510B	NONE
TOTAL ALKALINITY AS CaCO3 SM 2320B	NONE

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Analysis	Comments
23G0129-04 CCC Pumps @SJR #4 [Water] Sampled 7/13/2023 9:55:00AM	
160.1	NONE
200.7	B,Ca,Mg,K,Na
200.8	Se only
300.0 Chloride	NONE
300.0 Nitrate	NONE
300.0 Sulfate	NONE
9040C	NONE
BICARBONATE AS CaCO3 SM 2320B	NONE
CARBONATE AS CaCO3 SM 2320B	NONE
HYDROXIDE AS CaCO3 SM 2320B	NONE
SARcalc	NONE
SM 2510B	NONE
TOTAL ALKALINITY AS CaCO3 SM 2320B	NONE
23G0129-05 SJR @ Mendota Dam #5 [Water] Sampled 7/13/2023 8:43:00AM	
200.7	B only
200.8	Se only
SM 2510B	NONE
23G0129-06 CCID Main @ Bass Ave. #6 [Water] Sampled 7/13/2023 9:00:00AM	
160.1	NONE
200.7	B,Ca,Mg,K,Na
200.8	Se only
300.0 Chloride	NONE
300.0 Nitrate	NONE
300.0 Sulfate	NONE
9040C	NONE
BICARBONATE AS CaCO3 SM 2320B	NONE
CARBONATE AS CaCO3 SM 2320B	NONE
HYDROXIDE AS CaCO3 SM 2320B	NONE
SARcalc	NONE
SM 2510B	NONE
TOTAL ALKALINITY AS CaCO3 SM 2320B	NONE
23G0129-07 DMC @ Check 21 #7 [Water] Sampled 7/13/2023 9:05:00AM	
200.7	B only
200.8	Se only
SM 2510B	NONE

San Joaquin River Exchange Cont
PO Box 2115
Los Banos, CA 93635

Project: Panel 3 - AG SUITABILITY
Project Number: N/A
Project Manager: Adam Hoffman

Reported: 08/24/2023 19:43

Analysis	Comments
23G0129-08 CCID Outside @ Bass Ave. #8 [Water] Sampled 7/13/2023 9:10:00AM	
160.1	NONE
200.7	B,Ca,Mg,K,Na
200.8	Se only
300.0 Chloride	NONE
300.0 Nitrate	NONE
300.0 Sulfate	NONE
9040C	NONE
BICARBONATE AS CaCO ₃ SM 2320B	NONE
CARBONATE AS CaCO ₃ SM 2320B	NONE
HYDROXIDE AS CaCO ₃ SM 2320B	NONE
SARcalc	NONE
SM 2510B	NONE
TOTAL ALKALINITY AS CaCO ₃ SM 2320B	NONE
23G0129-09 FCWD Intake @ Bass Ave. #9 [Water] Sampled 7/13/2023 9:15:00AM	
160.1	NONE
200.7	B,Ca,Mg,K,Na
200.8	Se only
300.0 Chloride	NONE
300.0 Nitrate	NONE
300.0 Sulfate	NONE
9040C	NONE
BICARBONATE AS CaCO ₃ SM 2320B	NONE
CARBONATE AS CaCO ₃ SM 2320B	NONE
HYDROXIDE AS CaCO ₃ SM 2320B	NONE
SARcalc	NONE
SM 2510B	NONE
TOTAL ALKALINITY AS CaCO ₃ SM 2320B	NONE

23G0129**Sample Receipt Log****Default Cooler**

Samples Received at: **-0.7°C**

Custody Seals	No	Were all containers sealed in separate bags?	Yes
Containers Intact	Yes	Did all containers arrive in good condition?	Yes
COC/Labels Agree	Yes	Correct containers/preserv. for tests indicated?	Yes
Preservation Confirmed	Yes	Sufficient volume sent for tests requested?	Yes
Received On Ice	Yes	Were bubbles absent in volatile samples?	No
Was a chain of custody received?	Yes	Sufficient remaining holding time for analyses?	Yes
COCs complete/signed in the appropriate places?	Yes	pH of non-VOA preserved containers documented?	Yes
Sample labels complete? Sample ID, date/time, etc.	Yes	Unpreserved vials received for VOA analysis?	No
Did all container labels agree with COCs?	Yes	If "yes", are unpreserved VOA vials noted on Work	No



APPL, Inc.

ELECTRONIC CHAIN OF CUSTODY RECORD

Phone: (559) 275-2175
Fax: (559) 275-4422
C.O.C. 2023071

23G0129

[illegible]

Note: The first sampled date of the ARF will be used as the COC number unless indicated otherwise.



2023
Q1 Newsletter

Chris Cardella (CCC)
Chairman

Mike Stearns (FCWD)
Vice-Chairman

James L. Nickel (SLCC)
Treasurer

Eric Fontana (CCID)
Director

Chris White
Executive Director

**CENTRAL CALIFORNIA
IRRIGATION DISTRICT (CCID)**

Eric Fontana
President

Andrew Bloom
Director

Kirk Jensen
Vice-President

Greg O'Banion
Director

Chris Medeiros
Director

Jerrett Martin
General Manager

SAN LUIS CANAL COMPANY (SLCC)

James L. Nickel
President

Robert McDonald
Director

Cannon Michael
Vice-President

Douglas Goodman
Director

David Pruitt
Director

John Wierama
General Manager

Michael Palazzo
Director

FIREBAUGH CANAL WATER DISTRICT (FCWD)

Mike Stearns
President

Darcy Villere
Director

Dan McCurdy
Vice-President

Kevin Hurd
Director

Steve Smith
Director

Jeff Bryant
General Manager

COLUMBIA CANAL COMPANY (CCC)

Chris Cardella
President

Bernard Puget
Director

Shane Burkhart
Vice-President

Kimberly Brown
Director

Ken Samarin
Director

Randy Houk
General Manager

541 H St. - Los Banos, CA 93635

An informational newsletter for
water users and landowners in
the San Joaquin River Exchange
Contractors' service area.

EXCHANGE perspective

FEBRUARY 2023

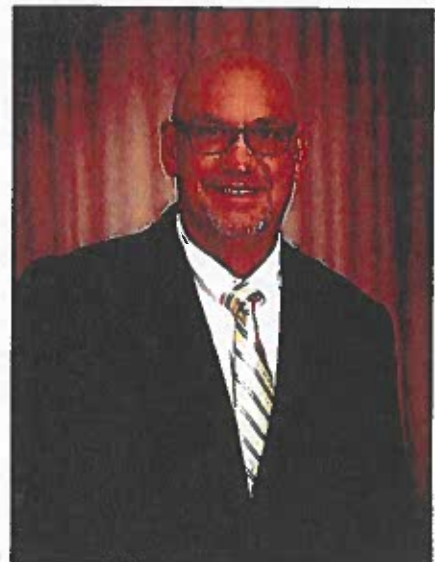
Message from Executive Director Chris White

As we begin 2023, we want to provide our members and the public with an update on the latest with our organization and some of the issues we are working on.

During the height of the drought conditions last year, we received a request from the Bureau of Reclamation in October to open renegotiations on the Exchange Contract, which has underpinned the system of water supply and infrastructure development in the Central Valley for almost 90 years.

We are optimistic that the rainfall we have received and the snowpack that has accumulated will help to mitigate the drought we have faced, but we recognize the seriousness of the challenges posed by the drought and the many complicated trade-offs with managing it. The Exchange Contractors have long had a productive working relationship with the Bureau of Reclamation, and we are always willing to work creatively to address the ongoing drought. For the Exchange Contract to be modified, both the Exchange Contractors and the Bureau of Reclamation would need to jointly and mutually agree to any changes.

We are in conversations with Reclamation, and while we are



not willing to agree to change the Exchange Contract, we are continuing to seek creative and collaborative solutions for reliable regional water supplies while advocating in support of our farmers, our communities, and our economy. This includes a comprehensive drought program for south of the Delta to prepare our region for years to come, which we are optimistic we will be able to agree to and help implement.

We will of course continue to keep our Board, our members, and the public updated as decisions are made because we know how critical this issue is to the countless individuals who depend on the Exchange Contract.

The Latest on Water Conditions

In California, our weather patterns can quickly shift from one extreme to another. Just look at the last 10 years. We've had five dry years—2014, 2015, 2020, 2021 and 2022—where the state and federal water supply were greatly reduced. Local aquifers pumped down water to help meet demands, reservoir levels fell, and river flows were low. There have been two very wet years—2017 and 2019—where water was abundant, the rivers and creeks experienced flood flows, groundwater was recharged, reservoirs filled, and our system of rivers ran with natural, good quality water. We have had three average years wherein the present regulatory system in California made water supplies a challenge for many in California.

We have started 2023 with the promise of another wet year. Since Christmas, California has experienced a series of storms, or "Atmospheric Rivers" in the modern vernacular, which have resulted in as much as 25 inches of precipitation in some Northern California and Sierra Mountain locations, and over five inches locally.

What a difference a few weeks can make in California. The local creeks are suddenly back flowing, providing many benefits while at the same time risking damage to property. Los Banos Creek flows have filled the Los Banos Creek Detention Dam, which has been releasing flood flows down the creek providing the City of Los Banos and the local area with significant groundwater recharge.

This is important because the creek recharge is a significant contributor to the long term water supply of Los Banos. The flood control project that built the Los Banos Creek Detention Dam in the early 1960's has provided additional indirect water supply benefits to the area. Detention Dams by design store the peak of storm runoff events and then release them later, after the storm peak has passed. In other words, creek flows stay in the creek longer than they would have naturally, creating even more recharge benefits.

In just these few weeks, San Joaquin River flows into Millerton have forced flood releases into the river. The flood flows from Millerton Lake flow down the river through areas under the watch of our local water districts and flood control districts. We work to coordinate flood flow operations through the Mendota Pool and downstream. In fact, the local Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Company, Columbia Canal Company and San Luis Water District are in flood watch operations along the river and on the local westside creeks, working with our local communities to safely pass flood flows through the system while maximizing recharge to groundwater for water supply benefits.

Stepping back and looking at the bigger picture, flood flows from the Sacramento and San Joaquin River systems are flowing into the Delta. In fact, Delta outflow has averaged about 85,000 cubic feet per second (cfs) over the last seven days. To put it in plain English, that is enough water to fill the entire two million acre-foot San Luis Reservoir in about twelve days.

The present circumstance certainly reinforces the need for additional storage facilities for this region to take advantage of wet periods like these. Projects like the proposed raising of San Luis Reservoir or the construction of Del Puerto Canyon Reservoir near Patterson would combine to provide about 220,000 acre-feet of additional storage. That is water that could be stored now and used in the next drought period.

In the meantime, we will track the hydrology and water operations as they continue to develop this spring. It is nice to be working with a promising beginning to the water year and we are likely looking at a much better water supply year with decent water supply allocations locally. After the last couple of years, this is a major relief.

Update on Major Projects

The Exchange Contractors have long been at the forefront of conservation and sustainability efforts. As we face a drier climate with more intense wet years, we know we need to continue investing in new capture, storage, and sustainability projects to prepare for the future.

Del Puerto Canyon Reservoir Project

The Del Puerto Canyon Reservoir Project is a critically important water conservation and storage project that is proposed to be built west of Patterson and south of the Sacramento-San Joaquin Delta. The Exchange Contractors, in partnership with Del Puerto Water District, will construct and operate the project. When completed, the 800-acre reservoir will store up to 82,000 acre-feet of water.

In November, we received a positive Superior Court ruling that largely dismissed a CEQA challenge and upheld our ability to move forward with minor changes. We will continue to work with our partners and other stakeholders to ensure the success of the project.

Los Banos Creek Projects

We are working closely with a number of partner organizations to propose three new ways of more effectively managing Los Banos Creek to maximize water storage opportunities and water availability in the region.

The Los Banos Creek Detention project would allow us to release water from the Dam starting in the late-fall to early winter through March of the following year. During this time, roughly 8,000 acre-feet of water would be released for uses downstream. The Exchange Contractors and our partners would then refill the Dam with 8,000 acre-feet of replacement water from other sources such as groundwater. This allows for more annual water to be stored and released by the Dam, increasing the net capacity of the facility, promoting resilience, and benefitting the surrounding community.

Additionally, we're working on the installation of a *diversion structure* that would allow water flows between

Los Banos Creek into the Delta-Mendota Canal and back again. In wet periods, the facility would allow for water to be delivered from the canal to the creek in order to recharge creek flows. The benefit to this is the ability to better manage flood control and increase water reliability, as well as improve recreational access on the creek.

Finally, we're proposing a new water storage location that will provide a long-term solution to some existing challenges relating to flooding, drought, and subsidence.

The Los Banos Creek Recharge and Recovery Project will receive water from the San Joaquin and Kings Rivers; Los Banos Creek; and surface flows from SJRECWA and our partners to be stored for future use. This will be done by creating a series of storage basins and recharge ponds, as well as accompanying infrastructure to facilitate water flows, with a total capacity of 17,000 acre feet.



We were proud to host State Senator Anna Caballero for a tour of some of our major infrastructure projects, including Del Puerto Canyon Reservoir, Orestimba Creek Project, and Sack Dam.

EXCHANGE perspective

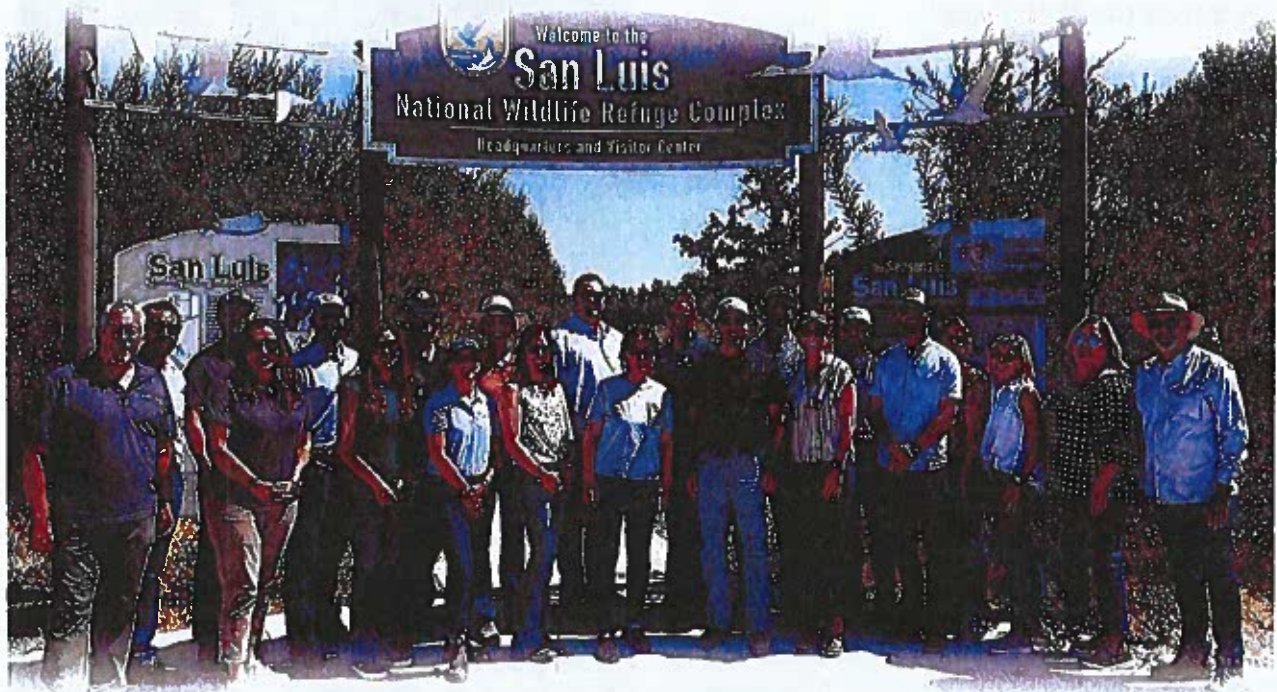


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San Joaquin River Exchange
Contractors Water Authority

PO Box 2115
Los Banos, CA 93635

Tel: 209.827.8616
Email: contactus@sjrecwa.net
Website: www.sjrecwa.net



Towards the end of last year, we hosted fellows from the California Agricultural Leadership Foundation and toured major infrastructure projects to discuss sustainability, innovation, and future approaches to resource management.



2023
Q3 Newsletter

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541 H St. - Los Banos, CA 93635

An informational newsletter for
water users and landowners in
the San Joaquin River Exchange
Contractors' service area.

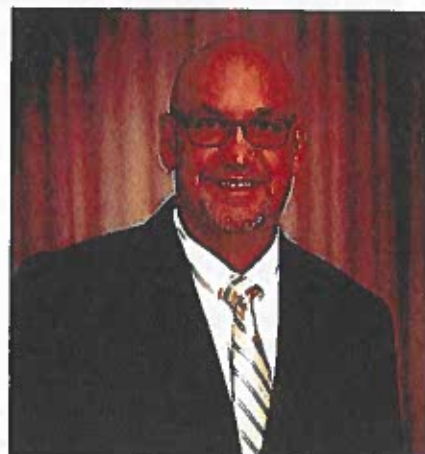
EXCHANGE perspective

SEPTEMBER 2023

Message from Executive Director Chris White

As we emerge from a season of historic rainfall and snowpack, we are reminded once again of how quickly our weather patterns can shift in California. Just last year we were facing an equally historic drought, but we now face the challenges posed at the opposite extreme. We have already seen flooding that has caused severe damage to our communities. The reemergence of Tulare Lake and other long-dormant waterways have reshaped our landscapes, and we know that the melting of the massive snowpack that is ongoing has tested our infrastructure.

All of this highlights our continued need for investment in our water systems, to not only capture and store as much water as we can both above and below ground, but also manage flood flows and protect our communities.



The Exchange Contractors will continue to play a vital role on the operations side of these challenges and advocate for a water system that is resilient, prepared for our changing climate realities, and reliable for all the water users in our region.

Legislative Update

California's water rights system is the foundation of the vast series of investments and infrastructure that has made the Central Valley the agricultural powerhouse it is today. It supports our local communities and economies, but it is facing increasing threats in Sacramento. Thankfully, the most harmful proposals in the legislature this year were not successful, due in part to the united advocacy of water users throughout the state.

While we opposed a handful of harmful bills this year, we are always open to

conversations and proposals to strengthen the state's water supply, increase investments in storage, transfer, and recharge projects, and prepare California for the future. However, some of the proposals from this legislative session were aimed at fundamentally overturning the underlying system of water rights.

Assembly Bill 1337 would have granted the State Water Resources Control Board new, unprecedented powers to restrict water agencies from diverting water from rivers and other waterways at any time. Such expansive new enforcement powers

would undermine the reliability of longstanding water rights, which have existed since before the State Water Board was even created, and over which it does not have authority.

There should have been room for compromise. Members of the water users community were ready to engage in a dialogue to enhance enforcement and ensure those that divert illegally are penalized. We support expediting enforcement actions and increasing fines against illegal water diverters. We should not tolerate bad actors who cheat the system, and their neighbors, by taking scarce water they are not entitled to. Moreover, we need to modernize how we manage water, including adding stream gauges and digitizing records to modernize our longstanding systems of water management.

But AB 1337 would have granted sweeping authority beyond mere enforcement, instead providing the state Water Board with the ability to overhaul the entire system of water rights, under the guise of enforcement, while causing massive uncertainty to local agencies, communities, and water users.

Another proposal, Assembly Bill 460, was aimed at disincentivizing illegal water diversions after high-profile examples of such actions last year. However, instead of simply increasing fines to create a financial disincentive for groups that break the law, the bill would have granted

authority for the Water Board to issue injunctions even in cases when organizations were acting legally. If a group appealed, the appeal would be heard by the Water Board itself rather than an independent third party, making them both prosecutor and judge in the hearing. Essentially the Water Board would have had the ability to decide the future of California's water rights, through their ability to reject any appeals to their decisions.

Thankfully, both bills were not successful in this legislative session, but they should serve as a warning to water users throughout California for future legislative sessions.

We will continue to work collaboratively with stakeholders in Sacramento on common-sense proposals, and we believe that we can accomplish many of the goals that the legislators were hoping to achieve. But we need a collaborative process that tries to find consensus rather than pit groups against one another. We should be finding ways to improve our water system for all users, rather than overturn the entire system of water rights that has existed for over a century. We certainly should not risk the uncertainty and chaos that would bring to urban, agricultural, and environmental water uses, and we do not have the time or resources to collectively waste on the litigation that would inevitably continue for years as a result.

We commit to work together, reach consensus, and make smart, targeted changes to improve our water system. We can get it right next time around, together.

Water Supply and Flood Control

This has been an incredible rainfall season in California. In a short time frame this spring, record precipitation fell, and record snowpack accumulated particularly in this part of the state. This enormous volume of precipitation followed a three-year period of extreme drought, during which time we were all fearful of a continued drought with the limited tools available to us. The 2022 drought was broken with an extraordinary string of precipitation events, and we went from a drought extreme to the present, where flood flows continued in the San Joaquin and Kings Rivers well into July. Local areas along the rivers and the flood bypass system, enabled by Governor Newsom's emergency declaration, were able to recharge flood water to replenish over-drafted aquifers and store water for the future.

In addition, the water levels within the State of California major water supply reservoirs have benefited greatly from

the change to wet conditions. Shasta Reservoir, Folsom Reservoir, Millerton Lake, and San Luis Reservoir are at a 137%, 136%, 140% and 213% of their historic averages for this time of year. And for the first time since 2017, the Exchange and Settlement Contractors, west and east side CVP Ag Service Contractors, Refuges, and M&I Contractors have all been allocated 100% of their contract supplies. All of this is reason to be optimistic for the next 2024 water year, however, climate extremes are obviously the norm in California. Those extremes, combined with the current regulatory environment, make providing reliable long-term water supplies for all water users throughout the state very challenging. Environmental, urban, and agricultural water users need more tools to be able to adaptively manage through these extremes if we ever hope to develop a truly drought resilient water supply.

Groundwater Sustainability Plan

As part of the Sustainable Groundwater Management Act (SGMA), the Exchange Contractors were responsible for submitting one of six Groundwater Sustainability Plans (GSPs) for the larger Subbasin, which encompasses the region from San Joaquin/Stanislaus County lines in the north to Tranquility in the south.

The Department of Water Resources did not review our plan by itself. Instead, they evaluated the entire Subbasin as one overall plan and found the collection of GSPs to be inadequate. This was due to the fact that they contained inconsistent findings and varied too widely in methodologies and groundwater strategies.

As a result, we have taken several steps to address their findings and rectify the situation. First, we have developed an Executive Committee to meet with the State Water Board staff to understand how to correct the deficiencies.

Second, we have hired a consultant to standardize the methodologies and findings within our Subbasin's multiple plans.

Third, we are scheduling meetings with the State Water Board and will be involved in an iterative process with them to come to a resolution over the upcoming months.

We have a long history of managing groundwater within the Exchange Contractors' boundaries and have worked proactively with the communities of Mendota, Firebaugh, Dos Palos, Los Banos, Gustine and Newman in jointly managing groundwater sustainability with these partners.

Our groundwater management began in the early 1950s when the districts began drilling wells to supplement groundwater supplies. Due to the reliable water supply provided in our region under the Exchange Contract, our service area is not in a state of overdraft.

Based on our in-depth knowledge of the local groundwater aquifers surrounding our communities, we have jointly identified projects in our GSP to support our joint reliance on this resource.

It is important to note that if our plans continue to be found inadequate, the Subbasin will be put on probationary status for one year to fix the deficiencies. During this time, the current groundwater management policies will remain the same as they have historically.

If the deficiencies are not fixed after one year, the State Water Board can adopt its own plan to manage the Subbasin and impose their own strategies to manage groundwater.

We are working diligently to bring the entire basin into compliance so we can avoid additional costs being imposed on water users, including the potential for the State Water Board to charge a fee on groundwater pumping.

We understand that there is concern about the impact this will have on pumping in our region. The State Board has indicated that we will continue to operate under our current programs even during a potential year probationary status. However, if the State Board must adopt its own plan, everyone will be subject to restrictions imposed by the State Board.

We must have a renewed sense of urgency to achieve sustainability over the next year. We expect some limitations on groundwater pumping to occur in the Subbasin.

The Exchange Contractors are not in a state of overdraft, and we will be pursuing consistent standards across the Subbasin to provide the flexibility we need to farm during Shasta-critical years.

Our priorities are to achieve or maintain sustainability for our local farms and our communities and come into harmony with the other GSPs in our Subbasin. We are working closely with our partner organizations within our Subbasin to forge a resolution.

We'll continue to update the public in the coming months about the progress that's been made, along with any potential impacts it could have on water users in our region.



It was our pleasure to host Congressman John Duarte for a tour of water infrastructure in our region, including the Los Banos Creek projects and Del Puerto Canyon Reservoir.

EXCHANGE perspective



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Celebrating the groundbreaking of the Orestimba Creek Recharge & Recovery Project, which is expected to capture up to 3,500 acre-feet per year of stormwater flows for irrigation while reducing flooding risks to nearby disadvantaged communities.

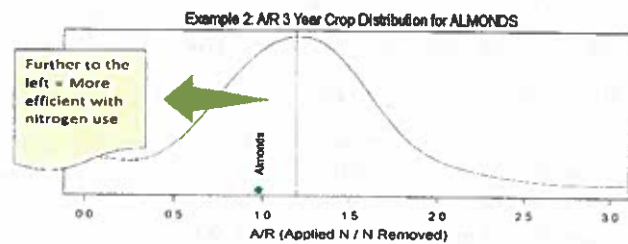
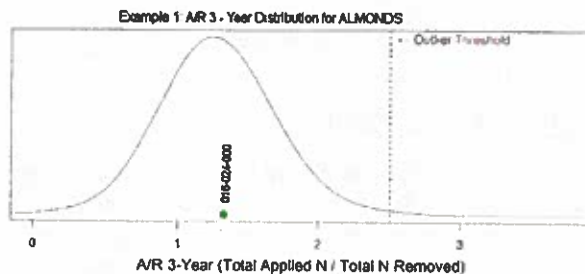
NEWSLETTER

WINTER 2023



Nitrogen Summary Report Application Analysis

A Nitrogen Summary Analysis Report will be sent to member growers in the next few weeks using the nitrogen summary data you provide to the Coalition. The report compares nitrogen applications of growers with the same crop for the previous three years with the purpose to identify outliers. Outliers are those growers whose Nitrogen Applied divided by the Nitrogen Removed (A/R) amount would be to the right of the Outlier Threshold (Example 1). Using grower supplied nitrogen applied data, the Coalition can evaluate and report back to the grower their nitrogen use efficiency (Example 2).

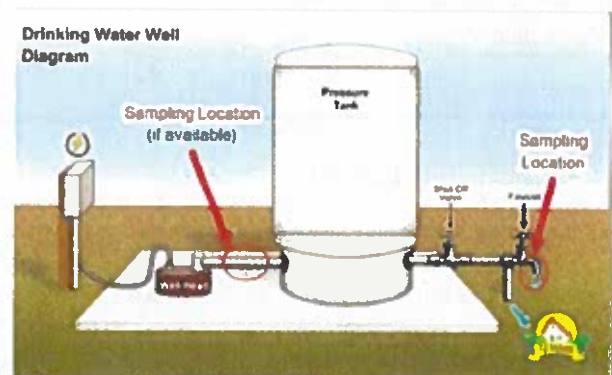


Drinking Water Well Annual Sampling for Nitrates

Beginning January 1, 2021, Coalition members were required by the Regional Water Quality Control Board to monitor their drinking water wells on their enrolled parcels for elevated levels of Nitrates. The purpose of the monitoring is to identify drinking water wells that have nitrate concentrations above the drinking water standard of 10 milligrams per liter (mg/L). Drinking water above this concentration is reported to be dangerous, especially to infants, pregnant and nursing women.

Sampling must be completed annually unless:

- ⇒ Nitrate levels are less than 8 mg/L for 3 consecutive years. If this is the situation, sampling is required every 5 years thereafter.
- ⇒ Nitrate levels are above 10 mg/L, the member does not need to continue to sample. Anyone using that well must be notified within 10 days with a signed copy of the notice sent to the Regional Water Quality Control Board.
- ⇒ The member has well nitrate results from a laboratory with "Environmental Laboratory Accreditation Program" certification.



Members that do not use their well for drinking water or provide bottled water are not required to test for nitrate but they must keep original or photographed records of the receipts. Members with a treatment or filter system must sample their water after the filter to verify treatment specifications are being met.

Annual Grower Meeting Planned for 2023

The Coalition **WILL NOT** be holding in-person meetings for crop-year 2022. A video presentation is being produced and the on-line link will be posted to the Coalition's website for viewing. When the video is completed, the Coalition will notify all members that the website link is active and the rules employed to verify member compliance. Viewing the video and following the compliance rules will satisfy the requirement to attend an annual grower meeting for crop-year 2022.

On-line Self-certification Training Classes & Continuing Education Units

All members must prepare an Irrigation and Nitrogen Management (INMP) worksheet and submit an INMP Summary Report. All members with parcels in high vulnerability areas or low vulnerability areas identified as an outlier must have the INMP Worksheet self-certified or certified by an INMP Specialist.

As of September 2022, the California Department of Food and Agriculture has made the Irrigation and Nitrogen Management Plan Training and Exam available online. Training is self-paced, open book, and does not need to be completed all at once. Once training has been successfully completed you will receive an emailed letter within 2 weeks acknowledging your eligibility to self-certify INMP Worksheets for your farming operation. To access the on-line training, go to "<https://www.cdffa.ca.gov/is/ffldrs/frep/training.html>" and follow the instructions.

After the INMP Training and Exam has been successfully passed, participants must renew their eligibility to self-certify by completing 3 hours of continuing education within a 3-year period. If the required number of hours is not completed within 3 years, the Self-Certification Training and Exam must be retaken to continue to self-certify INMP Worksheets. Options for Continuing Education include both live and in-person events and online self-study. Go to "https://www.cdffa.ca.gov/is/ffldrs/frep/continuing_education.html" to find the continuing education option that works best for you.

Pyrethroid Detections and Water Quality Exceedances are a Chronic Problem

Since 2008, there has been an overall improvement of pesticide detection at the sites monitored by the Coalition. In spite of that reduction, pyrethroid-class pesticide detections are dramatically on the rise. Reviewing the Pyrethroid Detection table, there have been 162 detections of pyrethroid class pesticides at the Coalition's monitoring sites during the period between October 2019 and October 2022. Some of the detections were serious enough to have exceeded water quality objectives and caused several new Management Plans for pyrethroids to be implemented. It should be your goal to have no detections of pesticides of any type in water or sediment moving off of your fields. Not all detections exceeded water quality objectives,

Pyrethroid Detections October 2019 Through October 2022	
Bifenthrin	72
Cyfluthrin, Total	13
Lambda-Cyhalothrin, Total	52
Cypermethrin, Total	6
Esfenvalerate/Fenvalerate, Total	11
Permethrin, Total	8
Total	162

but the detections can be used as an indicator of overall progress of the implementation of on-farm pesticide management practices. Clearly, something needs to be done to address the pyrethroid detections. A requirement of the Irrigated Lands Program is that when Management Plans for specific constituents are triggered a Focused Outreach will be conducted in the watersheds where the Management Plans exist. Growers in the impacted areas will receive specific information and guidance on how to assist the Coalition on completing the Management Plans. It is incumbent upon Growers to continue their efforts with pesticide management practices and those efforts will be rewarded with continued reductions of pesticide detections.

Additional Information

- ⇒ Groundwater & Surface Water Focused Outreach meetings: Mid-Summer 2023. Required attendees will receive an invitation and a packet of information.
- ⇒ Groundwater Protection (GWP) Formulas, Values, & Targets: If the GWP value for a township is above the GWP target, new management practices will need to be implemented by the growers. At the appropriate time more comprehensive information will be provided.
- ⇒ Management Zones: Coalitions are required to participate in a Management Zone whose first objective is to provide a clean drinking water source to individuals whose well is impacted by nitrates.

For questions you may contact:

Joe McGahan or Orvil McKinnis
omckinnis@summerseng.com

Summers Engineering
559-582-9237

Website: <http://www.westsidesjr.org/>

Westside SJR Watershed Coalition
c/o San Joaquin Valley Drainage Authority
P. O. Box 2157, Los Banos, CA 93635



CAL POLY Irrigation Training & Research Center

Professional Education Opportunities at ITRC

2024-2025



www.itrc.org

Winter 2025

ITRC

Flow Measurement – Winter 2025 (8 am - 5 pm)

Sponsor: USBR California-Great Basin Region

ITRC is providing several training and educational opportunities for staff, engineers, and water operators of agricultural irrigation districts. These classes utilize the excellent indoor and outdoor facilities at ITRC. Generally, two Flow Measurement classes are offered in the winter – one in January and one in March.

ITRC

Pumps (for Irrigation Districts) – Winter 2025 (8 am - 5 pm)

Sponsor: USBR California-Great Basin Region

Pumps topics covered include types; terms; curves; pumps in series and parallel; system curves; TDH computations; efficiency; WHP, BHP, input HP; pump selection; common pump questions and answers.

Chico

Flow Measurement - Winter 2025 (9 am - 4 pm)

Sponsor: USBR California-Great Basin Region

Provided in cooperation with Chico Farm, this annual flow measurement and canal operation training covers topics including: flow measurement details such as how to properly use a meter gate, how to get more water through various structures, and an introduction to SCADA.

ITRC

SCADA (for Irrigation Districts) - Winter 2025 (8 am - 5 pm)

Sponsor: USBR California-Great Basin Region

This course provides an overview of SCADA systems, starting with electric and electronic fundamentals and moving on to typical technician role and responsibilities.

Classes Currently Offered for Spring and Summer 2024

ITRC

Certified Irrigator Program Training for ITRC Certified Irrigator (8 am - 5 pm)

Sponsor: CDFA WETA

Certified Irrigator I

Focuses on the basics of irrigation.

Certified Irrigator I (English)
Certified Irrigator I (Spanish)

TBD
TBD

Certified Irrigator II

Covers basic pipeline hydraulics, irrigation efficiency, salinity management for drip/micro and drainage and freeze protection.

Certified Irrigator II (English)
Certified Irrigator II (Spanish)

TBD
TBD

Exam administered after class.

ITRC

Ag Irrigation System Evaluation Short Course Training for ITRC Certified Evaluator June 24-28, 2024

Sponsor: DWR

ISE I: Theory and Laboratory Practice of Evaluations.

This 2½-day course will be held June 24-28, 2024. The class combines classroom (50%) and outdoor laboratory (50%) activities.

ISE II: Field Evaluations of Drip/Micro Systems

This 2½-day class, held on June 26-28, 2024, travels to the San Joaquin Valley and performs the entire evaluations on 2 fields.

Exam administered after class.

CHICO

Ag Irrigation System Evaluation Training for ITRC Certified Evaluator May 21-23, 2024 (9 am - 4 pm)

Sponsor: DWR

This comprehensive 3-day class combines classroom (50%) and outdoor laboratory (50%) activities. The techniques and programs covered are the standard used for DWR-funded evaluation projects throughout California.

ITRC

Designer/Manager School of Irrigation (8 am - 5 pm)

The Designer/Manager School is a comprehensive educational program offering a variety of classes designed for agricultural irrigation professionals. See <http://www.itrc.org/classes/desmgr.htm> for details.

Irrigation Scheduling

July 24-26, 2024

Training for IA Certified Ag Irrigation Specialist

Soil texture and structure, water holding capacity, retention, intake rates, evaporation, transpiration, soil classification, measurement of soil moisture and tension, ETo and crop coefficients. *Exam administered after class.*

Pipeline Hydraulics

July 29-30, 2024

Pipe material & sizes, energy equation, friction, elevation changes, and basic spreadsheet operations.

Pumps

July 31-August 2, 2024

Pumps topics covered include types; terms; curves; pumps in series and parallel; system curves; TDH computations; efficiency; WHP, BHP, input HP; pump selection; trimming impellers; common pump questions and answers.

Row Crop Drip Irrigation

August 6, 2024

Design layouts, flushing, fittings, how design relates to management, hose installation, retrieval.

Drip/Micro Irrigation Design

August 7-9, 2024

Training for IA Certified Irrigation Designer

Filtration, step-by-step design procedure of hardware selection and hydraulics, drip/micro system design, SDI for trees and vines, plugging prevention. *Exam administered after class.*

ONLINE

Fertigation

*Training for ITRC Certified Fertigator
Online class option coming soon!*

Sponsor: CDFA FREP

The class will cover new techniques in the control and application of fertilizers through irrigation systems and strategies to conform with the intent of the new nitrogen regulations in California. Increasing yields per acre-foot of evapotranspiration (ET) through better fertility management, will also be discussed – a key topic for California growers. *Exam administered after class.*

5/13/2024

PROVOST & PRITCHARD CONSULTING GROUP

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www.provostandpritchard.com

DRAFT MEMORANDUM

To: Michael Gardner, General Manager
Columbia Canal Company

From: Rick Iger and Ethan Andrews

Subject: Water Resources Management Plan Monitoring Report

Date: March 27, 2024

BACKGROUND ON COLUMBIA CANAL COMPANY MONITORING REPORT:

In April 2014, Columbia Canal Company (CCC) retained Provost & Pritchard to assist Kenneth D. Schmidt and Associates with organizing and presenting information that would characterize the status of the groundwater conditions within Columbia Canal Company. During the past year water level measurements taken from various sources were organized into spreadsheets so that depth to groundwater level measurements could be converted to groundwater level elevations and comparisons between previous years could be made. This information was then plotted on District maps which are intended to be updated annually on an ongoing basis.

MONITORING REPORT COMPONENTS:

The initial information to present includes the following:

- Summary and evaluation of water use, delivery, and replenishment.
 - Annual and Cumulative Groundwater Replenishment Figure
- Change in Spring Groundwater Levels
 - 2023 to 2024
- 2023 Groundwater Level Elevations
- 2024 Groundwater Level Elevations
- 2024 Depth to Water
- USBR Central San Joaquin Valley Land Surface Elevation Change (Subsidence) from December 2022 to December 2023 Map
- USBR Central San Joaquin Valley Land Surface Elevation Change (Subsidence) December 2011 to December 2023 Map
- Subsidence Graphs for Measured Points from December 2011 to December 2023
- Well Location Map
- Pump Testing was not performed in 2023; therefore, July Pumping Level Comparisons are not provided in this year's annual report.
- Pump Testing was not performed in 2023; therefore, July Static Level Comparisons are not provided in this year's annual report.

G:\Columbia Canal Co-3505\35051481-Monitoring Plan\DOCUMENTS\Reports\2023-2024\Report_1-2023 CCC Monitoring Report Draft_r1.docx

- Pump Testing was not performed in 2023; therefore, Summary of Well Efficiency Reports and Comparisons are not provided in this year's annual report.
- San Joaquin River Exchange Contractors Water Authority 2023 Water Schedule
- 2023 Total Groundwater Pumpage
- Water Quality Summaries
 - CCC Wells were not pumped during July 2023; therefore, no samples were pulled and analyzed.
 - Wonderful Wells
 - Wonderful Monitor Wells
- JM Lord Static Level Monitoring
 - Columbia Canal Company Regular Wells
 - Columbia Canal Company Additional Wells
 - Wonderful Orchards
- Water Level Hydrographs – *Hydrographs (5) Selected by Location and Description. Hydrographs for Elrod #4 and Fursetta OBS monitor wells will be prepared next year as more data becomes available.*
 - Columbia Canal Company
 - Wonderful Orchards

NEXT STEPS:

- Modify report content as needed after review by District.
- Provide final report to District.

SCHEDULE:

April 2024	Provide Board report of 2023 activities.
May 2024	Receive comments from District and finalize report.
March 2025	Provide Board report of 2024 activities.

**Columbia Canal Company
2023 Water Use**

Total CCC acres 16,561
District Average Annual Change in groundwater level elevation per KDSA (feet) +6.2

Water Management (acre-feet)

Total Contract Use ¹	45,167
Transferred Out ¹	7,020
Deferred Water	0
Warren Act Transfer	0
Assigned Out	0
Received In	0
Direct Recharge Delivery ²	4,931
Unallocated	0
Surface Water Diversions for Irrigation	33,200 (rounded)

Canal Losses

Evaporation ³	1.7%	653
Seepage ⁴	8.3%	3,160
Total Canal Losses (10%)⁵		3,800 (rounded)

Total Surface Water Deliveries for Irrigation (after losses) 29,400 (rounded)

Groundwater Pumpage

C.C.C. and Grower Wells	477
Wonderful Wells	609

Total Groundwater Pumping 1,100 (rounded)
Total Applied Water 30,500 (rounded)

Consumptive Use -With ITRC Kc Values Adjusted by CCID⁷

<u>Crops</u>	<u>Acres</u>	<u>Ac-Ft/Ac⁷</u>	<u>Water Use (Ac-Ft)</u>
Alfalfa (Hay)	213	3.35	712
Almonds	11,146	3.42	38,078
Almonds (Young)	80	1.63	130
Barley	0	0.00	0
Corn	0	0.00	0
Cotton	0	0.00	0
Grapes	0	0.00	0
Onions	0	0.00	0
Pasture (Improved)	420	2.92	1,226
Pistachios	2,709	2.84	7,682
Pistachios (Young)	441	1.09	479
Pomegranates	501	2.12	1,063
Tomatoes (Organic Veg.)	0	0.00	0
Wheat	0	0.00	0
Totals	15,510		49,400 (rounded)

Fallow Lands 586

Effective Precipitation (50% of Total Precipitation)⁶ 8,692

Total Crop Water Consumptive Use of Applied Water (CU-EP) 40,700 (rounded) Irrig Eff=CU-EP/MAW 133%

Total Crop Applied Water Need based on 90% Irrigation Efficiency 45,200 (rounded)

Measured Applied Water (MAW) (SW Deliveries plus Groundwater Pumping) 30,500

Shallow Gw Use by crops (Calculated App Water minus Measured App W) 14,700 (rounded)

Shallow gw use by crops/crop acreage (AF/Acre) 0.95

Groundwater Replenishment⁸

Spreading (Recharge Delivery)	4,931
⁹ Spreading Evaporation	-811
¹⁰ Canal seepage (recharge)	3,160
¹¹ Applied Water Less Consumptive Use (30,500-49,400)	0
Total Groundwater Replenishment	Total 7,300 (rounded)
Replenishment Less Pumping (7,300-1,100)	6,200 (rounded)

Groundwater Pumped per Acre, af/acre: (1,100af/16,561 acres) = 0.07

Avg Change in groundwater storage, af: (16,561 acres * +6.2 ft rise * 0.15) = 15,400

Notes:

¹ From 2023 SJRECWA Water Schedule. Total Contract use excludes Transferred Out amounts and water assigned for refuges (562 AF).

² Direct Recharge is based on the CCC monthly delivery schedule from Feb. through Dec. 2023 and includes recharge for Wonderful recharge ponds (2,819 af).

³ Canal evaporation losses estimated at 653 af per Evaporation Analysis based on CCC Monthly Delivery Schedule.

⁴ Canal seepage losses = difference between Total Canal Losses (10%) and Canal Evaporation Losses.

⁵ Canal total losses estimated at 10% of Diversions per District Observation. No additional miles of lining were added in 2023.

⁶ Effective Precipitation is assumed to be 50% of published Firebaugh Telles CIMIS Site from Jan. 1, 2023 to Dec. 31, 2023 (13.02 inches total x 0.5 = 6.51 inches) times cropped and fallowed areas.

⁷ Assumes average monthly Kc values are only present during the growing season months for that crop. Average Kc monthly values provided by CCID.

⁸ Subsurface inflow/outflow not considered, spilled water into habitat is not considered, and river/Mendota Pool seepage not included in replenishment or applied water.

⁹ Total recharge evaporation estimated from direct recharge areas per evaporation analysis.

¹⁰ Includes seepage (total canal losses less evaporation) from canals and water pumped for water management (cleaning canals, lines, and cattle, and frost protection and leaching). Groundwater for water management is assumed to return to the groundwater system.

¹¹ IF CU is greater than applied water, set value to 0.

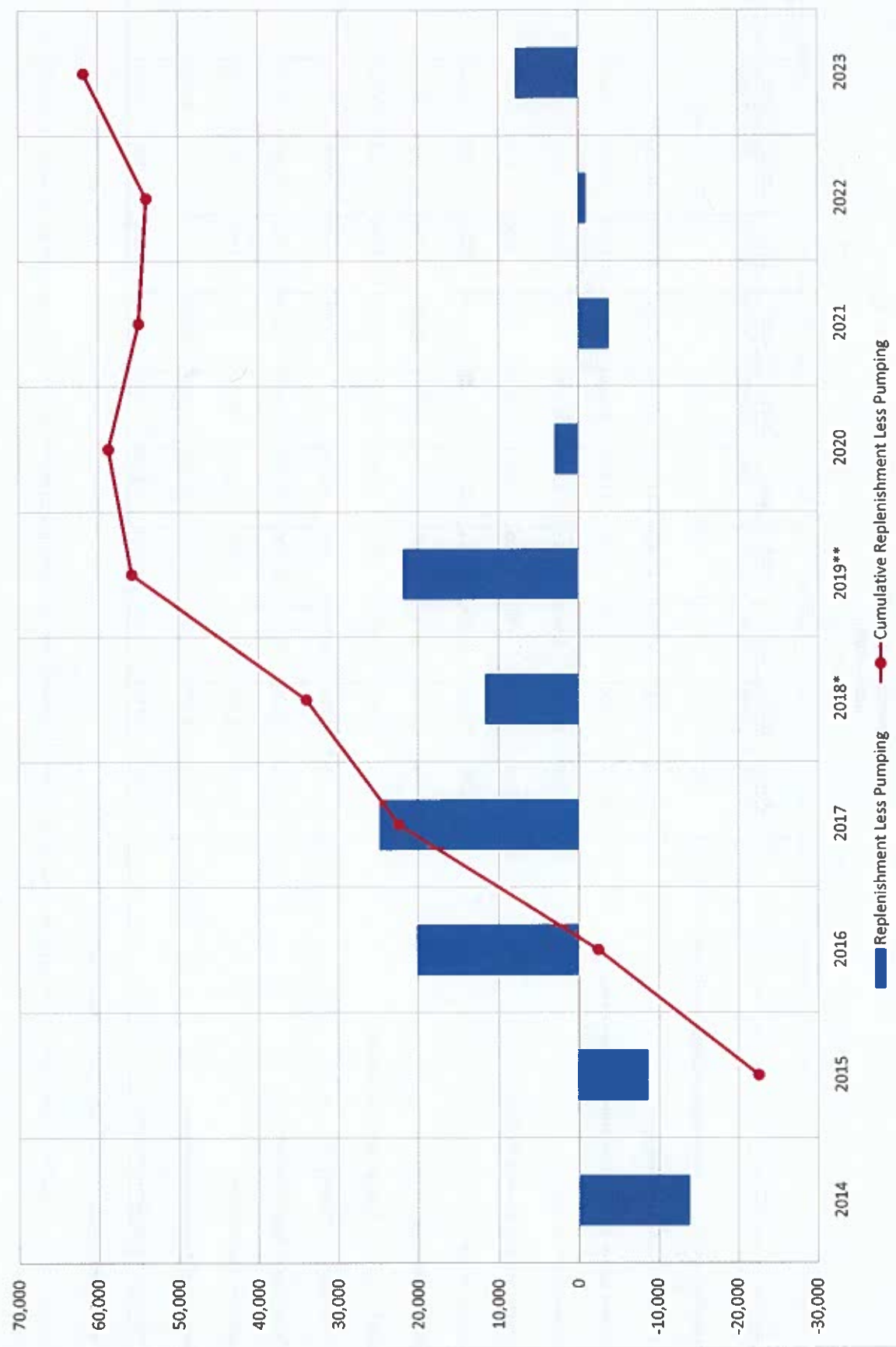
Columbia Canal Company
Water Balance Summary in Acre-Feet
(2014-2023)

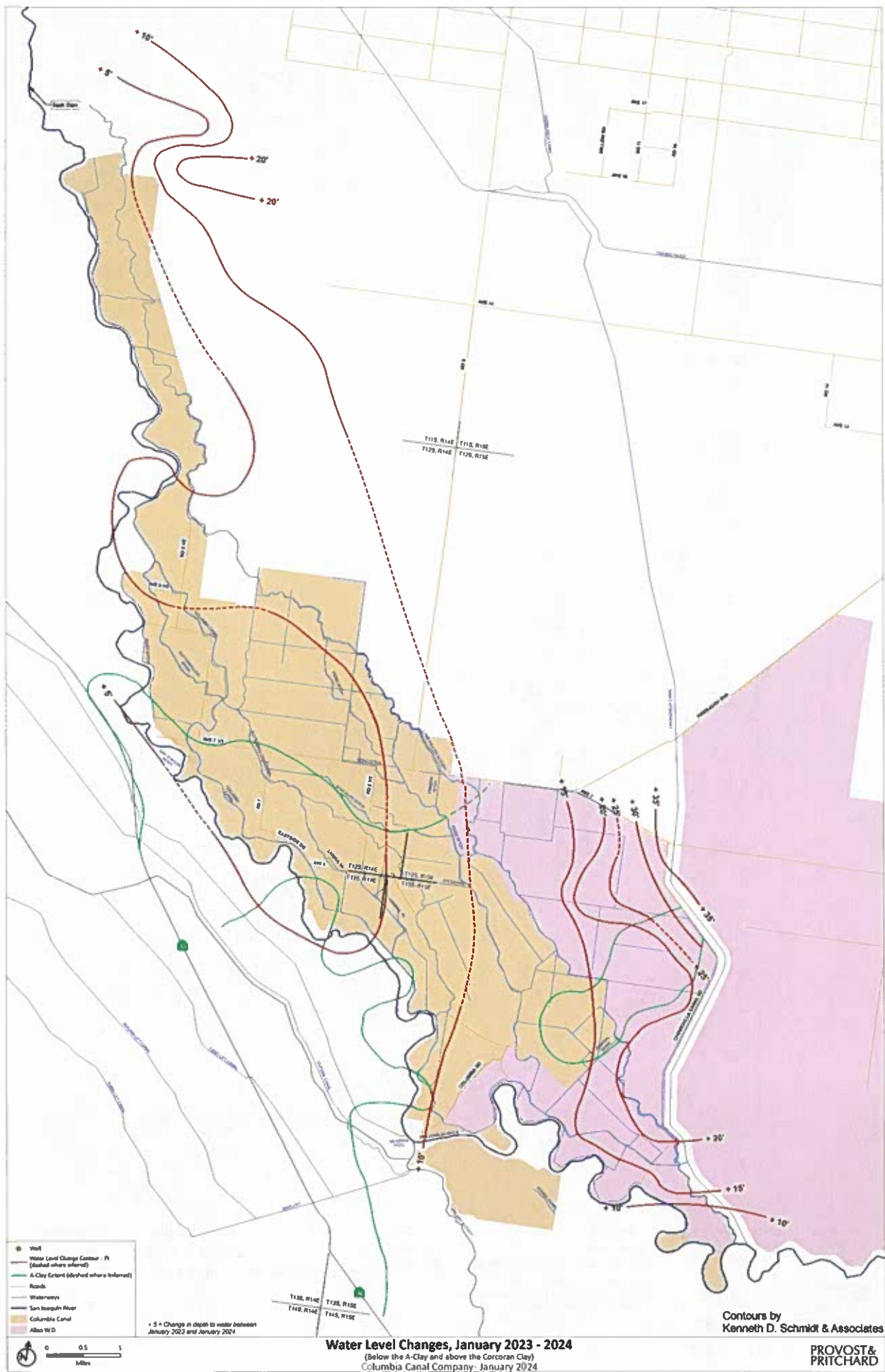
	2014	2015	2016	2017	2018*	2019**	2020	2021	2022	2023	Cumulative Total
Total CCC acres	16,561	16,561	16,561	16,561	16,561	16,561	16,561	16,561	16,561	16,561	
Basinwide Average Annual Change in groundwater levels (feet)	N/A	-0.5	1	10	1.3	2.5	-5	-5	0	+6.2	
Surface Water Diversions for Irrigation	33,078	29,800	52,300	43,600	47,400	40,500	40,000	37,700	40,200	33,200	
Total Surface Water Deliveries for Irrigation (after losses)	28,116	25,300	44,470	37,048	41,800	34,600	35,500	33,700	35,900	29,400	
Total Groundwater Pumping	14,216	12,945	1,387	763	1,220	1,016	5,756	8,765	7,408	1,086	
Groundwater Pumped per Acre (AF/acre)	0.86	0.78	0.08	0.05	0.07	0.06	0.35	0.53	0.45	0.07	
Total Applied Water	42,332	38,245	45,857	43,611	48,300	35,600	41,300	42,500	43,300	30,500	
Total Consumptive Use	49,668	48,000	48,100	53,700	48,800	48,000	49,300	53,100	53,100	49,400	
Effective Precipitation (50% of Total Precipitation)	4,519	2,400	6,100	5,800	5,300	5,700	4,353	4,829	4,346	8,692	
Calculated Irrigation Efficiency (%)	117%	126%	105%	123%	101%	119%	109%	114%	113%	133%	
Total Groundwater Replenishment	363	4,300	21,500	25,600	12,800	22,800	8,700	5,000	6,500	7,300	
Replenishment Less Pumping	-13,853	-8,645	20,113	24,800	11,600	21,800	2,900	-3,800	-900	6,200	60,215
Cumulative Replenishment Less Pumping		-22,498	-2,385	22,415	34,015	55,815	58,715	54,915	54,015	60,215	
Net Replenishment per Acre (AF/acre)	-0.84	-0.52	1.21	1.50	0.70	1.32	0.18	-0.23	-0.05	0.37	3.26

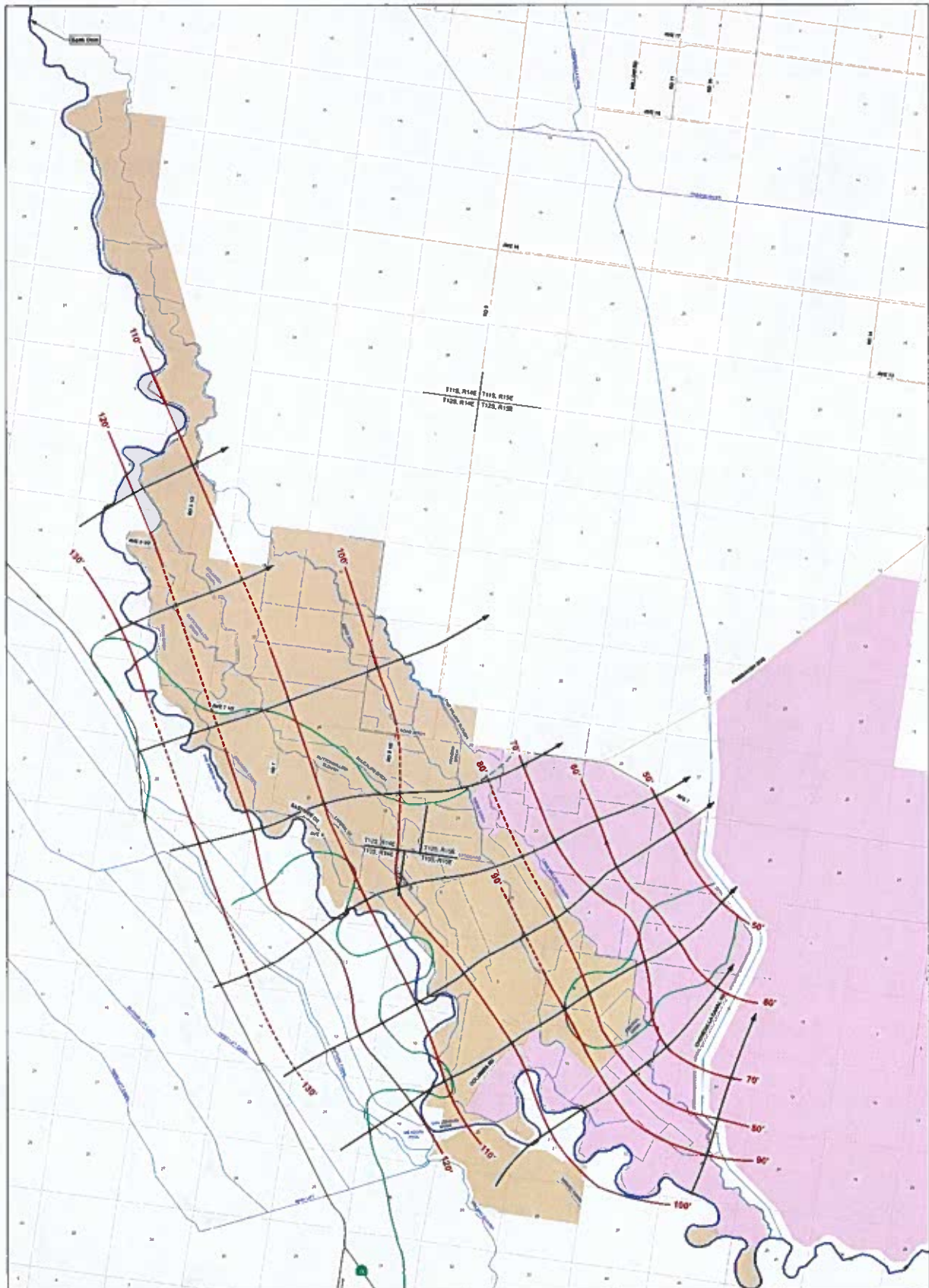
*System losses changed from 15% prior to 2018 to 10% in 2018.

**Irrigation Efficiency changed starting in 2019 due to reducing the consumptive use with the total effective precipitation instead of increasing the applied water, per recommendation of KDSA.

Annual and Cumulative Replenishment Less Pumping (AF)







Contours and Groundwater Flow Direction
by Kenneth D. Schmidt & Associates

PROVOST & PRITCHARD
CONSULTING ENGINEERS
An Employee Owned Company



- Waterways
- San Joaquin River
- A-Clay Extent (dashed where Inferred)
- Direction of Groundwater Flow
- W.L.E Contour - Feet above mean sea level (dashed where Inferred)

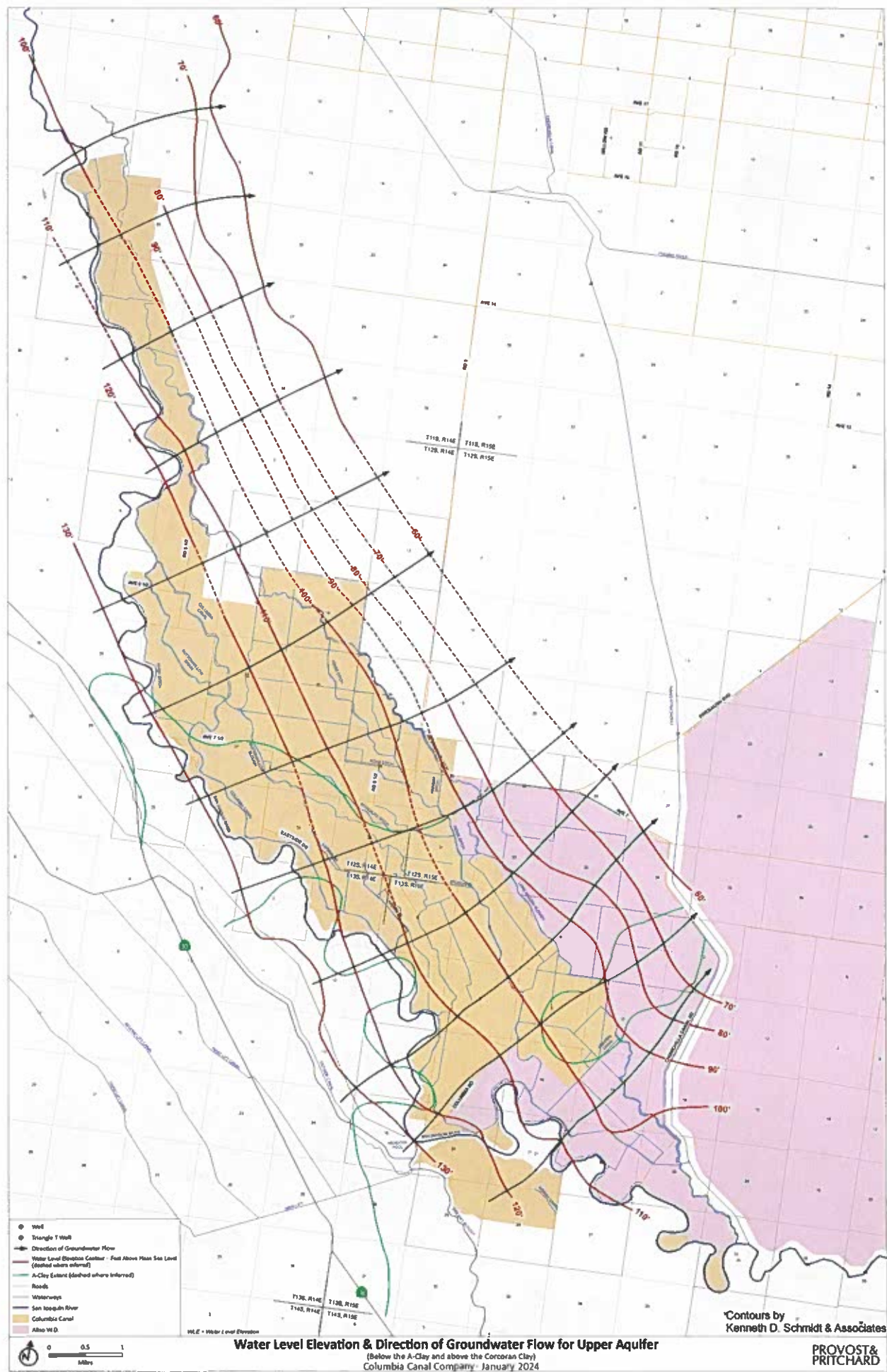
- Roads
- Columbia Canal
- Also W.D.

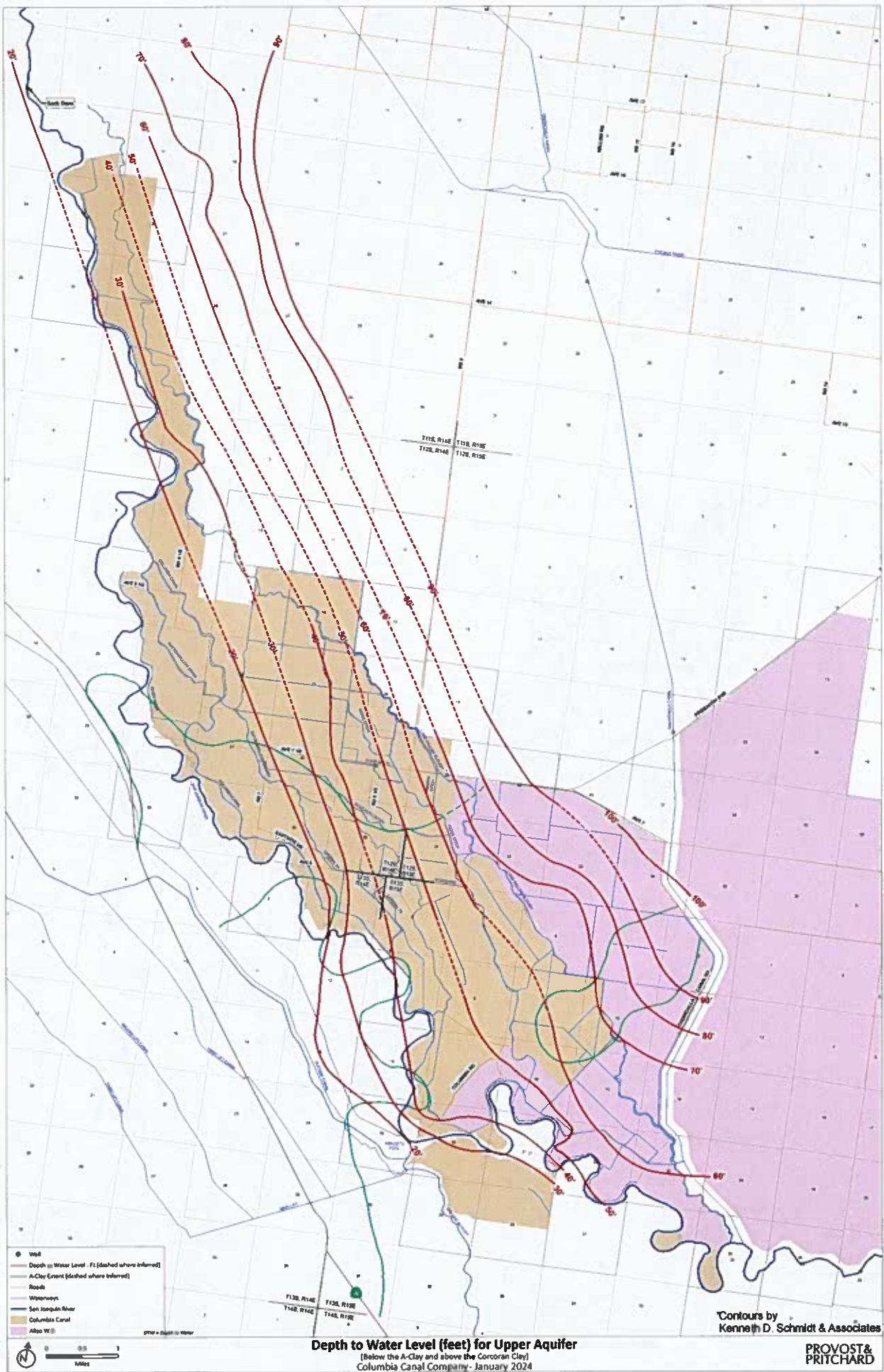
W.L.E. = Water Level Elevation

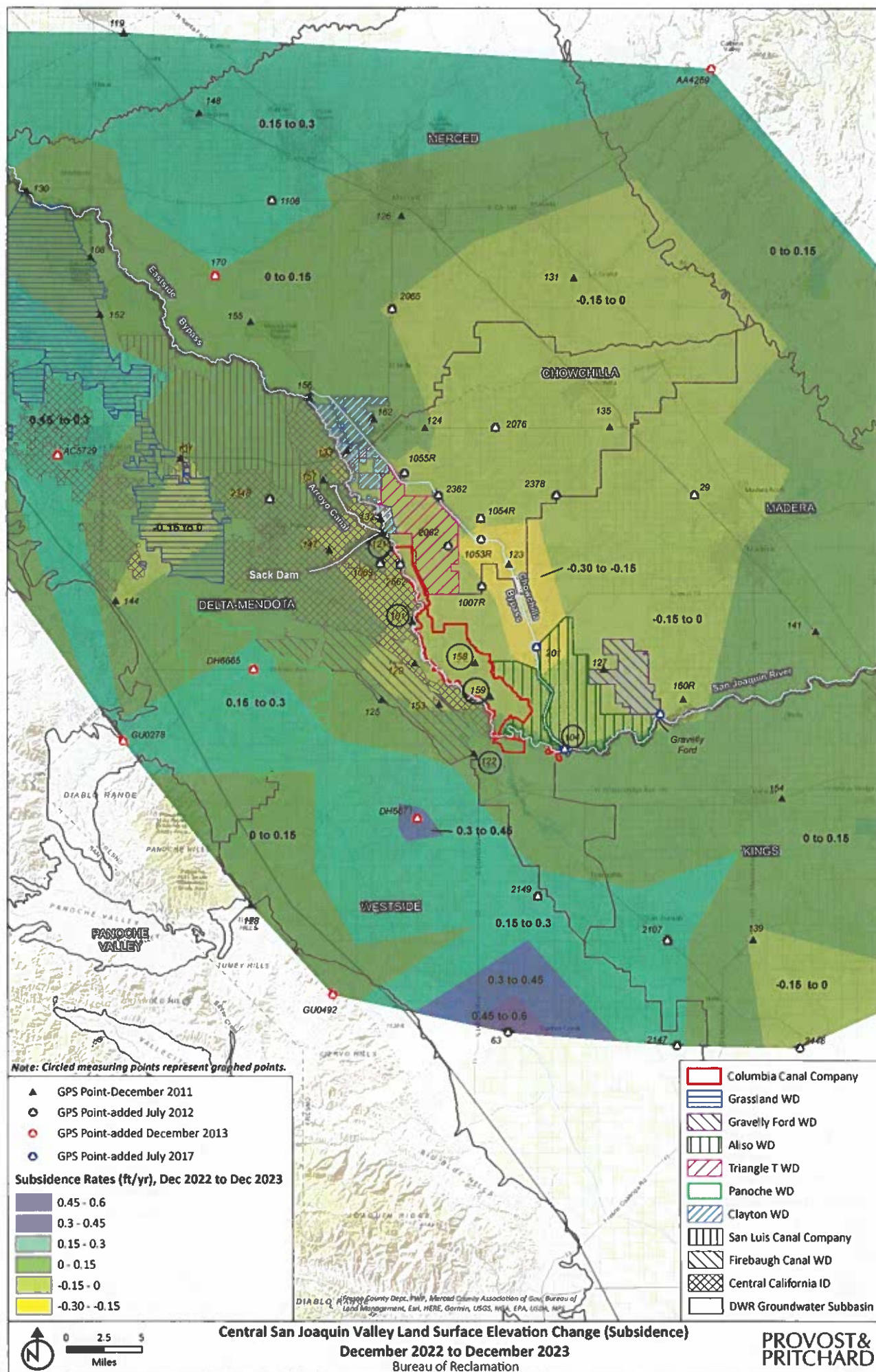
**Water Level Elevations and Direction of
Groundwater Flow for Upper Aquifer
(Below the A-Clay and above the Corcoran Clay)**

January 2023

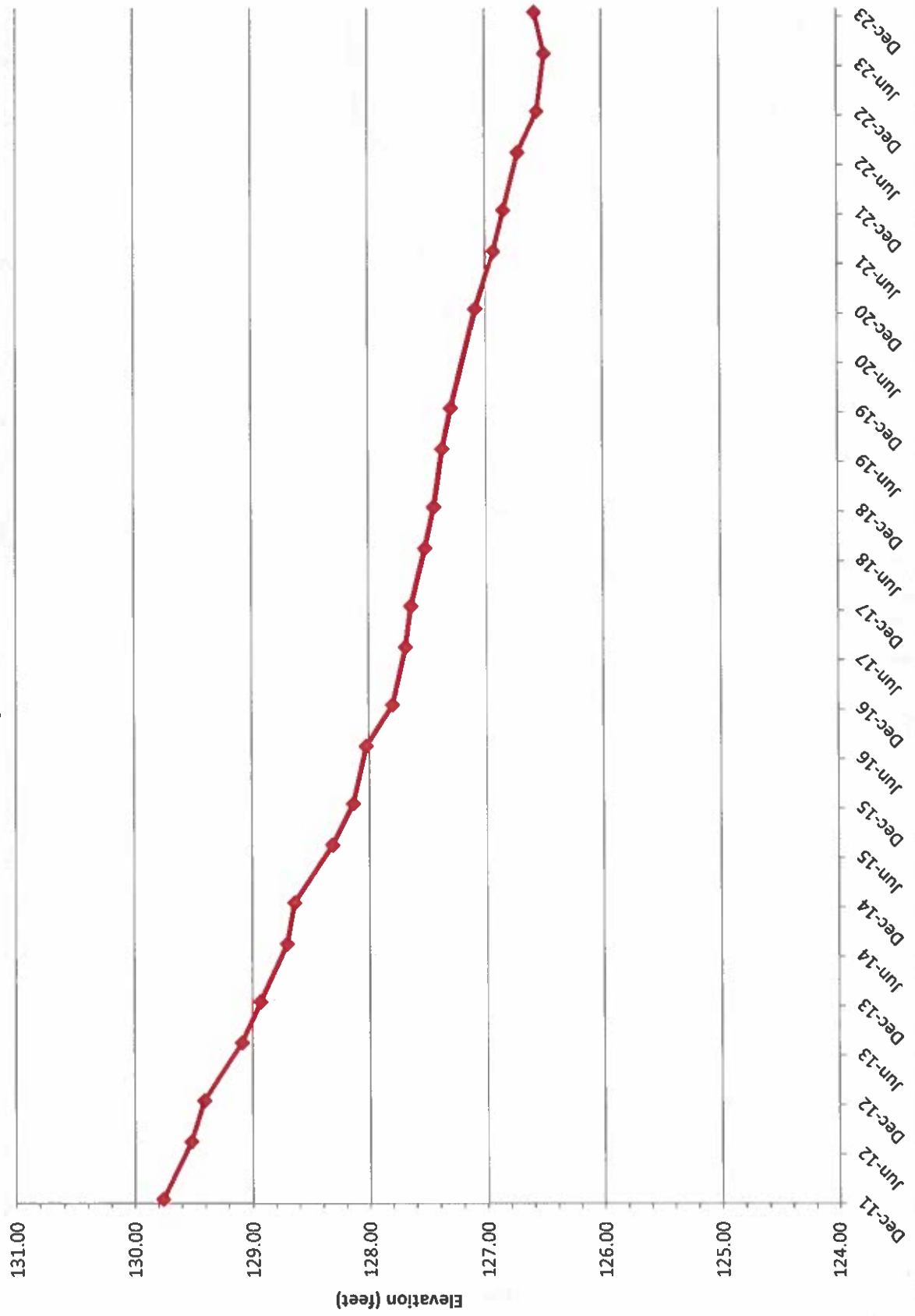
Columbia Canal Company



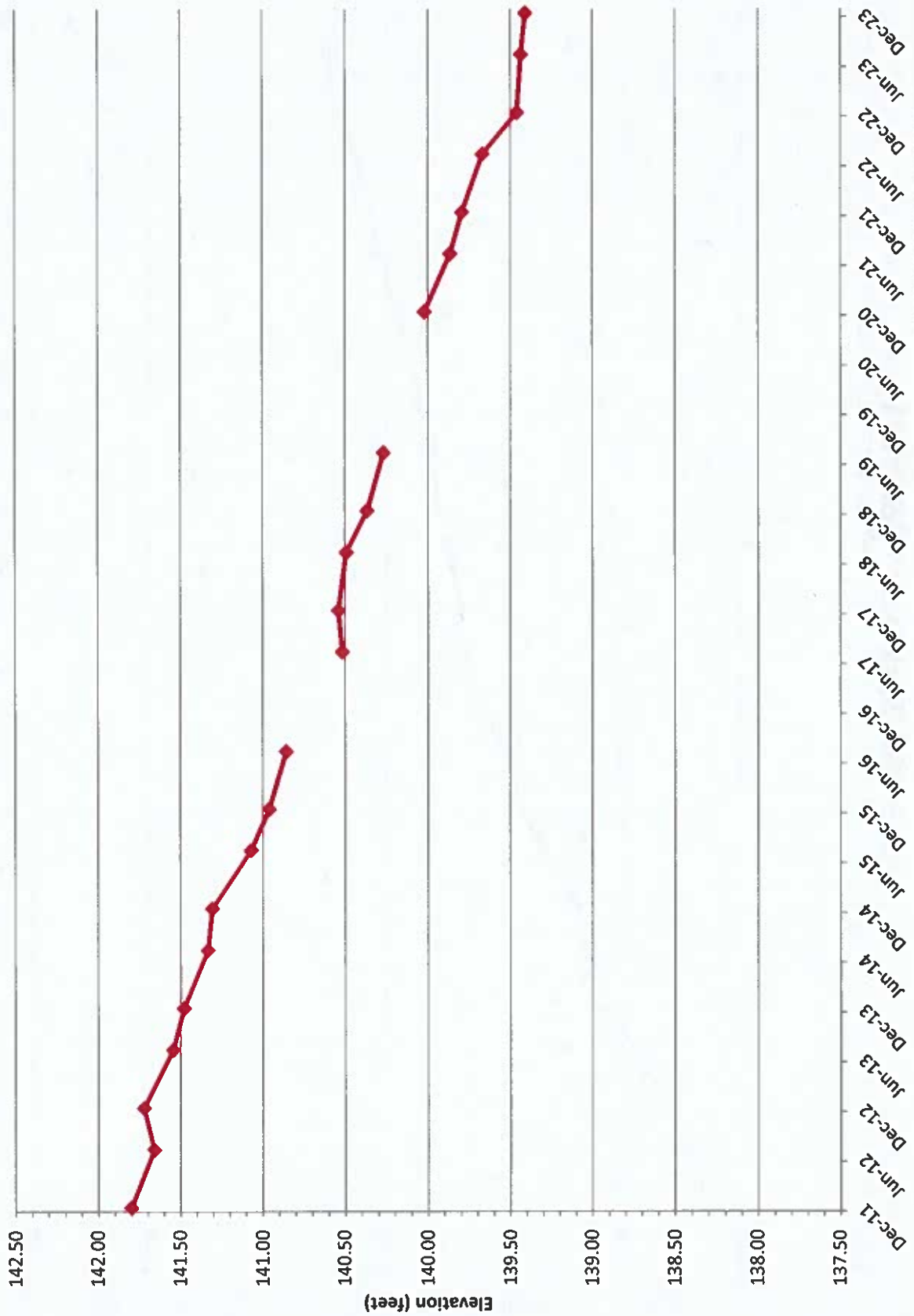




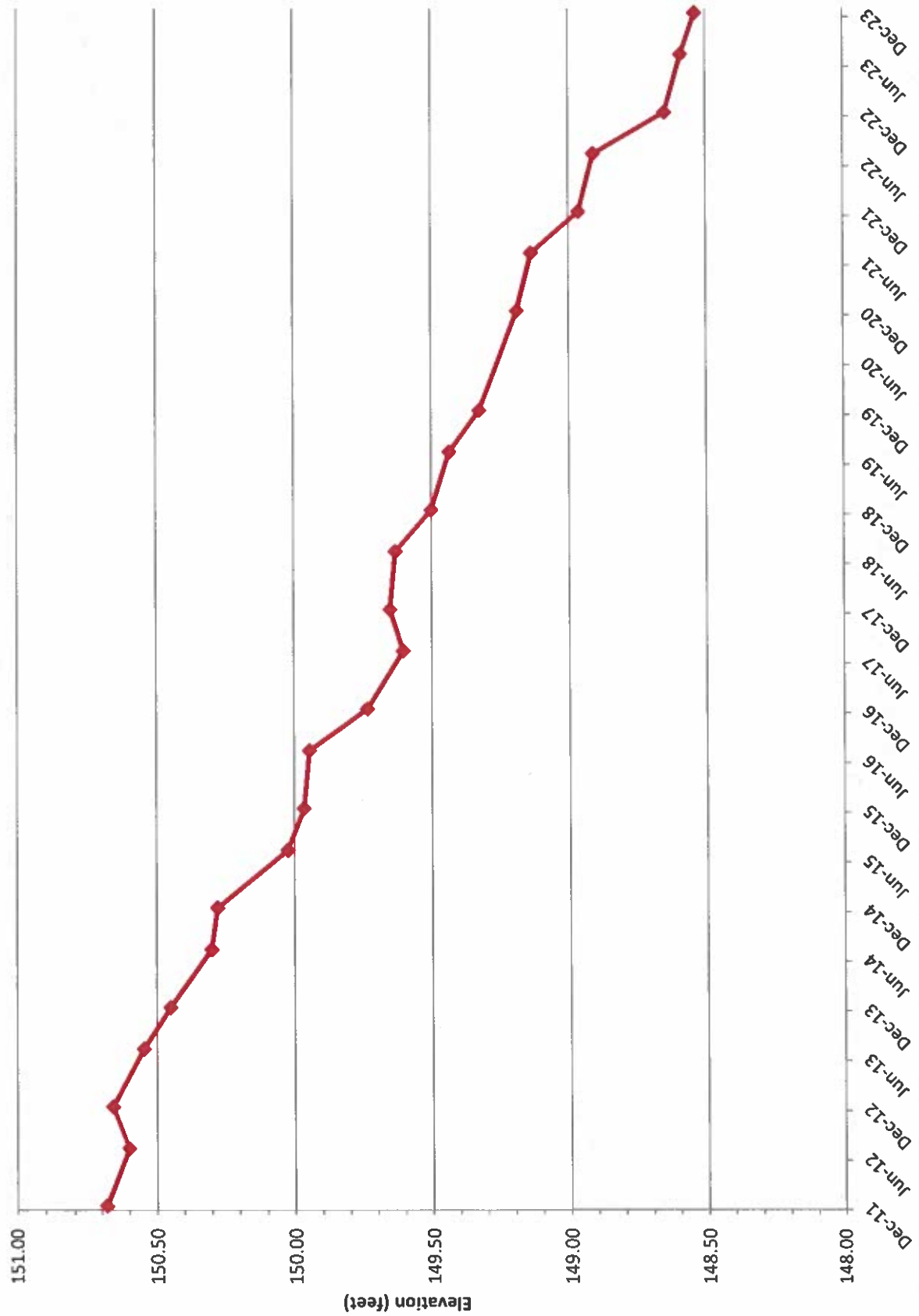
375 USE (Sack Dam - Point 121)



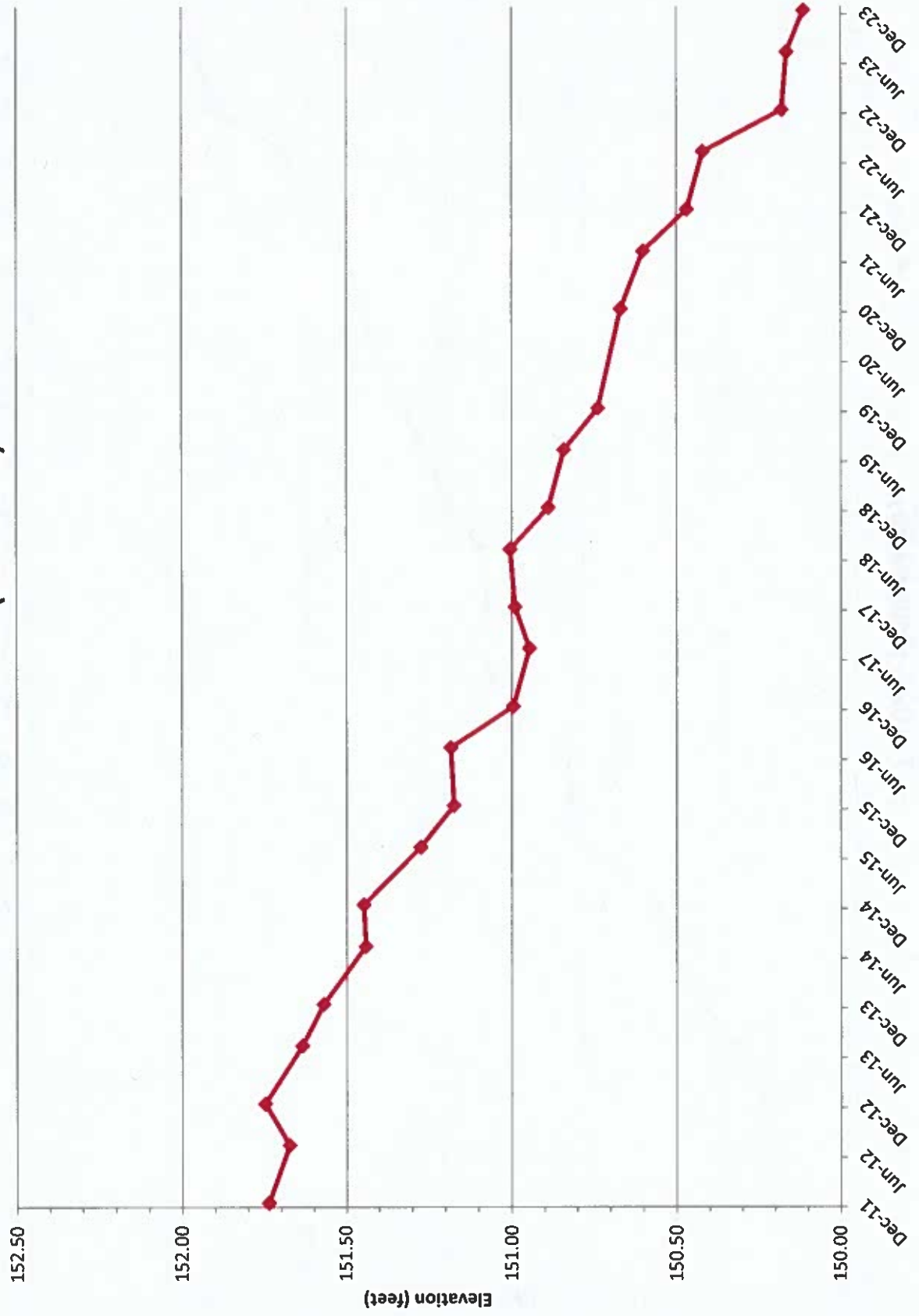
X 989 (Point 101A)



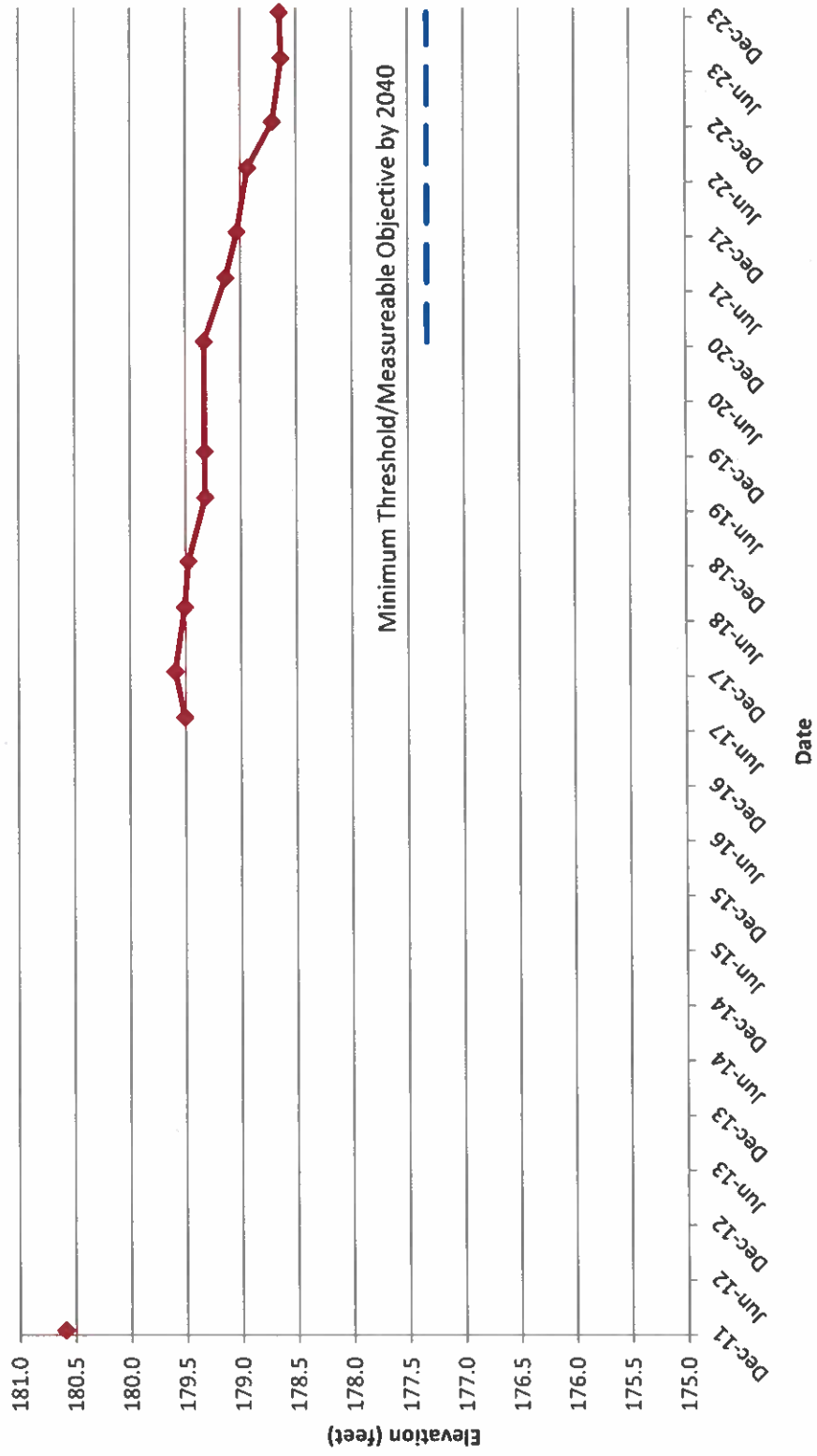
RBF 1026 (Point 158)



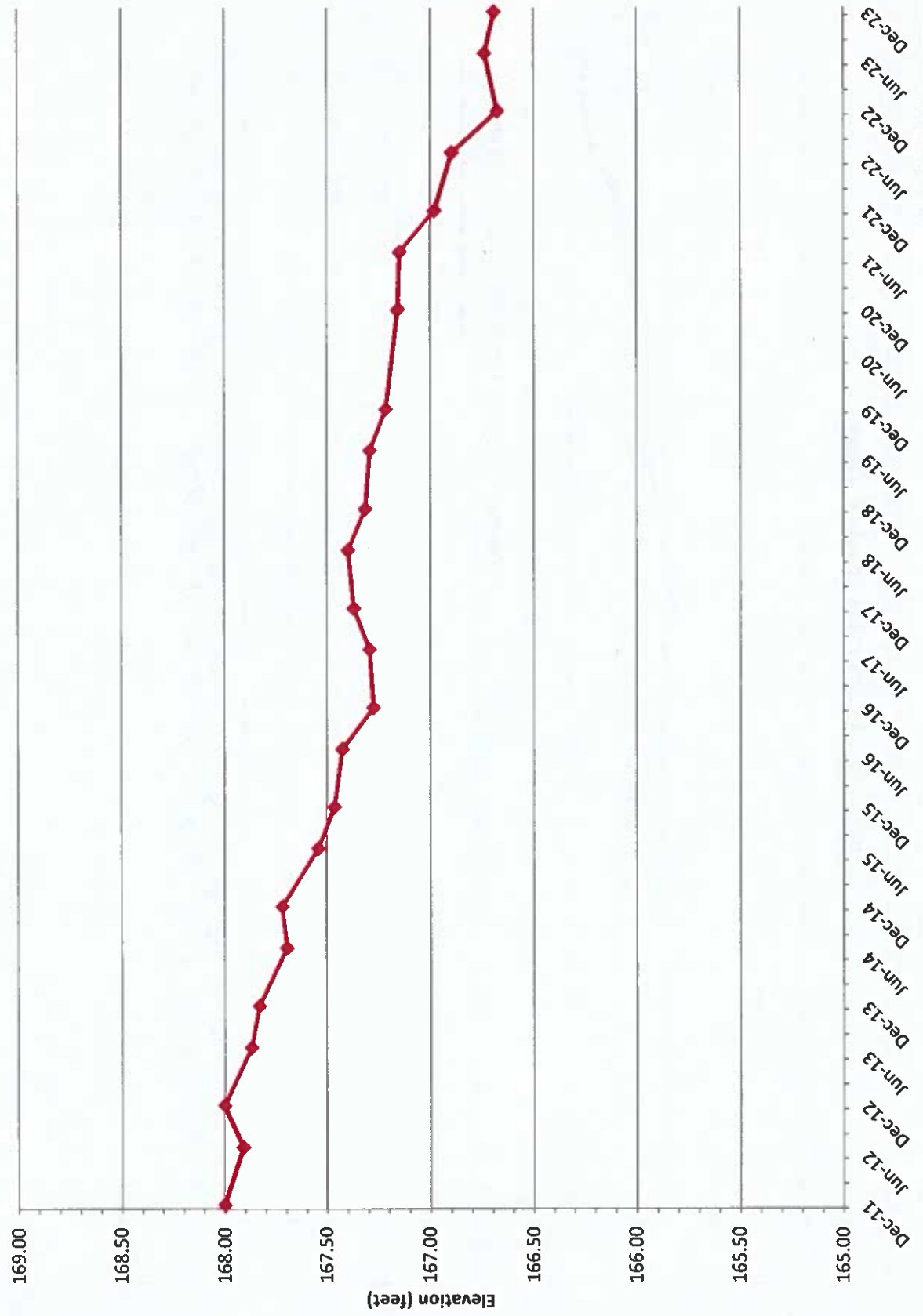
RBF 1027 (Point 159)



CBP/SJB (LIFESON) (Point 104)



ALEX 5 (Point 122)



San Joaquin River Exchange Contractors Water Authority

2023 Water Schedule

CENTRAL CALIFORNIA IRRIGATION DISTRICT
COLUMBIA CANAL COMPANY

SAN LUIS CANAL COMPANY
FIREBAUGH CANAL WATER DISTRICT

TENTATIVE SCHEDULE OF EXCHANGE CONTRACT WATER ENTITLEMENTS DURING 2023 ASSUMING A NON-CRITICAL YEAR. DIVERSION TO BE MADE IN STRICT ACCORDANCE WITH THE SECOND AMENDED CONTRACT FOR EXCHANGE OF WATERS, THE 1978 DIVISION OF WATER AGREEMENT AND USBR ASSISTANCE NO. 17-WC-20-5023.

Month	Central California I.D.	Columbia Canal Company	San Luis Canal Company	Firebaugh Canal Water District	Exchange Contractors Total
January	1,428	0	0	60	1,488
February	8,893	984	0	711	10,588
March	8,700	520	5,288	384	14,892
Trans. Out	0	0	0	0	0
Contract Use	8,700	520	5,288	384	14,892
April	25,020	2,417	5,648	2,533	35,618
Trans. Out	0	0	0	0	0
Groundwater Exch.	0	0	0	0	0
Contract Use	25,020	2,417	5,648	2,533	35,618
May	53,113	4,111	10,335	4,063	71,622
Trans. Out	0	0	0	0	0
Groundwater Exch.	0	0	0	0	0
Contract Use	53,113	4,111	10,335	4,063	71,622
June	80,349	4,701	18,921	6,626	110,597
Trans. Out	11,333	2,766	6,738	5,383	26,220
Groundwater Exch.	0	0	0	208	208
Contract Use	91,682	7,467	25,659	12,217	137,025
July	98,081	6,325	26,192	9,143	139,741
Trans. Out	3,333	867	4,292	4,356	12,848
Groundwater Exch.	0	0	0	85	85
Contract Use	101,414	7,192	30,484	13,584	152,674
August	87,003	6,036	21,683	7,952	122,674
Trans. Out	13,834	1,983	10,477	2,571	28,865
Groundwater Exch.	0	0	0	82	82
Contract Use	100,837	8,019	32,160	10,605	151,621
September	47,392	4,149	12,423	3,427	67,391
Trans. Out	11,021	667	9,314	3,261	24,263
Groundwater Exch.	0	0	0	76	76
Contract Use	58,413	4,816	21,737	6,764	91,730
October	19,932	6,475	9,196	2,229	37,832
Trans. Out	15,155	737	5,627	1,186	22,705

Groundwater Exch.	0	0	0	0	0
Contract Use	35,087	7,212	14,823	3,415	60,537
November	18,155	2,429	2,829	2,013	25,426
Trans. Out	0	0	28	24	52
Groundwater Exch.	0	0	0	0	0
Contract Use	18,155	2,429	2,857	2,037	25,478
December	1,308	0	2,100	1,329	4,737
Trans. Out	0	0	0	0	0
Groundwater Exch.	0	0	0	0	0
Contract Use	1,308	0	2,100	1,329	4,737
<hr/>					
Total Entitlement					
for 2023	504,050	45,167	151,091	57,702	758,010

2023 TOTAL GROUNDWATER USE

COLUMBIA CANAL COMPANY WELL PRODUCTION 2023	
Well Name	Total AF Pumped
Agriland #1	0
Agriland #2	84
BB Harrison #1	0
BB Harrison #2	0
BB Harrison #3	0
BB Harrison #4	0
BB Harrison #5	0
Burkhart Heirs	25
Cardella-Lopes-1	0
Cardella-Lopes-2	0
CCC Well #2	0
CCC#1	0
Darrell Vincent	0
Elrod #1	0
Elrod #2	0
Elrod #3	0
Elrod #4	0
Elrod #5	0
F.N.S.	7
Fleming	31
FWD EI #1	0
FWD EI #2	0
FWD EI #3	92
FWD WL #1	0
FWD WL #2	59
FWD WL #3	0
Hammond/Burkhart	0
Harris Ranch Well (45)	20
Harris Ranch Well (45a)	0
Houk Well	0
J Dolan	0
Sran Orchards A	0
Lorenzetti	0
Sran Orchards #1	0
Sran Orchards #2	0
MLT Deep Well	0
Mowry (Diesel)	0
Mowry #1	0
Mowry #2	0
NF Davis #1	0
NF Davis #2	0
G-2 Farms/Samarin #2	0
G-2 Farms/Samarin #3	0
G-2 Farms/Samarin #4	0
G-2 Farms/Samarin #5	0
G-2 Farms/Samarin #6	0
Samarin #1	0
Samarin #2a	140
Samarin #3a	20
Samarin #4a	0
Ted Snyder	0
Totals	478

WONDERFUL WELL PRODUCTION 2023	
Well Name	Total AF Pumped
2480-70	0
2550-63	143
3191-61	85
3191-62	38
4641-61 (3191-63)	16.8
4641-62 (3191-64)	52.1
3191-66	0
3191-67	10
3191-68	0
3191-69	0
3391-61	44
3421-61*	0
3421-62	45.1
3421-64	18.5
3421-66	10.2
3421-68	23.9
3421-69	20
3561-61	11.8
3561-62	13.3
3561-63	0
3561-64	6
4681-61 (3681-61)	0.4
3831-61 (3831-21)	27.9
4051-61	8.8
4061-61 (2570-61)	19.5
4061-62 (2570-62)	0
4870-61 (2560-61)	0.1
4870-62	0
7101-61	14
Total	608

*Abandoned

Note: Well water usage totals are from 1/1/2023 through 11/30/2023

SUMMARY OF TOTAL WELL PRODUCTION 2023 (AF)	
CCC	478
Wonderful	608
Total	1,086

Note: 2022 pumping data is based on CCC 2023 Groundwater Well Readings

Sran Orchards Wells were previously owned by John Mancebo, switched ownership in 2021

Wonderful Orchards Well Monitoring - 2023

Analysis performed by JMLord Inc.														SDSU	
Well		Sampling		pH		ECe	Ca+Mg	Na	HCO3	Cl	SAR	Adj. SAR	B	NO3-N	* Se
New	Old	Date	units	dS/m	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ppb
2880-66	42	8/2/23	7.83	1.17	45.83	232.20	356.97	156.69	8.91	16.34	0.54	4.95	NR		
3421-62	74	8/10/23	8.00	0.85	5.26	188.29	165.36	121.24	21.47	13.25	0.66	0.03	NR		
3211-69	77	8/10/23	7.88	1.07	29.17	220.01	302.05	113.09	10.50	16.41	0.17	2.79	NR		
3311-61	89	8/10/23	7.61	1.46	99.17	236.80	500.97	149.95	6.17	14.16	0.22	9.99	NR		
3431-62	91	8/10/23	7.61	1.11	53.77	196.33	322.80	149.95	7.00	13.18	0.35	5.08	NR		
3730-62	94	8/1/23	8.54	0.55	2.37	124.15	145.23	60.62	20.78	6	0.23	0.06	NR		
3730-61	95	8/1/23	8.72	0.37	1.12	88.28	116.55	24.82	22.95	N/A	0.11	0.06	NR		
3311-62	8	8/10/23	7.55	1.00	68.56	163.00	380.76	75.15	5.11	10.47	0.16	6.27	NR		
3591-66	11	8/2/23	7.65	0.88	120.29	87.36	356.36	51.40	2.07	4.71	0.06	5.60	NR		
3211-66	15	8/10/23	7.91	0.74	34.31	136.79	231.88	74.80	6.02	9.30	0.17	1.34	NR		
New wells added in 2009 - Drilled in 2008															
3921-61	106	7/31/23	8.49	0.66	2.05	158.17	148.28	72.32	28.94	6.01	0.14	0.05	NR		
3730-72	107	8/1/23	8.30	0.63	3.09	153.11	190.38	68.06	22.78	10.58	0.2	0.05	NR		
3730-70	108	8/2/23	8.39	0.53	2.25	129.89	139.13	61.68	22.69	5.39	0.33	0.05	NR		
3211-68	110	8/3/23	8.19	0.66	2.77	160.47	178.18	75.86	25.32	10.01	0.18	0.05	NR		
3730-73	3730-73	8/1/23	8.63	0.5	3.45	111.04	142.18	45.38	15.97	7.75	0.1	0.06	NR		
New wells added in 2014 - Drilled in 2013															
New wells added in 2018 - Drilled in 2017															
3211-79	New 2	8/10/23	8.23	0.66	0.29	6.72	3.47	1.81	17.86	12.29	0.13	0.04	NR		
3591-69(68)	93	8/10/23	7.66	0.8	4.12	4.58	4.89	1.71	3.19	6.43	0.11	5.88	NR		
2480-70	35	8/10/23	7.69	1.21	3.17	9.61	6.18	4.22	7.63	15.10	0.33	5.49	NR		
Desirable Levels :															
min			7.55	0.37	0.29	4.58	3.47	1.71	2.07	4.71	0.06	0.03			
max			8.72	1.46	120.29	236.80	500.97	156.69	28.94	16.41	0.66	9.99			

* Minimum Detection Limit 1.0 ppb

The deep wells were turned ON for approximately 18 to 24 hours before taking a water sample.

Five new wells were added in 2009 for the fall sampling, well 106, 107, 108, 110, and 112. Well 3730-73 was added in 2012

JMLord's laboratory performs the analysis for Ag. Suitability.

South Dakota State University performs the analysis for Selenium.

ND=Not Detected

NM=Not Measured

BDL=Below detection limit

NS= Not Sampled

JMLord, Inc.

Wonderful Orchards

Monitoring Wells - Fall Sampling - 2023

Water	Sampling	pH	Ece	Ca+Mg	Na	HCO3	Cl	SAR	Adj.	B	NO3-N	*Se
Source	Date		dS/m	mg/L	mg/L	mg/L	mg/L		SAR	mg/l	mg/l	ppb
MW-1	7/28/23	7.36	0.61	47.86	81.15	115.33	67.71	3.01	4.22	0.13	0.13	NR
MW-2	7/28/23	7.00	0.50	46.72	57.02	105.56	34.39	2.11	2.82	0.05	1.94	NR
MW-3	7/31/23	7.25	0.32	18.13	56.33	78.72	29.07	3.37	2.87	0.09	0.08	NR
MW-4	7/28/23	8.36	0.21	9.24	56.56	128.75	3.90	4.80	3.95	0.09	0.15	NR
MW-5	7/28/23	7.61	1.38	123.66	177.25	354.53	114.50	4.19	9.51	0.31	15.31	NR
Desireable Levels :												
min		7.00	0.21	9.24	56.33	78.72	3.90	2.11	2.82	0.05	0.08	
max		8.36	1.38	123.66	177.25	354.53	114.50	4.80	9.51	0.31	15.31	

* Minimum Detection Limit 1.00 ppb

JMLord's laboratory performs the analysis for Ag. Suitability.

South Dakota State University performs the analysis for Selenium.

ND=Not Detected

BDL= Below detection Level

NS= Not Sampled

NR= Not Requested

Changed to Paramount Farming

Not analyzed for TDS

Changed detection limits to 1.00 ppb

J.M.Lord, Inc.

Columbia Canal Company

Groundwater Monthly Static Level Monitoring

Regular Wells

2023							
Well #	1/22-30/23	2/7-13/23	4/19-24/2023	9/10-11/2023	10/14-24/23	Portal Height	Comments
USBR OBS.	50.36	49.60	47.02	37.70	35.04	6.25	Monitoring Well
Lopes OBS.	36.21	35.56	32.17	30.56	30.06	20.50	Monitoring Well
Lopes 1 (Cardella)	51.49	41.23	40.09	40.67	43.07	0.00	Deep Well
Mowry - River	37.93	37.74	35.88	42.11	33.06	3.75	Inlet - Casing only
Mowry - Diesel	65.85	62.43	63.09	94.01	52.34	0.00	Well head off
MLT - West	48.40	46.02	45.06	42.87	54.02	5.25	Deep Well

* Nearby well was running

NR - No Reading - Well was running

NA-Unable to get reading

Phil (technician) 977-3705

Columbia Canal Company **Groundwater Monthly Static Level Monitoring**

Regular Wells

2024						
Well #	1/1/24				Portal Height	Comments
USBR OBS.	33.48				6.25	Monitoring Well
Lopes OBS.	28.62				20.50	Monitoring Well
Lopes 1 (Cardella)	41.18				0.00	Deep Well
Mowry - River	32.85				3.75	Inlet - Casing only
Mowry - Diesel	51.89				0.00	Well head off
MLT - West	36.01				5.25	Deep Well

* Nearby well was running

NR - No Reading - Well was running

NA-Unable to get reading

Phil (technician) 977-3705

Columbia Canal Company

Groundwater Monthly Static Level Monitoring

Additional Wells

Well #	Monthly/Date YEAR 2023										Portal Heights	Comments
	1/30-31/23	2/13-14/23	3/15/2017	5/18-22/2023	7/31/2023	9/7/2011	10/16-24/2023	10/16-24/2023	10/16-24/2023	10/16-24/2023		
BB Harrison #5	32.08	32.21	31.06	27.06	32.06	28.78	29.19	29.19	29.19	29.19	3.75	
Houk	28.81	28.71	27.03	27.61	33.88	28.31	29.58	29.58	29.58	29.58	6.25	
2550-61	43.51	43.68	43.38	44.07	42.73	41.28	41.86	41.86	41.86	41.86	3.25	
2560-61	60.02/8.64	60.75/8.61	58.45/8.72	57.13/8.74	57.92/8.71	59.91/8.63	56.43/8.78	56.43/8.78	56.43/8.78	56.43/8.78	3.25	
Agriland #1	47.15/7.11	50.82/7.19	48.87/7.21	49.11/7.24	48.89/7.22	48.62/7.20	46.79/7.78	46.79/7.78	46.79/7.78	46.79/7.78	9.25	Bad oil
Samarin #3	23.61	23.26	21.11	18.22	19.04	22.26	22.14	22.14	22.14	22.14	4.00	
CCC-1	61.29	61.32	59.06	54.93	58.46	54.87	50.73	50.73	50.73	50.73	8.25	
CCC-2	47.72	46.09	46.11	44.13	49.61	46.03	43.58	43.58	43.58	43.58	11.25	
ODLAN/TEX	24.12	25.06	23.61	23.78	26.3	22.48	21.22	21.22	21.22	21.22	8.25	
Elrod #4						46.43/2.11	39.86/2.09	39.86/2.09	39.86/2.09	39.86/2.09	14.25	
Fusetta OBS							16.91	16.91	16.91	16.91	5.5 ^{note}	

note: fusetta portal base is on a dirt mound 10 inches taller than the surrounding roadways, did not know if you wanted this as part of portal height.

* Columbia's new well

NR - No Reading - Well was running

NA-Unable to get reading

Lorenzetti removed 9/12/2018, Houk added 9/12/2018

* Houk	Lat	36.910276	Long	-120.448434
Fusetta	Lat	36.865869	Long	-120.427268
Elrod #4	Lat	36.852142	Long	-120.399569

Columbia Canal Company
Groundwater Monthly Static Level Monitoring Additional Wells

Well #	Monthly/Date YEAR 2024						Portal Heights	Comments
	1/30-31/23	10/16-24/2023	1/29/2024					
BB Harrison #5	32.08	29.19	30.02				3.75	
Houk	28.81	29.58	26.11				6.25	
2550-61	43.51	41.86	40.09				3.25	
2560-61	60.02/8.64	56.43/8.78	53.55/8.82				3.25	
Agriland #1	47.15/7.11	46.79/7.78	43.42/7.83				9.25	Bad oil
Samarin #3	23.61	22.14	21.60				4.00	
CCC-1	61.29	50.73	46.89				8.25	
CCC-2	47.72	43.58	41.86				11.25	
ODLAN/TEX	24.12	21.22	21.76				8.25	
Elrod #4		39.86/2.09	37.09/2.01				14.25	RMW
Fursetta OBS		16.91	17.61				5.5 ^{note}	

note: fursetta portal base is on a dirt mound 10 inches taller than the surrounding roadways, did not know if you wanted this as part of portal height.

* Columbia's new well

NR - No Reading - Well was running

NA-Unable to get reading

Lorenzetti removed 9/12/2018, Houk added 9/12/2018

* Houk	Lat	36.910276	Long	-120.448434
Fusetta	Lat	36.865869	Long	-120.427268
Elrod #4	Lat	36.852142	Long	-120.399569

Wonderful Orchards LLC

Monthly Static (standing water) Well Measurements

Well		Date/Feet 2023					Portal heights (in)	Comments
New	Old	Jan 18-31						
3431-61	32	94.79					0	Bad oil
2480-66	42	86.42					10	
3730-65	53	63.18					9	
3421-62	74	100.21/2.87					16	
3921-62	78	106.23					3	
3311-61	89	106.83/20.34					14	
3431-62	91	121.16/3.94					8	
3730-62	94	67.82					12	Bad oil
3730-61	95	85.73/4.09					8	Bad oil
3211-69	77	89.62					15	
3311-62	8	NR					12	hung up 38 feet
3591-66	11	114.16					8	
3211-66	15	91.04					0	SGMA
3591-68	93	141.47					11.25	SGMA
New Wells added in 2009 - Drilled in 2008								
3921-61	106	82.83					3	
3730-72	107	58.06					3	
3730-70	108	65.70					8	
3211-68	110	72.21					16	
3730-63	112	60.07					10	inner casing
3730-73	-	68.85					40	
3730-74	CC-1	65.03					2	
New wells added in 2014								
3730-66	59	75.43/2.65					10	
3730-67	96	74.32/2.01					3	
3211-61	73	NR					6	Portal Plugged
3211-62	69	73.86					0	
3730-68	48	64.67					0	no pump head
3211-63	2	NR					3	destroyed
3211-65	62	89.17					4	
3730-71	-	45.10					2	
3211-77	-	76.27					30	
3730-75	CC-2	67.42/3.44					18	
New well added 2018								
3730-76		64.72					36.5	
3730-77		63.07					33	no pump head
3211-79	New 2	84.62					10.5	replaces well 2
2480-72		156.36					11	
Monitoring Wells - Measurements are to Ground Level								
	MW-1	57.03					26.5	
	MW-2	19.82					21	
	MW-3	31.79					21	
	MW-4	61.54					15	
	MW-5	93.21					20.5	

NR - No reading - well was ON

— : not scheduled for reading.

The first measurement in the rows with two numbers is the static water depth and the second is the thickness of oil in feet.

** Did not measure

Wonderful Orchards LLC

Monthly Static (standing water) Well Measurements

Well		Date/Feet 2023						
New	Old	6/13-16/2023	7/10-14/2023	8/14-18/2023	9/7,8,21/2023	10/11-16/23	Portal heights (In)	Comments
3431-61	32	92.82/4.88	88.71/5.02	96.48/4.84	89.76/4.52	79.87/4.58	0	Bad oil
2480-66	42	81.92	76.63	85.29	84.68	77.21	10	
3730-65	53	64.36	65.14	93.86	92.87	75.72	9	
3421-62	74	74.06/8.09	73.42/8.12	98.57/8.11	102.11/8.13	100.06/8.15	16	
3921-62	78	88.11	86.88	101.45	108.33	84.17	3	
3311-61	89	99.64/20.32	95.49/20.38	94.53/20.30	96.78/20.35	89.14/20.42	14	
3431-62	91	110.03/3.69	109.76/3.75	114.67/3.43	184.62/3.11	110.67/3.01	8	
3730-62	94	71.41	74.06/1.48	102.31	99.63/1.29	79.94	12	Bad oil
3730-61	95	87.13/4.01	88.06/3.97	128.88/4.07	124.38/4.02	88.78/4.07	8	Bad oil
3211-69	77	92.02	81.07	107.43	100.72	83.28	15	
3311-62	8	NR	NR	NR	NR	NR	12	hung up 38 feet
3591-66	11	103.79	92.43	93.32	96.81	86.42	8	
3211-66	15	83.61/1.08	79.13/1.09	101.53/1.10	110.62/1.08	102.83/1.11	0	SGMA
3591-68	93	124.19/1.46	120.14/1.58	116.24/1.42	110.16/1.48	101.73/1.56	11.25	SGMA
New Wells added in 2009 - Drilled in 2008								
3921-61	106	54.58	55.38	77.09	69.52	69.94	3	
3730-72	107	55.31	56.32	78.06	69.87	70.11	3	
3730-70	108	48.96	69.15	99.59	86.42	78.06	8	
3211-68	110	67.86	68.53	86.11	87.09	73.86	16	
3730-63	112	53.6	54.40	80.27	67.24	57.77	10	no pump head
3730-73	-	68.64	69.14	98.67	84.62	78.74	40	
3730-74	CC-1	70.33	78.06	103.62	107.86	78.09	2	
New wells added in 2014								
3730-66	59	78.19/2.61	84.89/2.58	105.72/2.68	106.73/2.45	89.53/2.48	10	
3730-67	96	74.76/2.09	75.11/2.14	104.15	102.78/1.88	79.86	3	
3211-61	73	NR	NR	NR	NR	NR	6	Portal Plugged
3211-62	69	72.03	74.86	98.79	96.13	76.88	0	
3730-68	48	65.3	66.21	105.18	92.06	77.06	0	no pump head
3211-63	2	NR	NR	NR	NR	NR	3	destroyed
3211-65	62	84.47	80.76	94.17	99.57	90.51	4	
3730-71	-	48.86	47.43	49.97	50.68	50.29	2	
3211-77	-	76.58	77.86	102.11	98.23	89.37	30	
3730-75	CC-2	69.71/3.39	72.18/3.48	148.43.41	112.72/3.48	90.46/3.56	18	
New well added 2018								
3730-76		65.34	66.24	105.21	92.11	80.69	36.5	
3730-77		66.35	67.13	93.10	89.22	73.26	33	
3211-79	New 2	76.27	74.12	94.20	102.23	81.09	10.5	replaces well 2
2480-72		136.54	92.63	168.88	173.82	98.61	11	hangs up in well
Monitoring Wells - Measurements are to Ground Level								
	MW-1	46.08	48.67	48.03	47.13	46.62	26.5	
	MW-2	11.82	10.52	12.06	12.20	12.14	21	
	MW-3	26.07	24.32	26.29	26.40	26.34	21	
	MW-4	42.39	41.17	47.38	54.39	58.12	15	
	MW-5	88.75	85.71	85.09	83.38	83.06	20.5	

NR - No reading - well was ON

This well is becoming problematic, hangs up many times, tones are erratic

The first measurement in the rows with two numbers is the static water depth and the second is the thickness of oil in feet.

Note: AUG 2023, well has hang-ups and tone very weak, full tone at 168.88, week tone at 135.02 feet, chirping at 100.41 feet

Wonderful Orchards LLC

Monthly Static (standing water) Well Measurements

Well		Date/Feet 2023						
New	Old	7/10-14/2023	8/14-18/2023	9/7,8,21/2023	10/11-16/23	11/15-16/2023	Portal heights (in)	Comments
3431-61	32	88.71/5.02	96.48/4.84	89.76/4.52	79.87/4.58	82.12/4.62	0	Bad oil
2480-66	42	76.63	85.29	84.68	77.21	75.65	10	
3730-65	53	65.14	93.86	92.87	75.72	57.32	9	
3421-62	74	73.42/8.12	98.57/8.11	102.11/8.13	100.06/8.15	74.36/7.92	16	
3921-62	78	86.88	101.45	108.33	84.17	55.89	3	
3311-61	89	95.49/20.38	94.53/20.30	96.78/20.35	89.14/20.42	87.62/20.15	14	
3431-62	91	109.76/3.75	114.67/3.43	184.62/3.11	110.67/3.01	100.46/3.78	8	
3730-62	94	74.06/1.48	102.31	99.63/1.29	79.94	78.11/1.36	12	Bad oil
3730-61	95	88.06/3.97	128.88/4.07	124.38/4.02	88.78/4.07	93.16/3.96	8	Bad oil
3211-69	77	81.07	107.43	100.72	83.28	72.71	15	
3311-62	8	NR	NR	NR	NR	NR	12	hung up 38 feet
3591-66	11	92.43	93.32	96.81	86.42	84.09	8	
3211-66	15	79.13/1.09	101.53/1.10	110.62/1.08	102.83/1.11	72.68	0	SGMA
3591-68	93	120.14/1.58	116.24/1.42	110.16/1.48	101.73/1.56	105.06/1.53	11.25	SGMA
New Wells added in 2009 - Drilled in 2008								
3921-61	106	55.38	77.09	69.52	69.94	46.77	3	
3730-72	107	56.32	78.06	69.87	70.11	48.93	3	
3730-70	108	69.15	99.59	86.42	78.06	55.48	8	
3211-68	110	68.53	86.11	87.09	73.86	58.67	16	
3730-63	112	54.40	80.27	67.24	57.77	49.66	10	no pump head
3730-73	-	69.14	98.67	84.62	78.74	61.38	40	
3730-74	CC-1	78.06	103.62	107.86	78.09	68.57	2	
New wells added in 2014								
3730-66	59	84.89/2.58	105.72/2.68	106.73/2.45	89.53/2.48	73.39/2.11	10	
3730-67	96	75.11/2.14	104.15	102.78/1.88	79.86	72.76/2.55	3	
3211-61	73	NR	NR	NR	NR	NR	6	Portal Plugged
3211-62	69	74.86	98.79	96.13	76.88	80.14/2.55	0	
3730-68	48	66.21	105.18	92.06	77.06	56.79	0	no pump head
3211-63	2	NR	NR	NR	NR	NR	3	destroyed
3211-65	62	80.76	94.17	99.57	90.51	78.03	4	
3730-71	-	47.43	49.97	50.68	50.29	48.88	2	
3211-77	-	77.86	102.11	98.23	89.37	67.89	30	
3730-75	CC-2	72.18/3.48	148.43.41	112.72/3.48	90.46/3.56	108.48/3.12	18	
New well added 2018								
3730-76		66.24	105.21	92.11	80.69	56.81	36.5	
3730-77		67.13	93.10	89.22	73.26	58.78	33	
3211-79	New 2	74.12	94.20	102.23	81.09	65.59	10.5	replaces well 2
2480.72		92.63	168.88	173.82	98.61	109.96	11	Chirping, full tone at
Monitoring Wells - Measurements are to Ground Level								163.06
	MW-1	48.67	48.03	47.13	46.62	40.07	27	
	MW-2	10.52	12.06	12.20	12.14	11.96	21	
	MW-3	24.32	26.29	26.40	26.34	24.12	21	
	MW-4	41.17	47.38	54.39	58.12	58.6	15	
	MW-5	85.71	85.09	83.38	83.06	80.63	21	

NR - No reading - well was ON

This well is becoming problematic, hangs up many times, tones are erratic. The line is always tangled when it is reeled in.

The first measurement in the rows with two numbers is the static water depth and the second is the thickness of oil in feet.

Note: AUG 2023; well has hang-ups and tone very weak, full tone at 168.88, week tone at 135.02 feet, chirping at 100.41 feet

Wonderful Orchards LLC

Monthly Static (standing water) Well Measurements

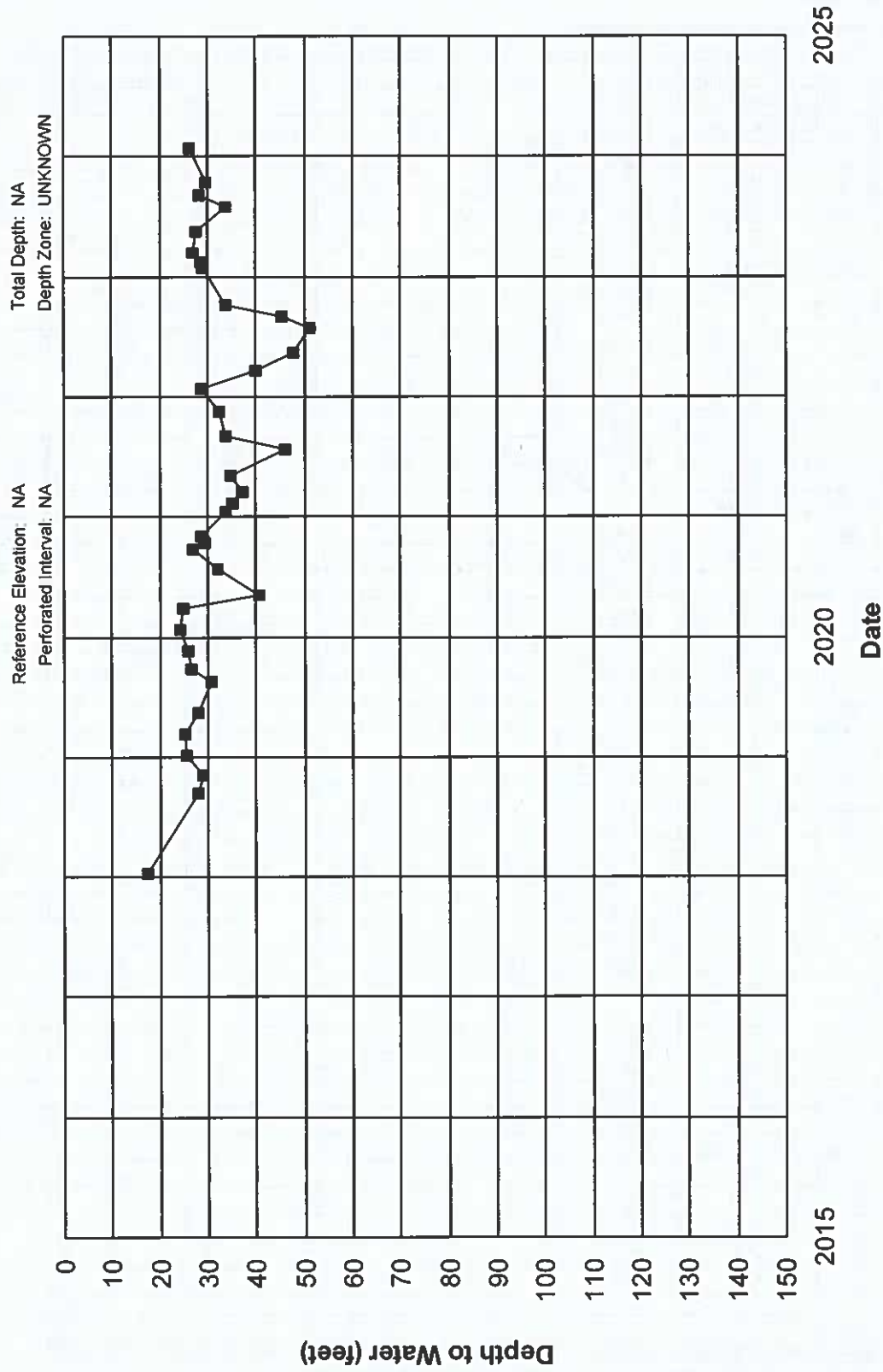
Well		Date/Feet 2024						Portal heights (in)	Comments
New	Old	JAN 2024	2/1/2024						
3431-61	32	71.43/4.59	70.03/4.52					0	Bad oil
2480-66	42	70.03	68.75					10	
3730-65	53	49.81	50.07					9	
3421-62	74	47.54/1.72	46.94/1.74					16	
3921-62	78	68.16	66.89					3	
3311-61	89	91.13/20.23	89.29/20.21					14	
3431-62	91	108.42/3.12	106.03/3.09					8	
3730-62	94	56.09	55.72					12	Bad oil
3730-61	95	78.02/3.94	76.97/3.92					8	Bad oil
3211-69	77	66.97	65.42					15	
3311-62	8	NR	NR					12	hung up 38 feet
3591-66	11	83.02	83.81					8	
3211-66	15	68.03	67.07					0	SGMA
3591-68	93	104.07/1.61	104.72/1.68					11.25	SGMA
New Wells added in 2009 - Drilled in 2008									
3921-61	106	NR	128.68					3	blocked by nuts
3730-72	107	45.98	44.73					3	
3730-70	108	75.79	74.83					8	
3211-68	110	58.31	57.20					16	
3730-63	112	43.83	43.18					10	well head off
3730-73	-	55.07	53.68					40	
3730-74	CC-1	55.68	53.71					2	
New wells added in 2014									
3730-66	59	64.24	63.87					10	
3730-67	96	77.42	76.34					3	
3211-61	73	NR	NR					6	Portal Plugged
3211-62	69	64.07	62.98					0	
3730-68	48	49.87	49.75					0	no pump head
3211-63	2	NR	NR					3	destroyed
3211-65	62	65.11	63.84					4	
3730-71	-	41.52	41.06					2	
3211-77	-	58.87	56.01					30	
3730-75	CC-2	73.42/3.79	72.71/3.75					18	
New well added 2018									
3730-76		52.03	49.97					36.5	
3730-77		50.02	49.89					33	no pump head
3211-79	New 2	61.32	59.92					10.5	replaces well 2
2480.72		99.42	99.08					11	hangs up in well
Monitoring Wells - Measurements are to Ground Level									
	MW-1	38.92	38.02					26.5	
	MW-2	12.11	12.03					21	
	MW-3	26.36	26.01					21	
	MW-4	60.39	58.11					15	
	MW-5	78.91	76.03					20.5	

NR - No reading - well was ON

This well is becoming problematic, hangs up many times, tones are erratic

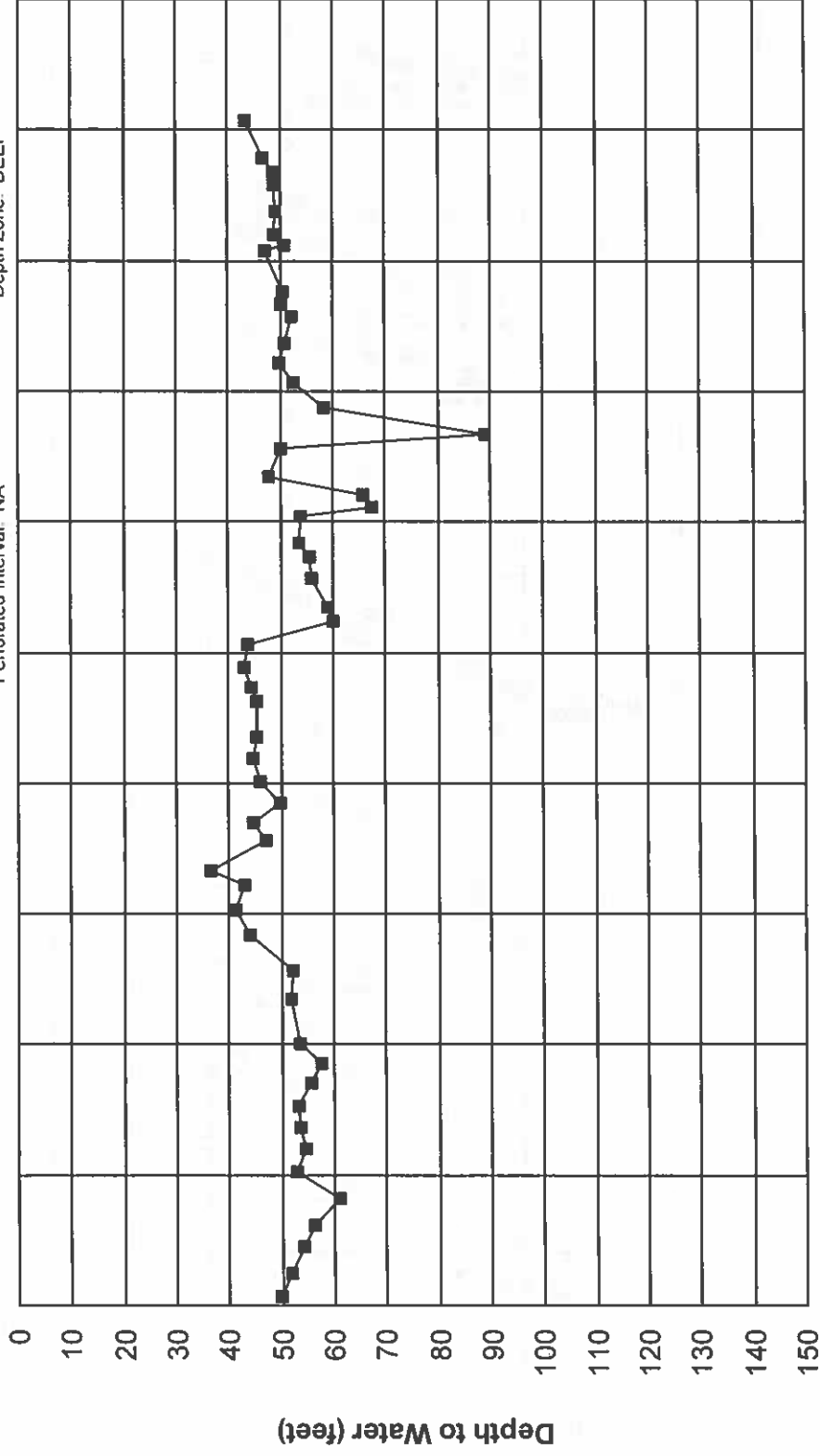
The first measurement in the rows with two numbers is the static water depth and the second is the thickness of oil in feet.

Columbia Canal Company- Houk

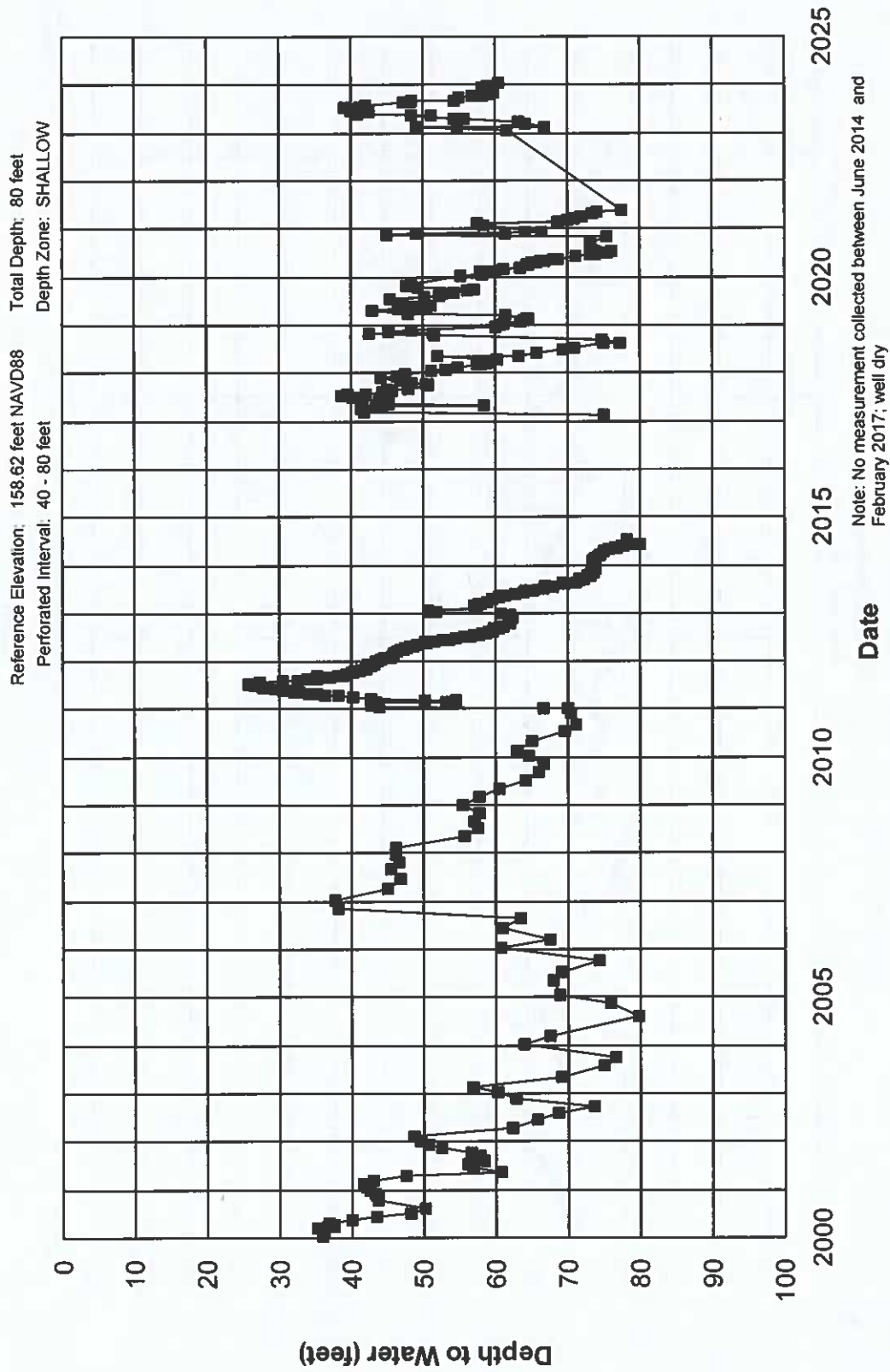


Columbia Canal Company- Agriland 1

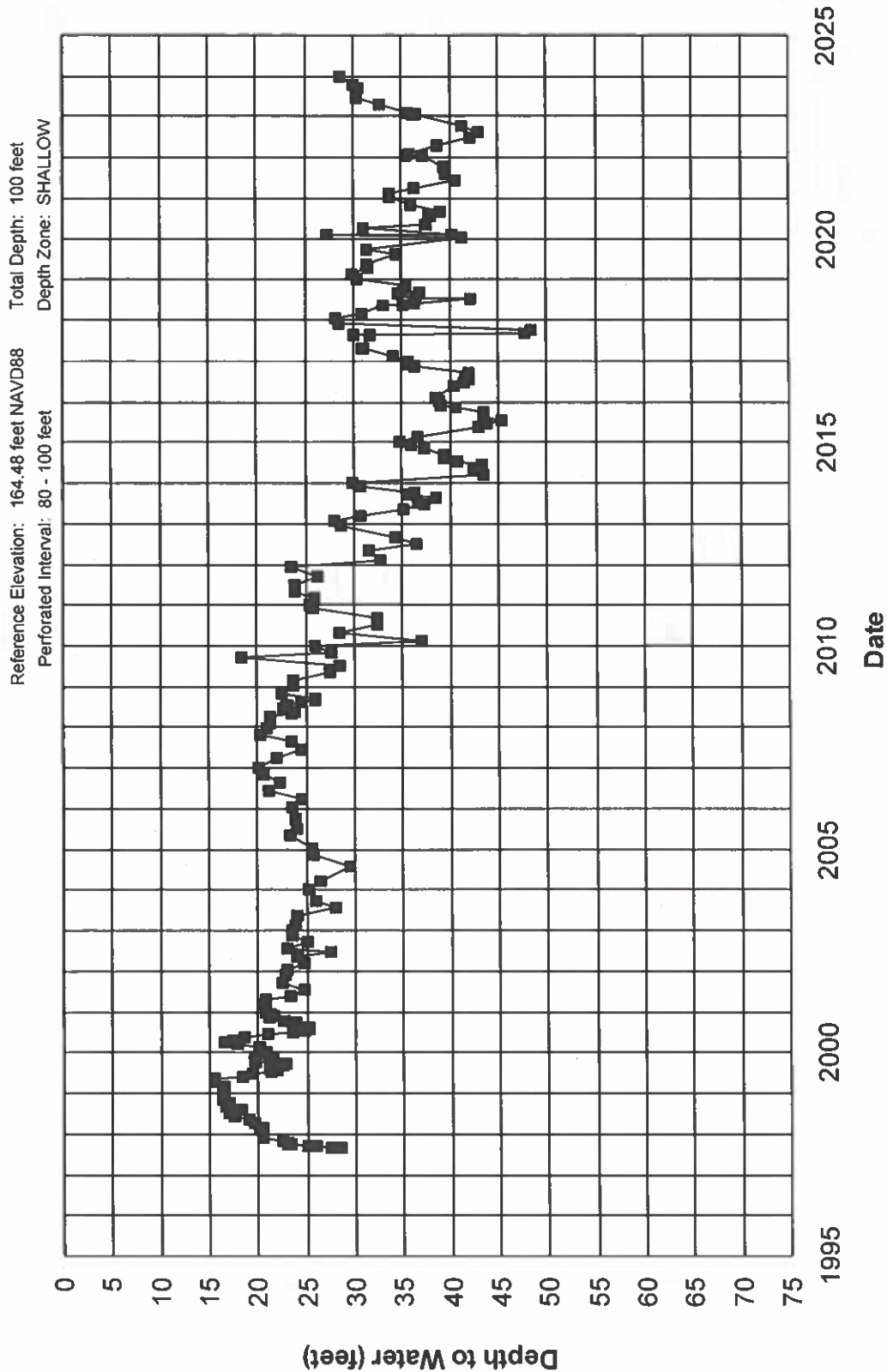
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Perforated Interval: NA
Total Depth: NA
Depth Zone: DEEP



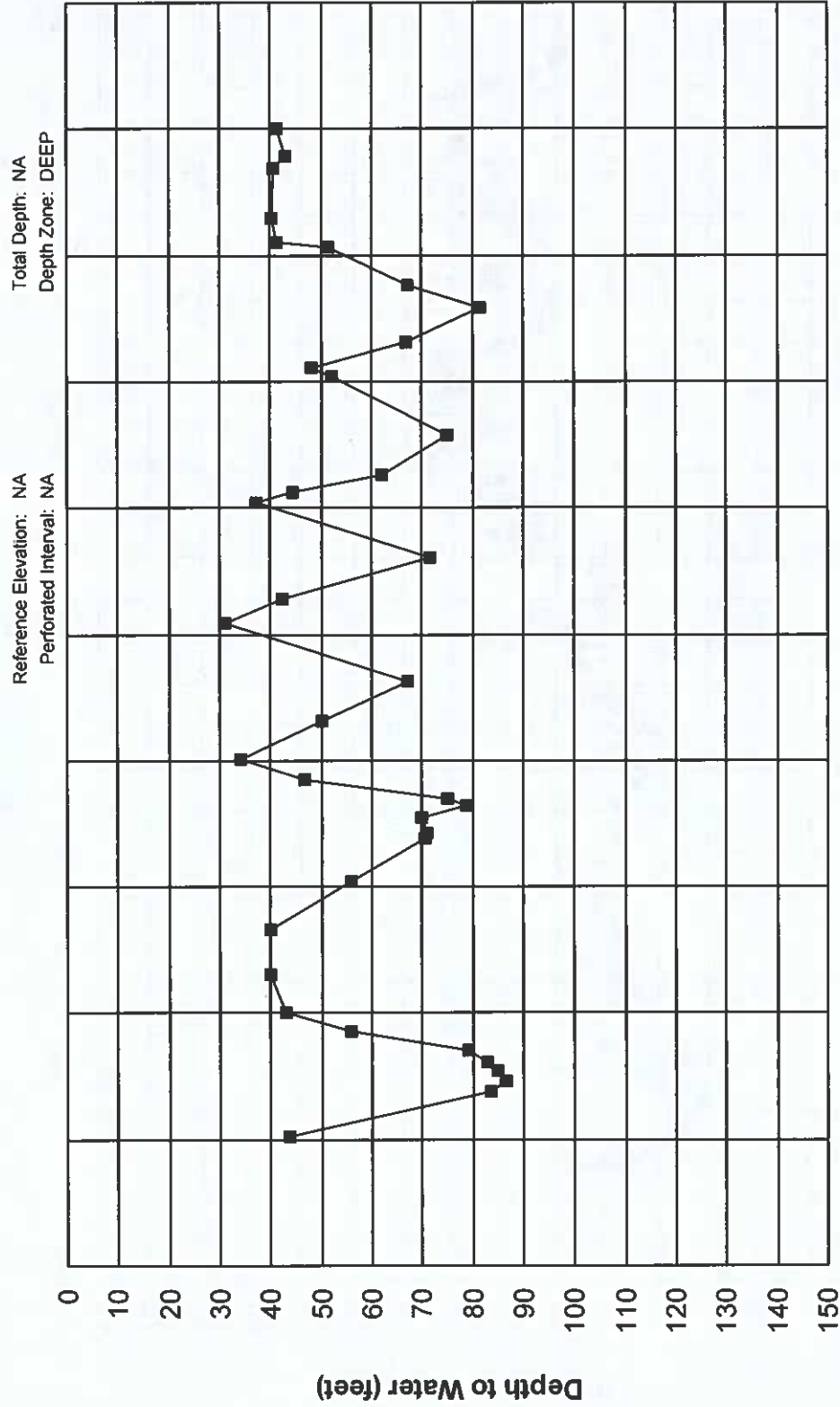
Wonderful Orchards 2480-93 (MW-4)



Columbia Canal Company Well Lopes-Obs.



Columbia Canal Company Cardella-Lopes (Lopes-1)



**Columbia Canal Company
2023 Water Use**

Total CCC acres 16,561
District Average Annual Change in groundwater level elevation per KDSA (feet) +6.2

Water Management (acre-feet)

Total Contract Use ¹	45,167
Transferred Out ¹	7,020
Deferred Water	0
Warren Act Transfer	0
Assigned Out	0
Received In	0
Direct Recharge Delivery ²	4,931
Unallocated	0
Surface Water Diversions for Irrigation	33,200 (rounded)

Canal Losses

Evaporation ³	1.7%	653
Seepage ⁴	8.3%	3,160
Total Canal Losses (10%)⁵		3,800 (rounded)

Total Surface Water Deliveries for Irrigation (after losses) 29,400 (rounded)

Groundwater Pumpage

C.C.C. and Grower Wells	477
Wonderful Wells	609

Total Groundwater Pumping 1,100 (rounded)

Total Applied Water 30,500 (rounded)

Consumptive Use -With ITRC Kc Values Adjusted by CCID⁷

<u>Crops</u>	<u>Acres</u>	<u>Ac-Ft/Ac⁷</u>	<u>Water Use (Ac-Ft)</u>
Alfalfa (Hay)	213	3.35	712
Almonds	11,146	3.42	38,078
Almonds (Young)	80	1.63	130
Barley	0	0.00	0
Corn	0	0.00	0
Cotton	0	0.00	0
Grapes	0	0.00	0
Onions	0	0.00	0
Pasture (Improved)	420	2.92	1,226
Pistachios	2,709	2.84	7,682
Pistachios (Young)	441	1.09	479
Pomegranates	501	2.12	1,063
Tomatoes (Organic Veg.)	0	0.00	0
Wheat	0	0.00	0
Totals	15,510		49,400 (rounded)

Fallow Lands 586

Effective Precipitation (50% of Total Precipitation)⁶ 8,692

Total Crop Water Consumptive Use of Applied Water (CU-EP) 40,700 (rounded) Irrig Eff=CU-EP/MAW 133%

Total Crop Applied Water Need based on 90% Irrigation Efficiency 45,200 (rounded)

Measured Applied Water (MAW) (SW Deliveries plus Groundwater Pumping) 30,500

Shallow Gw Use by crops (Calculated App Water minus Measured App W) 14,700 (rounded)

Shallow gw use by crops/crop acreage (AF/Acre) 0.95

Groundwater Replenishment⁸

Spreading (Recharge Delivery)	4,931
⁹ Spreading Evaporation	-811
¹⁰ Canal seepage (recharge)	3,160
¹¹ Applied Water Less Consumptive Use (30,500-49,400)	0
Total Groundwater Replenishment	Total 7,300 (rounded)
Replenishment Less Pumping (7,300-1,100)	6,200 (rounded)

Groundwater Pumped per Acre, af/acre: (1,100af/16,561 acres) = 0.07

Avg Change in groundwater storage, af: (16,561 acres * +6.2 ft rise * 0.15) = 15,400

Notes:

¹ From 2023 SJRECWA Water Schedule. Total Contract use excludes Transferred Out amounts and water assigned for refuges (562 AF).

² Direct Recharge is based on the CCC monthly delivery schedule from Feb. through Dec. 2023 and includes recharge for Wonderful recharge ponds (2,819 af).

³ Canal evaporation losses estimated at 653 af per Evaporation Analysis based on CCC Monthly Delivery Schedule.

⁴ Canal seepage losses = difference between Total Canal Losses (10%) and Canal Evaporation Losses.

⁵ Canal total losses estimated at 10% of Diversions per District Observation. No additional miles of lining were added in 2023.

⁶ Effective Precipitation is assumed to be 50% of published Firebaugh Telles CIMIS Site from Jan. 1, 2023 to Dec. 31, 2023 (13.02 inches total x 0.5 = 6.51 inches) times cropped and fallowed areas.

⁷ Assumes average monthly Kc values are only present during the growing season months for that crop. Average Kc monthly values provided by CCID.

⁸ Subsurface inflow/outflow not considered, spilled water into habitat is not considered, and river/Mendota Pool seepage not included in replenishment or applied water.

⁹ Total recharge evaporation estimated from direct recharge areas per evaporation analysis.

¹⁰ Includes seepage (total canal losses less evaporation) from canals and water pumped for water management (cleaning canals, lines, and cattle, and frost protection and leaching). Groundwater for water management is assumed to return to the groundwater system.

¹¹ IF CU is greater than applied water, set value to 0.

Annual and Cumulative Replenishment Less Pumping (AF)

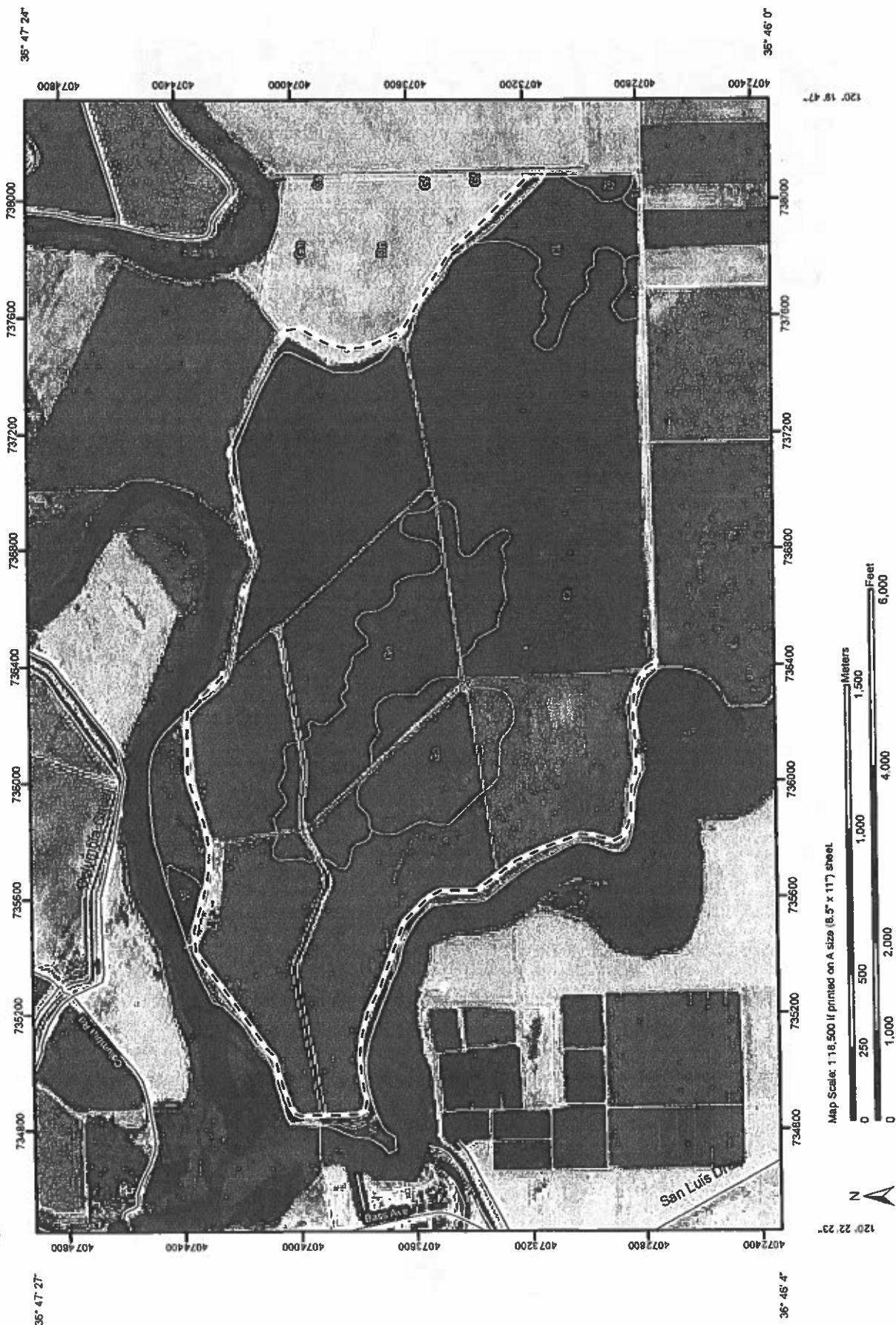


ATTACHMENT 9

SOIL MAPS

Custom Source Report

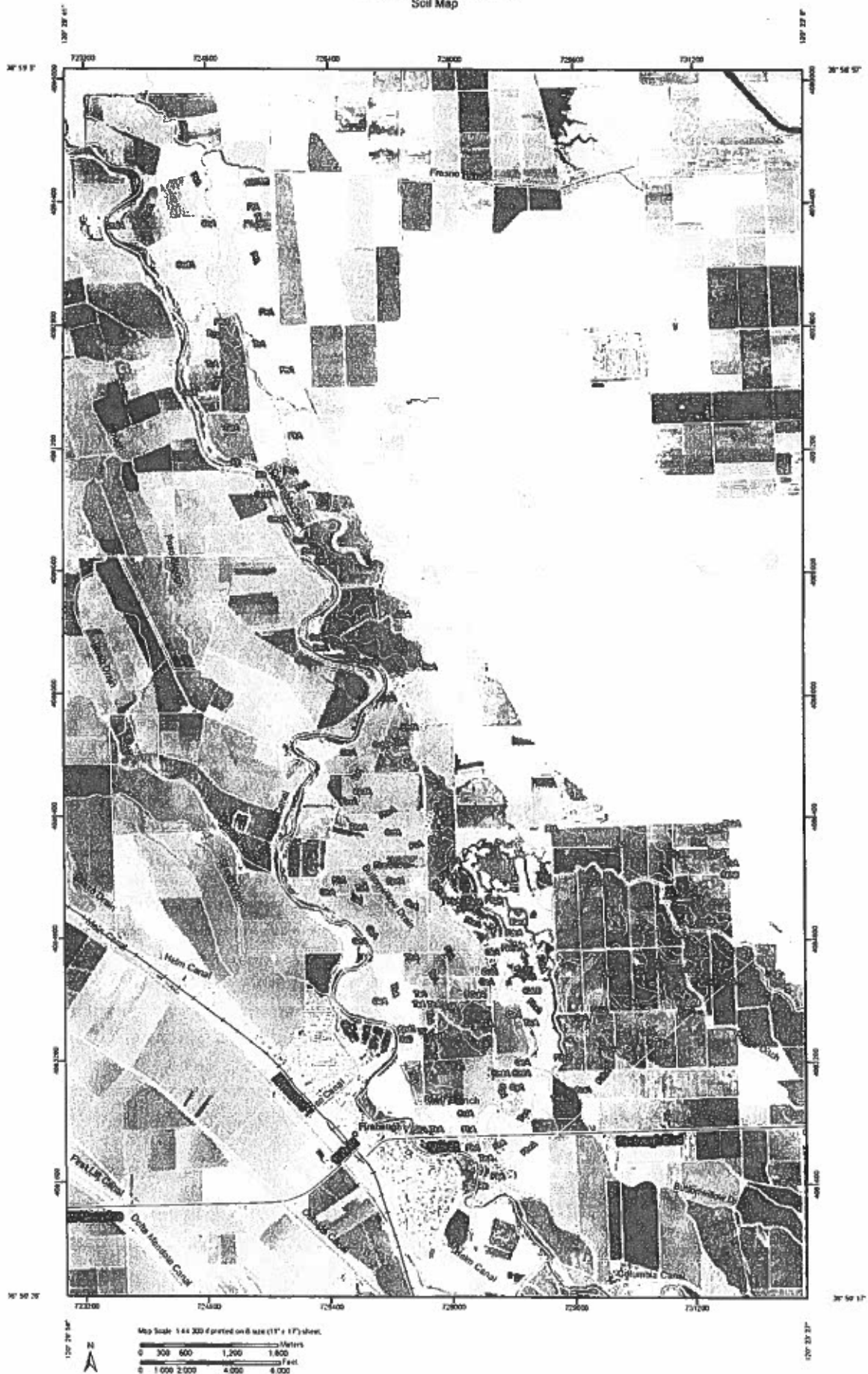
Soil Map



Custom Soil Resource Report
Soil Map



Custom Soil Resource Report
Soil Map



ATTACHMENT 10

WATER TRANSFERS RULES & REGULATIONS

Columbia Canal Company

Water Transfers

Rules and Regulations

July 8, 1993

Firebaugh, California

BOARD RESOLUTION

RESOLUTION OF THE BOARD OF DIRECTORS OF
COLUMBIA CANAL COMPANY ADOPTING RULES AND REGULATIONS
GOVERNING TRANSFERS OF WATER UNDER THE
CENTRAL VALLEY PROJECT IMPROVEMENT ACT OF 1992
(P.L. 102-575)

WHEREAS, the United States Congress has enacted the Central Valley Project Improvement Act of 1992 (P.L. 102-575) ("the Act") which provides, among other things, for transfers of project water by water users within the Columbia Canal Company's service area; and

WHEREAS, the United States Bureau of Reclamation has promulgated "Interim Guidelines for Implementation of the Water Transfer Provisions of the Central Valley Project Improvement Act (Title XXXIV of Public Law 102-575)" ("the Guidelines") establishing procedures and criteria for processing such water transfers until formal regulations can be adopted; and

WHEREAS, the Act and the Guidelines impose certain duties upon the Columbia Canal Company including but not limited to the duty to determine whether a proposed transfer of project water will have an unreasonable impact on the water supply, operations or financial conditions of the Columbia Canal Company or its water users; and

WHEREAS, the Columbia Canal Company is authorized to make reasonable rules and regulations providing for the equitable, efficient and economic distribution of its water supply; and

WHEREAS, the Columbia Canal Company desires to establish uniform procedures under which such proposed transfers of water will be evaluated, processed and administered,

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Columbia Canal Company as follows:

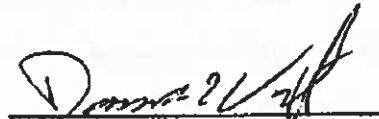
10. The said Board hereby adopts the "Rules and Regulations Governing Transfers of Water Under the Central Valley Project Improvement Act of 1992 (P.L. 102-575)" a true copy of which is attached to this Resolution.

11. Pursuant to Article 13 of said Rules and Regulations, the Board hereby adopts the form of "Indemnification and Following Agreement" attached as Exhibit "B" to this Resolution; and

12. The Board authorizes and directs the manager to take such actions and measures as may be reasonably necessary and incidental to implement the Act, the Guidelines and the said Rules and Regulations.

Passed and adopted at a regular/special meeting of the Board of Directors of Columbia Canal Company on July 8, 1993 by the following votes:

AYES:	<u>4</u>
NOES:	<u>0</u>
ABSENT:	<u>1</u>
ABSTAINING:	<u>0</u>


President

Darrell Vincent, Columbia Canal Company

ATTEST:


Secretary

Keith Watkins, Columbia Canal Company

RULES AND REGULATIONS

COLUMBIA CANAL COMPANY

RULES AND REGULATIONS GOVERNING TRANSFERS OF WATER UNDER THE CENTRAL VALLEY PROJECT IMPROVEMENT ACT OF 1992 (PL 102-575)

In order to implement §3405 of the Central Valley Improvement Act of 1992 (PL 102-575), Columbia Canal Company ("Company") adopts the following rules and regulations governing transfers of Central Valley Project water by water users.

1. Company Approval: Insofar as these rules and regulations provide for Company approval of water transfer proposals, they shall mean:

a. First 20%. As to transfer proposals that do not involve more than twenty percent (20%) of the Company's water supply subject to contract with the USBR, the term "Company Approval" shall mean the Company's written findings and conclusions reported to the USBR as to whether the transfer proposal should be approved, or conditionally approved.

b. More than 20%. As to transfer proposals that involve more than 20% of the Company's water supply subject to contract with the USBR, the term "Company Approval" shall mean the Company's approval, or conditional approval, of such proposals.

2. Eligible Transferors: Only landowners may transfer Company water allocations. If a transfer is proposed by a person who is not the landowner, the written concurrence of the landowner must accompany the proposal.

3. Compliance with Laws and Regulations: Transfer proposals must comply with the provisions of the Central Valley Project Improvement Act and all applicable regulations and guidelines of the Secretary of the Interior. All transfer

proposals must also be consistent with State law, including but not limited to the provisions of the California Environmental Quality Act (CEQA).

4. **Consumptive Use Limitation:** Only water that would have been consumptively used (or irretrievably lost to beneficial use) during the term of the transfer may be transferred - not to exceed the transferor's allocation of project water. The Company reserves the right to limit transfers during specific months to the quantity of water that would have been consumptively used (or irretrievably lost to beneficial use) by the transferor during those months. If the transfer of consumptive use water during such months would have an unreasonable impact on the water supply, operations or financial condition of the Company or its water users, the Company may further limit the transfer.

5. **Correlative Share Limitation:** The amount of Company water that can be transferred without unreasonable impacts on the water supply, operations and financial conditions of the Company and its water users is limited. The Company considers the rights of individual landowners to transfer their water supplies to be limited to a correlative share of the total transferable supply. The Company will not approve any transfer proposal that would prevent other landowners from transferring their correlative shares of the transferable supply of Company water.

6. **Groundwater Limitations:**

a. **General Limitation.** It has been judicially determined that the groundwater supply underlying the lands within the Company is overdrafted. As the supply is overdrafted, any substitution of the use of groundwater for transferred surface water will result in significant long-term adverse impact on groundwater conditions within the Company's service area, and would result in an unreasonable interference with pumping rates or capacities of wells within the Company service area. That, in turn, causes unreasonable impacts on the water supply, operations, and financial condition of the Company and its water users.

For this reason no transfer of groundwater to areas outside the Company service area will be approved and no transfer of surface water without following the land to which such surface supply would have been delivered will be approved.

7. **Transferee Limitations:** In order to promote the purposes of the Central Valley Project Improvement Act of 1992, and to avoid unreasonable impacts on the water supply, operations, and financial condition of the Company and its water users, the Company will not approve a water transfer proposal unless:

a. The transferee conducts a water conservation program that includes efficient water management practices, or is in compliance with an urban water management plan under Water Code §10610 *et seq.*, an urban water shortage contingency plan under Water Code §10621, §10631, and §10656, or an agricultural water management plan adopted pursuant to Water Code §10800 *et seq.*;

b. The transferee conducts a drainage program to assure that the water transfer will not cause a deleterious effect on lands downslope from any lands irrigated as a result of the transfer; and

c. The transferee demonstrates that it will not be dependent upon the transferred water supply at the end of the term of the proposed transfer, and will be able to relinquish the transferred water supply at that time.

8. **Submission of Proposals:**

a. **Preliminary Proposals.** A transferor may submit a preliminary water transfer proposal to the Company prior to the submission of a formal water transfer proposal. The purpose of a preliminary water transfer proposal is to provide an informal review by Company staff in order to advise the transferor of possible requirements, conditions or objections if a formal proposal is made. The response of the Company to a preliminary proposal shall be deemed tentative and subject to change if a formal transfer proposal is made.

b. Formal Proposals. No later than the date the formal water transfer proposal is submitted to the USBR, the transferor shall submit two (2) complete copies to the Company. A proposal shall be deemed complete for the purposes of Company review only when it has been deemed complete by USBR and contains sufficient information for the Company to determine the impact of the proposed transfer on the water supply, operations and financial conditions of the Company and its water users, and compliance with CEQA. The transferor must supply any additional information requested by the Company in order to enable the Company to meet its responsibilities to review the proposal.

(c) Agreement to Fallow Land. No formal proposal shall be complete without an agreement by the transferor to fallow the land to which the transferred water would have been delivered for each crop year in which a transfer is made.

9. Hearings: The Company may conduct one or more public hearings in order to determine the impact of the proposed transfer on the water supply, operations and financial conditions of the Company and its water users, and to ensure compliance with CEQA. The transferor, and the transferee, or their respective representatives, shall attend any such hearing if requested to do so by the Company in order to respond to questions and comments regarding the impact of the proposed water transfer.

10. Future Modifications: Company-approved transfers shall be subject to modification from time to time in response to:

- a. Changes in applicable laws, regulations, contracts and court decisions;
- b. Changed circumstances that cause a transfer to result in unreasonable impacts on the water supply, operations, or financial conditions of the Company or its water users;
- c. Proposals by other water users within the Company to transfer their correlative share of the Company's transferable water supply that, if approved,

would result in more than twenty percent (20%) of the Company's long-term water supply under contract with USBR being committed for transfer.

11. **Costs:** The transferor shall be responsible for all costs incurred by the Company in processing the water transfer proposal and administering the water transfer itself. Such costs shall be charged to the transferor on a time-and-materials basis in accordance with generally accepted accounting practices. A deposit of \$_____ shall accompany the proposal. If it appears to the Company that the deposit will be inadequate to cover the Company's costs, the Company may issue a written cost estimate, or estimates, to the transferor. The transferor shall deposit with the Company the funds necessary to meet such supplemental cost estimates. The Company shall charge its costs against the transferor's deposits and shall render an accounting to the transferor upon request, but not more often than monthly. Any unexpended portion of the transferor's deposits shall be refunded upon completion of the transfer. If the transferor fails to deposit sufficient funds to cover the Company's costs, the deficiency shall be due upon submission of an invoice from the Company to the transferor. If the transferor fails to pay the invoice, the amount due may, at the Company's election, result in forfeiture of the right to receive water, and of the transferor's stock, pursuant to Article X of the Company's Bylaws.

12. **Charges:** Before any water is transferred in a given water year, the transferor shall pay to the Company in full:

(a) All additional water rates and charges due to the Bureau of Reclamation which the Company is obligated to collect on account of the approved water transfer.

(b) The Company's water charges and assessments for that year's water supply to the land from which the water is being transferred.

(c) The transferor shall also pay, in advance of the transfer, any standby charges attributable to the subject land for the year of the transfer, and any delinquencies on account of past water charges, standby charges or assessments.

13. **Indemnification:** The transferor and transferee shall defend, indemnify, and hold harmless the Company against any claims of third parties that the transfer:

a. Violates the terms of that certain contract dated February 14, 1968 between CENTRAL CALIFORNIA IRRIGATION DISTRICT, COLUMBIA CANAL COMPANY, SAN LUIS CANAL COMPANY, and FIREBAUGH CANAL COMPANY entitled "Second Amended Contract For Exchange of Waters";

b. Is not a beneficial or reasonable use of water;

c. Violates any law or regulation including, but not limited to the National Environmental Policy Act (NEPA), CEQA, Endangered Species acts, Water Quality statutes, and Area of Origin laws; or

d. Has caused or will cause injury or damage to any person or property, including violations of any contracts, leases, trust deeds or water rights.

e. The transferor and transferee shall also defend, indemnify and hold harmless the Company from any claims that the transferor or transferee have breached any contractual or statutory duties pertaining to the transfer.

f. In addition, the transferor shall relinquish for the duration of the approved transfer the right to receive from the Company the water supply that is the subject of the approved transfer. The transferor and transferee shall abide by the termination date of the transfer unless extended in the manner provided by law and not contest the return of the transferred water supply to the Company's service area upon such termination. In particular, the transferee shall waive any

claim of dependency, detrimental reliance, or intervening public use as a basis for extending the water transfer beyond its approved term.

g. Prior to approval of the proposed transfer, the Transferor shall deliver to the Company an agreement, in a form acceptable to the Company, signed by the Transferor and Transferee by which they agree to conform to these Rules and Regulations, and in particular this Article 13 and transferor agrees to fallow the land to which the transferred water would have been delivered. .

The foregoing regulations were adopted by the Columbia Canal Company at a regular meeting of its Board of Directors on July 8, _____, 1993.

INDEMNIFICATION AND FALLOWING AGREEMENT

INDEMNIFICATION AND FOLLOWING AGREEMENT

This Agreement is made by and between COLUMBIA CANAL COMPANY (hereinafter "Company") and the hereinafter named Transferor and Transferee on the date hereinafter set forth in the County of Madera, State of California.

TRANSFEROR:

TRANSFEE:

**PROPOSED
TRANSFER:**

In consideration of Company's approval of their proposed water transfer, and in order to prevent unreasonable impacts on Company's water supply, operations, and financial condition, the above-named Transferor and Transferee agree and covenant as follows:

1. TRANSFER SUBJECT TO RULES AND REGULATIONS.

1.01 The said transfer shall be subject to the Company's "Rules and Regulations Governing Transfers of Water Under the Central Valley Project Improvement Act of 1992 (PL 102-575)".

2. JOINT INDEMNIFICATION.

2.02 The Transferor and Transferee jointly and severally agree to defend, indemnify and hold harmless the Company against any claims of third parties that the transfer:

- a. Violates the terms of that certain contract dated February 14, 1968 between CENTRAL CALIFORNIA IRRIGATION DISTRICT, COLUMBIA CANAL COMPANY, SAN LUIS CANAL COMPANY, and FIREBAUGH CANAL COMPANY entitled "Second Amended

Contract For Exchange of Waters ";

- b. Is not a beneficial or reasonable use of water;
- c. Violates any law or regulation including, but not limited to the National Environmental Policy Act (NEPA), CEQA, Endangered Species acts, Water Quality statutes, and Area of Origin laws; or
- d. Has caused or will cause injury or damage to any person or property, including violations of any contracts, leases, trust deeds or water rights.

3. RELINQUISHMENT OF RIGHT TO RECEIVE WATER.

3.01 The Transferor relinquishes for the duration of the approved transfer the right to receive from the Company the water supply that is the subject of the approved transfer for use on the land within Company's service area.

4. TRANSFEROR TO FALLOW LAND.

4.01 Transferor agrees for the _____ crop year(s) and any subsequent crop years for which this transfer may be extended to fallow the property described in Exhibit A attached hereto which lies within the service area of Company which would have been entitled to receive all or portions of the water transferred.

4.02 The word "fallow" as used herein shall mean that the land will not be used to grow irrigated crops. Any non-irrigated crop may be grown thereon.

4.03 Transferor further agrees that while the land is fallowed that it will be kept clear of weeds or noxious plant life so that the same will not be allowed to go to seed.

4.04 Transferor agrees that if he fails to comply with the provisions of this Article 4 that Company, together with any other remedies available under the laws of the State of California, may terminate delivery of the transferred water to Transferee and terminate delivery of Company water to Transferor for the

land herein described until compliance with the terms hereof is made by Transferor.

5. TRANSFEROR TO INDEMNIFY COMPANY.

5.01 The Transferor agrees to defend, indemnify and hold harmless the Company from any claims that the transfer violates the rights of any tenants or other persons having any interest in the Transferor's land or water supply.

5.02 The Transferor further agrees to defend, indemnify and hold harmless the Company from claims that the Transferor has breached the terms of any agreements relating to the transfer of the water supply, or has failed to comply with any applicable laws or regulations, or has negligently or intentionally caused any injury or damage in the implementation of the water transfer.

6. TRANSFeree TO INDEMNIFY COMPANY.

6.01 The Transferee agrees to defend, indemnify and hold harmless the Company from any claims that the Transferee has breached the terms of any agreement relating to the transfer of the water supply, or has failed to comply with any applicable laws or regulations, or has negligently or intentionally caused any injury or damage in the implementation of the water transfer.

6.02 The Transferee covenants to abide by the termination date of the transfer unless extended in the manner provided by law and not to contest the return of the transferred water supply to the Company's service area upon such termination.

6.03 In particular, the Transferee waives any claim of dependency, detrimental reliance, or intervening public use as a basis for extending the water transfer beyond its approved term or any approved extension thereof.

6.04 Transferee recognizes that this transfer may be terminated as to future deliveries if Transferor violates the provisions of Article 4 hereof.

7. GENERAL PROVISIONS.

7.01 The foregoing indemnification provisions expressly include indemnification of the Company for any fees of attorneys, consultants or expert witnesses reasonably incurred by the Company in protecting itself against the subject claim or claims.

7.02 This Indemnification Agreement shall be binding upon the heirs, successors and assigns of the Transferor and Transferee. A re-transfer of the water supply by the Transferee to a third party shall not relieve the Transferee of any obligations under this agreement and any Re-transferee shall be subject to all of the terms and provisions hereof.

7.03 In the event suit is brought to enforce or interpret any part of this agreement, the prevailing party shall be entitled to recover as an element of their costs of suit, and not as damages, a reasonable attorneys fee to be fixed by the court. The "prevailing party" shall be the party who is entitled to recover their costs of suit, whether or not the suit proceeds to final judgment. A party not entitled to recover his costs shall not recover attorneys fees. No sum for attorneys fees shall be counted in calculating the amount of a judgment for purposes of determining whether a party is entitled to recover his costs or attorneys fees.

Dated :

"Transferor"

Dated:

"Transferee"

Dated:

Columbia Canal Company

By: _____

President
"Company"

ATTACHMENT 11

SAN JOAQUIN RIVER EXCHANGE CONTRACTORS – WATER TRANSFER POLICY

**SAN JOAQUIN RIVER EXCHANGE CONTRACTORS
WATER AUTHORITY
WATER TRANSFER POLICY**

Adopted April 7, 2000

Adopted Revised Policy November 1, 2002

Adopted Revised Policy August 5, 2005

1. Background.

- 1.1 The San Joaquin River Exchange Contractors Water Authority (SJRECWA) is a joint exercise of powers authority formed and existing under California law. Its member agencies are Central California Irrigation District, San Luis Canal Company, Firebaugh Canal Water District, and Columbia Canal Company. These four entities are traditionally referred to collectively as the **Exchange Contractors**.
- 1.2 The **Exchange Contractors** hold pre-1914 water rights on the San Joaquin River. In order to facilitate the construction of the Central Valley Project, the **Exchange Contractors** and their predecessors entered into two contracts with the United States Bureau of Reclamation in 1939. The Purchase Contract conveyed excess San Joaquin River flows—the so called “high flows”—and reserved the first San Joaquin River flows—sometimes referred to as the “low flows”—to the **Exchange Contractors**. The Exchange Contract established the terms pursuant to which a substitute supply of water was to be delivered by the Bureau of Reclamation to the **Exchange Contractors** in lieu of their “low flow” diversions from the San Joaquin River. These agreements established the underpinnings for the Bureau of Reclamation to construct Friant Dam on the upper San Joaquin River and divert the river's natural flow north to Madera and Chowchilla through the Madera Canal and south into Kern County through the Friant-Kern Canal. The Exchange Contract specifies that so long as the **Exchange Contractors** are provided a quantified substitute supply of water, the **Exchange Contractors** will not exercise their pre-1914 right to divert water from the San Joaquin River. The Exchange Contract at Article 5a contemplates that most, if not all, of this substitute water will be delivered to the **Exchange Contractors** from the Sacramento River watershed, pumped from the South Delta, and conveyed by means of the Delta-Mendota Canal. The current Exchange Contract is the Second Amended Contract for Exchange of Waters, Contract No. Ilr-1144, executed February 14, 1968.
- 1.3 The **SJRECWA** was formed in 1993 to represent its four member entities in many water matters including issues related to water transfers.

- 1.4 In California, the concept of water transfers, also referred to as water marketing or water brokering, is considered by some to be a partial solution to the shortage of water. The underlying assumption is that market forces in a free market will reallocate water. In some circumstances, agricultural water users who manage a conjunctive use water resource area can, to some extent, provide flexibility which may, at times, facilitate transfers of water. The **Exchange Contractors** proactively manage their surface water, groundwater, and conserved water conjunctively to maximize its beneficial use.

2. **Objective.** The objective of this water transfer policy is to manage water transfers to provide a framework by which the **Exchange Contractors** manage water transfers on a sound scientific basis, and to provide a clear set of standards and guidelines that each transfer proposal must comply with. The approach is designed to (i) ensure that the quantity of water proposed for transfer is made available through technically sound methods and projects which are scientifically based and verifiable; (ii) provide sound analysis of potential water transfer impacts; (iii) properly develop and implement necessary mitigations; (iv) monitor on-going water transfers and water development projects to ensure that beneficial and conjunctive use objectives are met; (v) provide flexible and efficient use of available water resources; (vi) ensure that the water supply, operations, and financial condition of the **Exchange Contractors** and their water users are not unreasonably impacted, and third party impacts from the transfer are mitigated; and, (vii) establish, maintain and utilize a data bank that will be used to manage the SJRECWA AB 3030 Groundwater Management Plan.

3. **Authority**

- 3.1 A transfer of water is considered a beneficial use under state and federal law. (Water Code Section 1011; CVPIA Section 3405.)
- 3.2 The **Exchange Contractors** hold pre-1914 rights to appropriate water from the San Joaquin River. The California Legislature has declared that it is established policy of the State to facilitate the voluntary transfer of water and water rights. (Water Code Section 109.) The Costa-Isenberg Water Transfer Act adopted by the legislature in 1986 as Water Code Sections 470 and 475-484 provides that voluntary water transfers between water users can result in a more efficient use of water, alleviate water shortages and finds and declares that it is in the public interest to conserve all available water resources. Water transfers do not undermine the rights that are the basis of the transfer. Water Code Sections 1010, 1011, 1011.5, 1244, 1440, 1731, 1737 and 1745.07 were specifically added to provide protection to water right holders who transfer water.

- 3.3 The Bureau of Reclamation utilizes the water transfer authority provided for in CVPIA to facilitate Exchange Contract water transfers. Water transfers implemented in accordance with CVPIA Section 3405(a) are deemed by federal law to be a beneficial use of water.
4. Applicability. Proposals to transfer any water from the Exchange Contractors' service area are subject to the requirements of this policy.
5. Definitions. For purposes of this policy, "water district" shall mean any water district, irrigation district, municipality, federal water agency, state water agency, or similar entity that exists pursuant to federal or state law.
6. Criteria for Water Transfers
- 6.1 Basis for all water transfers.
- 6.1.1 The state water rights, that are the underpinning of the Exchange Contract, are owned by the individual Exchange Contractors' members. The federal contract rights pursuant to the Exchange Contract are similarly owned by the individual Exchange Contractors' members. Consequently, any transfer of water from the Exchange Contractors' service area must first be approved by the Exchange Contractors' member entity from which the water will be transferred and then by the SJRECWA.
- 6.1.2 The Exchange Contractors' member entities share a water right in common, have a single water master who schedules water deliveries to the member entities, and have adopted a single groundwater management plan. The Exchange Contractors actively manage their surface water, groundwater and conserved water resources conjunctively, and manage water application within their service area to minimize drainage discharges from their service area and to cope with regulatory requirements imposed by law. Thus, all proposals to transfer water must be submitted by an Exchange Contractors' member entity and by the SJRECWA on behalf of its member entities, and water transfer proposals shall not be accepted from individual landowners. An individual landowner who proposes a water transfer must submit the proposal to the landowner's member entity, and, if approved by the member entity, shall be submitted by the member entity on behalf of the individual landowner.
- 6.1.3 It is imperative to protect the member entity's water rights and to assure

that no water right is assigned; therefore, only annually severable water transfers will be considered.

6.2 Water transfer types.

6.2.1 All water transfers shall be proposed by an **Exchange Contractors'** member entity. Additionally, the individual entities may propose a transfer jointly with any or all of the member entities. A transfer of water proposed jointly by all of the member entities shall be handled as a **SJRECWA** water transfer.

6.2.2 Therefore, transfer proposals are limited to three types:

6.2.2.1 A transfer of water by the **SJRECWA** on behalf of its four member entities.

6.2.2.2 A transfer of water by an **Exchange Contractors'** member entity to another water district.

6.2.2.3 A transfer of water by an **Exchange Contractors'** member entity to a water district that is made on behalf of an **Exchange Contractors'** landowner who is entitled to receive Exchange Contract water.

6.3 Water to be transferred. Water that is subject to transfer may be from an **Exchange Contractors'** member entity's water entitlement allocated pursuant to the Exchange Contract Division of Water Agreement, or from a member entity's non-allocated water supplies.

6.4 Generation of transferable water. Transferable water can be generated by using standard methods of conservation, groundwater substitution, or fallowing depending on the special hydrologic conditions that exist within the service area where the water is being generated as determined in paragraph 6.6.

6.5 Transferees. Water shall only be transferred to a water district.

6.6 Technical standards. All water transfers are subject to the technical standards and criteria adopted by the individual entity that proposes the transfer, and the **SJRECWA**. The technical standards are attached hereto as Appendices.

6.7 Priority of Transfers. All transfers are subject to the following priorities:

- 6.7.1** First priority shall be given to transfers initiated by the **SJRECWA** on behalf of its four member entities, and/or a transfer by an **Exchange Contractors'** member entity that enables an individual landowner within the member entity's service area to transfer water to a CVP ag service contracting water district for their own use in that water district.
- 6.7.2** Second priority shall be given to transfers initiated by an **Exchange Contractors'** member entity.
- 6.7.3** Third priority shall be given to transfers proposed by an **Exchange Contractors'** member entity on behalf of one of its landowners.
- 6.7.4** For illustrative purposes, the attached Appendix "A" provides an example of how the priority system would be implemented under the following three scenarios: 1) the transfer demands are less than the transfer supply during a normal water year; 2) the transfer demands are greater than the transfer supply during a normal water year; and, 3) a critical water year.

6.8 Limitation on Quantity of Water Transferred. Each year, a maximum shall be imposed on the quantity of water that can be transferred out of the **Exchange Contractors'** service area. The maximum shall be based upon a water budget developed in the **Exchange Contractors'** service area on a sub-basin by sub-basin basis. Each year, as soon as practicable, and not later than the **Exchange Contractors'** November board meeting, the maximum transfer quantity for the upcoming water year shall be announced. The announced maximum shall not be changed upward or downward from the announced maximum unless clear and convincing scientific evidence supports the change. Transfers initiated by **SJRECWA** will not be permitted in a critical water year designated under the Exchange Contract.

- 6.8.1** Internal Allocation of Transferable Water: On an annual basis, any **Exchange Contractors'** member entity may assign any portion of their maximum percent allocation to one or more of the **Exchange Contractors'** member entities and this assignment will increase the recipient Member Entity's share of transfers in the classifications stated below. The baseline for determining the **Exchange Contractors'** member's maximum percent allocation is the 1978 Division of Water Agreement subject to modifications pursuant to

Sections 6.8.2.1 and 6.8.2.2.

6.8.2 Transfers will be classified as: (i) conservation or groundwater transfers (80,000 AF maximum) or (ii) fallowing transfers (50,000 AF maximum). The income from each classification of transfer will be blended and distributed to the member entities in proportion to the amount of water contributed by each entity.

6.8.2.1 In regard to transfers based upon conservation or groundwater pumping, if a member entity elects not to utilize its share of the allocation or elects not to assign to another member entity a portion of its allocation, the unutilized portion of the allocation shall be made available to the other member entities in proportion to the Exchange Contractors' 1978 Division of Water Agreement.

6.8.2.2 In regard to fallowing transfers, if a member entity elects not to utilize their full allocation and elects not to assign their unused allocation to another member entity, that portion of the allocation of fallowing-based transfers shall not be allocated to other member entities for transfer.

6.9 Annual Establishment of Transferees and Maximum Quantities of Water to be Transferred to Each Transferee. Each year by no later than October 31st, the **SJRECWA** shall establish the transferees and maximum quantities of water to be transferred to each transferee. The water needed to meet these obligations will be in accordance with the transfer priorities established by Section 6.7.

6.10 Water Transfer Committee.

6.10.1 A **SJRECWA** Water Transfer Committee is established to review all transfer proposals that are submitted consistent with this policy. It will review and analyze the technical data upon which each transfer is based, and make a recommendation on each water transfer proposed. The membership of the committee will include the manager of each of the **Exchange Contractors'** member entities, and two members of the **SJRECWA** governing board, or a member's alternate, appointed by the President of the board. The committee may retain technical consultants.

- 6.10.2 The committee shall review each transfer proposal, and each approved transfer annually, to ensure that it meets the stated objectives, technical standards, and criteria of this policy.
- 6.10.3 Due to the fact that the **Exchange Contractors** and their landowners conjunctively use surface and groundwater resources, where a water transfer is proposed from lands that the committee believes will not participate fully in the conjunctive use program, the committee may limit a water transfer to the amount of groundwater used by the lands initiating the transfer so that those lands do not exceed annually their fair share of the safe yield.
- 6.10.4 The committee shall review each transfer proposal, and each approved transfer annually, to consider whether it is likely to cause unreasonable impacts to the overall water supply, water management operations, or financial condition of the transferor entity or its water users, and whether member entity impacts that result from the transfer will likely be mitigated.
- 6.10.5 The committee shall make a recommendation to the **SJRECWA** Board of Directors on each proposed transfer, and an annual recommendation for the continuation or termination of each approved transfer, based upon analysis of technical criteria developed pursuant to paragraph 6.6.
- 6.11 **Water Transfer Fees, Mitigation Costs, and Water Transfer Proceeds.**
 - 6.11.1 Where a transfer is made by a **SJRECWA** member entity, the entity will allocate a portion of the income from the water transfer to conservation projects and/or water distribution and drainage facilities, or other similar projects and actions that benefit its water users.
 - 6.11.2 Any Bureau of Reclamation, or state agency water transfer application and environmental assessment fee shall be the responsibility of the transferring entity.
 - 6.11.3 The processing by **SJRECWA** of a water transfer will require the payment by the transferring entity of all costs associated with the transfer. Such cost shall include but not be limited to management and study costs associated with administration of the Transfer Policy. For example, where a transfer involves groundwater, the transferring entity will be responsible for the cost (i) to determine safe annual yield of groundwater, (ii) for

monitoring required to analyze groundwater conditions both in terms of quantity and quality, (iii) the amount of applied water that recharges the groundwater or enters drainage systems, and (iv) to study and monitor for subsidence impacts.

6.11.4 The SJRECWA shall be the fiscal agent for all water transfers.

- 6.12 Environmental Requirements. The environmental review requirements of NEPA and CEQA must be complied with before the Exchange Contractors will process a transfer application and all such costs shall be born by the transferring member entity.
- 6.13 Public Hearing. The Exchange Contractors may conduct a public hearing to determine the impact of the proposed transfer. The transferor and transferee must attend the hearing if requested to do so by the Exchange Contractors or by the entity from which the transferor is entitled to receive water.
- 6.14 Action by SJRECWA Board of Directors. All water transfers must be approved by unanimous vote of the SJRECWA Board of Directors. A water transfer proposal along with the recommendation by the Water Transfer Committee will be considered by the SJRECWA Board of Directors, and the transfer approved, disapproved, or returned to the Water Transfer Committee for further action as directed by the Board.

APPENDIX “A”

Illustration of Transfer Policy Priority System

Annually the SJRECWA shall establish:

1. **Annual Maximum** – The maximum annual amount of water to be transferred from the SJRECWA developed on a sub-basin by sub-basin level.(section 6.8).
2. **Demand** – The maximum quantities of water to be transferred to each transferee shall be established by no later than October 31st of each year. (section 6.9).
3. **SJRECWA Supply** – The amount of water available under a SJRECWA transfer and/or a transfer by an **Exchange Contractors’** member entity that enables an individual landowner within the member entity’s service area to transfer water to a CVP ag service contracting water district for their own use in that water district. First priority. (section 6.7.1).
4. **Individual Entity Supply** – The amount of water available under an individual entity transfer. Second priority. (section 6.7.2) .
5. **Individual Entity on behalf of landowner supply** – The amount of water available for an entity on behalf of a landowner, limited by the maximum demand. Third priority. (6.7.3)

The application of the priority system described in section 6.7 is limited to determining quantities of transfer demand to be met by each of water transfer types. It will be calculated as follows (section 6.9):

TOTAL DEMAND

Less	<i>Amount available through SJRECWA initiated and/or Exchange Contractors' member entity that enables an individual within the member entity's service area to transfer water to a CVP ag service contracting water district for their own use in <u>that water district (priority 1)</u></i>
Equals	<i>Amount available for priority 2 and priority 3</i>
Then	<i>Amount available through priority 2 and priority 3</i>
Less	<i><u>The amount of water available under an individual entity transfer (priority 2)</u></i>
Equals	<i>Amount available through priority 3</i>

Individual landowners will be notified of the amount of transfer demand available to be met by the third priority. They will be required to determine their level of participation (through following as an example) as soon as possible.

To further illustrate the priorities, below are three types of water year scenarios:

NORMAL YEAR				
100 % allocation to EC; demand is 95,000 af which exceeds Supply				
Priority		Supply	Demand	Amount Transferred
1	SJRECWA/ dist. to dist. initiated	75,000	85,000	75,000
2	Exchange Contractor Entity Initiated	5,000	5,000	5,000
3	Exchange Contractor Entity Initiated on behalf of Individual	5,000	5,000	5,000
Total amount transferred		85,000	95,000	85,000

NORMAL YEAR				
100 % allocation to EC; demand is 65,000 af and is less than Supply				
Priority		Supply	Demand	Amount Transferred
1	SJRECWA/ dist. to dist. initiated	75,000	65,000	65,000
2	Exchange Contractor Entity Initiated	5,000	0	0
3	Exchange Contractor Entity Initiated on behalf of Individual	5,000	0	0
Total amount transferred		85,000	65,000	65,000

CRITICAL YEAR				
75 % allocation to EC; demand is 25,000 af and is greater than Supply				
Priority		Supply	Demand	Amount Transferred
1	SJRECWA/ dist. to dist. initiated	0	0	0
2	Exchange Contractor Entity Initiated	0	0	0
3	Exchange Contractor Entity Initiated on behalf of Individual	5,000	25,000	5,000
Total amount transferred		5,000	25,000	5,000

(Appendix to Subparagraph “6.6”)

Maximum Quantity of Water Transferable from the
Exchange Contractors Service Area due to fallowing

Adopted August 5, 2005

**Land Fallowing
Technical Standards and Guidelines**

1. The requirements of this section will be the responsibility of the Entity from which the fallowing transfer is proposed to provide or implement.
2. **Maximum Quantity of Transferable Water**
 - a. The maximum quantity of water (Max Transferable) that can be transferred by a landowner fallowing land is the *lesser of the monthly Consumptive Use of the crop being fallowed or the Exchange Contractor Entity Deliverable Monthly Entitlement*. (Subject to Adjustments within paragraph d.)
 - b. **Consumptive Use**
 - i. The consumptive use will be calculated using the average of the crops grown on the land for the past three normal water years.
 - ii. Consumptive Use (CU) = Evapotranspiration Crop + Required Leaching Fraction (LF) – Effective Precipitation.
 1. $CU = Etc + LF - EP$
 - iii. Etc is calculated on a monthly time step for the calendar year. Data on the baseline three year average ETo and rainfall is collected from the nearest CIMIS station(s). The crop coefficients (Kc) are taken from the SWRCB report # 84-1.
 - iv. LF is calculated based on the methodology outlined in the Western Fertilizer Handbook. The ECe and ECw are shown on the attached example. However these may be updated by the Exchange Contractors.

- v. EP is 50% of the three year average rainfall measured at the nearest CIMIS station(s).

c. Exchange Contractor Entity Deliverable Monthly Entitlement

- i. The deliverable monthly entitlement is that quantity of Exchange Contract Water, on average, (not other water such as well water) that can be delivered to farmed fields within the entity.
- ii. The deliverable monthly entitlement is calculated on a per acre basis.
 - 1. The deliverable monthly quantities are the Division of Waters Agreement quantities less system losses and other commitments divided by total entity acreage.

d. Adjustments

- i. The deliverable monthly entitlement may be accumulated (bath tubbed) for the 7 month period so long as the bath tub is being provided by Reclamation in accordance with the Refuge Water Transportation Agreement.

3. Determination of Acreage of Fallowed Land

- a. Acreage of Fallowed land will be based on farmed acres not assessed acreage.
 - i. The following are acceptable methods for determining farmed acreage:
 - 1. FSA data base;
 - 2. Measurements based on aerial photography;
 - 3. Field measurements, and;
 - 4. Equivalent methods approved by the transfer committee.
- b. To the extent possible whole fields will be fallowed.
- c. If only a portion of a field is to be fallowed then the fallowed portion must be physically separated from the farmed field by levee or drain. (It is important that surface water not be applied to the fallowed land.)

**CRITERIA CHECKLIST FOR A COMPLETE WRITTEN PROPOSAL FOR A
TRANSFER FROM AN ENTITY ON BEHALF OF
LANDOWNERS FALLOWING LAND**

Adopted August 5, 2005

1. Name and address of Transferring Entity
2. Names, addresses and locations of the landowners for whom the Transferring Entity is Transferring water on behalf of.
3. If all or a portion of the transfer proposal by the Entity is on behalf of a Landowner for his own use in another District, then:
 - a. Provide name, address and location of the Receiving District
 - b. Provide detailed location maps of the area(s) proposed to receive the transferred water.
 - c. Provide documentation (assessors or other data) showing ownership of area(s) proposed to receive water.
 - d. The transferring entity shall, at the end of the water season, provide a water balance for water use and consumptive use on receiving lands to demonstrate that deep percolation is not contributing to the down slope drainage problem.
4. Provide crop maps showing the locations of fields being fallowed.
5. Provide a tabulation of the acreage of fields being fallowed and the crops grown during the last three normal water years.
6. State the quantity of water involved within the transfer and identify the proposed use for the transferred water.
7. Provide the calculations of the **Maximum Quantity of Transferable Water** based on the Land Fallowing Technical Standards and Guidelines.
8. State that the entity will be responsible to field verify that fallowing is accomplished as proposed and that an end of the year report on the fallowed lands will be provided.

9. Provide a complete written description of the transfer proposal, including any special water transfer scheduling.
10. Attach statement by the Entity from where the water is being transferred that the transfer will have no unreasonable impact on water supply, operations, or financial condition of the Entity or its water users.
11. State that the entity will guarantee that the fallowed lands will be maintained so as to not create a nuisance to neighboring lands.

May
2023

Columbia Canal Company - Delivery Schedule

Acres	18,562				
Schedule	8,703				
Carryover	0			Recharged	
Total Scheduled	8,703				
Losses (%)	0.10%			Unused	
Total Allocated	6,033	AF			
Water User	Shares	Ratio	Allocated	Actual	Balance
AgriLand	400.64	0.0242	145.90	192	-46.10
Antuna	2.62	0.0002	0.95	0	0.95
Avila, Fidel	10.68	0.0006	3.89	0	3.89
Baldrige Farms	293.25	0.0177	106.82	39	67.82
Burkhart Heirs	143.86	0.0087	52.40	74	-21.60
Cardella, Chris	173.41	0.0105	63.17	50	13.17
Cardella, D/McCraw	16.43	0.0010	5.98	0	5.98
Cardella/Lopes & Barger	661.62	0.0399	241.00	1	240.00 259
Columbia Canal	379.63	0.0230	138.75	0	138.75
Elrod Farms	666.17	0.0523	315.51	35	280.51
Elrod, D/Fischer	6.28	0.0004	2.29	0	2.29
Elrod/Lorenzetti	150	0.0091	54.64	11	43.64 326
Farmers Water	99.04	0.0060	36.08	0	36.08
Fleming	30.11	0.0018	10.97	0	10.97
FNS Investment	66.17	0.0040	24.10	0	24.10
Franco, Antonio J.	30.14	0.0018	10.98	0	10.98
Garcia, Abel	0.91	0.0001	0.33	0	0.33
Harris Ranch	198.65	0.0120	72.36	0	72.36
Hernandez, R.	5.05	0.0002	1.21	0	1.21
Knight, Ray	0.77	0.0001	0.60	0	0.60
Lopez, Rodrigo	2.41	0.0001	0.88	0	0.88
Marquez, Javier	9.01	0.0006	3.62	0	3.62
Mitigation Lands Trust	84.6	0.0051	30.82	0	30.82
Noyes Apiaries	3.0	0.0002	1.09	0	1.09
Parker, Ron Farms	39.39	0.0023	13.88	0	13.88
Perry, Joe	5.45	0.0003	1.81	0	1.81
Pistoresi, Ralph	49.24	0.0030	17.94	5	12.94
Rainey, Brian	8.9	0.0005	3.24	0	3.24
Samarin, Ken	1290.16	0.0779	469.95	48	421.95
Sran Orchards-S3 Group	406.64	0.0245	147.80	15	132.80
Teixeira & Sons/Carey	21.0	0.0013	7.84	0	7.84
Teixeira & Sons/Dolan	105.63	0.0064	38.48	8	30.48
Teixeira & Sons/Houk	15.51	0.0009	5.43	12	-6.57
Teixeira & Sons/Houk Lease	153.49	0.0093	55.91	0	55.91 86
Vincent, Darrel	181.03	0.0109	65.94	21	44.94
Vincent, Darrel & Dene	183.73	0.0111	66.92	0	66.92
Vincent, Darrell (F)	298.16	0.0180	108.60	226	-117.40
Vincent-B.B. Mowry	839.33	0.0507	305.73	148	157.73
Vincent-B.B./Harrison	1676.07	0.1012	610.52	0	610.52 763
Wonderful	7372.33	0.4451	2685.40	623	2062.40
Wonderful/N.F. Davis	280.6	0.0169	101.95	0	101.95 2,164
Zaro, Jasen	0.77	0.0001	0.60	0	0.60
Share Holders	18,561.77	0.9999	6,032	1,508	4,524

MINUTES OF THE REGULAR MEETING OF
THE BOARD OF DIRECTORS OF
COLUMBIA CANAL COMPANY
HELD DECEMBER 21, 2023

Pursuant to the call of the President and to written notice duly made and given, as provided in the by-laws, a special meeting of the Board of Directors of Columbia Canal Company was held at the Columbia Canal office, December 21, 2023 at the hour of 8:10 a.m.

President Chris Cardella presided over the meeting and called it to order with Vice President Shane Burkhardt, Ken Samarin, Kim Brown, Rick Elrod, Darrell Vincent, Chris White, E.D. SJRECWA, Adam Hoffman- Watermaster, General Manager Michael Gardner and CCC Secretary Noelle Catania.

APPROVAL OF MINUTES

The minutes of the October 19, 2023 Board meeting were presented for approval. A motion was made by Director Brown to approve the minutes. The motion was seconded by Vice President Burkhardt. The motion passed unanimously.

APPROVAL OF CHECK REGISTER

The October 18, 2023 thru December 13, 2023 Check Register was presented for Board's approval. After some discussion Director Brown moved to approve the

Check Register. The motion was seconded by Director Samarin. The motion passed unanimously.

GENERAL MANAGER'S REPORT

Financial Report: General Manager Gardner presented the Board with a copy of the Financial Statement thru December 21, 2023. The income statement reflected 87.29% of Budget, and the Expenses reflected 80.80%. A motion to approve the Financial Register was made by Director Brown and seconded by Director Burkhart. A copy is in the minutes file.

CCC-2024 Budget: A motion to approve the CCC- 2024 Budget was made by Vice President Burkhart and seconded by Director Brown. The motion passed unanimously.

SJRECWA-2024 Budget: The Board was presented with a copy of the San Joaquin River Exchange Contractors Water Authority 2024 Budget. A motion to approve the SJRECWA Budget was made by Director Brown and seconded by Vice President Burkhart. The motion passed unanimously. A copy is in the minutes file.

Water Conservation Projects: A motion to approve Water Conservation projects #146-Fleming, #147-B&B Limited, #148 D.V. Farms and #149 Rick Elrod was made by Director Brown and seconded by Director Puget. The motion passed

unanimously.

Monthly Deliveries: The Board was presented with the October and November 2023 Delivery Schedules.

Mid Pacific Water Users Conference-Reno, NV: The Board was informed about the upcoming 56th Annual Mid-Pacific Water Users' Conference- January 24-26, 2024.

SJRECWA-Water Master: The Board was presented with copies of the Water Master's Report.

SJRECWA-Executive Director's Report: The Board was presented with Chris White's E.D. Report. A copy is in the minutes file.

Closed Session: Columbia Canal salaries, wages and bonuses were implemented. Directors and committee were reimbursed for their time at meetings

Future Meeting Dates: The next Regular CCC Meeting will be held on February 15, 2024, at 8:00 am.

There being no further business, the meeting adjourned at 9:30 pm.

Chris Cardella, Acting General Manager

Columbia Canal Company
Water Conservation Grant Policy
2023

Columbia Canal Company will grant, to its shareholders, up to 50% of all new water conservation projects, approved by the Columbia Canal Company's Board of Directors, under the following policy regulations.

- (1) All proposed projects will be reviewed with water conservation for CCC's entire district being the main goal.
- (2) All shareholders of CCC are eligible for water conservation grants on lands in the CCC district.
- (3) All proposed projects must first be submitted for approval, by the Board of Directors, in order to qualify for CCC grant funding.
- (4) Proposed projects reimbursable by CCC must be submitted 30 days prior to start of a project. After approval, any project changes could affect grant funding.
 - A. All grant funding by CCC will be paid after inspection and completion of approved projects.
 - B. Grant Funding must be paid within one year after completion of Project or final billing.
- (5) The CCC Board of Directors will establish the yearly amount of funding for the water conservation grant policy and the maximum grant per year for each shareholder of CCC.
 - A. For the year 2023 the water conservation grant program will be funded to \$1,000,000.
 - B. For the year 2023 the maximum grant per shareholder for new approved projects is \$75,000.00.
- (6) The following is a list of possible water conservation projects that could be approved for CCC grant funding, but are not limited too:
 - A. Converting to permanent approved water conservation irrigation systems.
 - B. Approved tail-water return systems.
 - C. Approved underground pipe systems.
 - D. Approved cement lined ditches after F.S.A. action (if any).

- E. **Approved land leveling for conservation.**
- (7) **The CCC encourages water conservation for the district and its shareholders. If you have a proposed project that isn't listed above, please submit it to the CCC Board of Directors for review and consideration.**
- (8) **Existing Water Conservation Projects – Maintenance and Repairs:**
 - A. **CCC Wide Projects - Maintenance and repairs 100% by CCC.**
 - B. **Shareholder Projects – up to \$50.00 an Acre for existing micro or drip systems.**
 - C. **Maintenance or repair of Shareholder Tail-Water return systems, underground pipe systems, cement lined ditches, will be evaluated by CCC staff, and recommendations made to CCC Board of Directors.**
- (9) **The CCC Board of Directors reserves the right to change or modify this policy, without prior notice, to the shareholders of CCC.**

RESOLUTION NO. 24-02

RESOLUTION TO APPROVE THE WATER MANAGEMENT PLAN 5 Yr. UPDATE

WHEREAS, THE COLUMBIA CANAL COMPANY has previously developed and submitted a Water Management Plan 5 yr. update pursuant to the guidelines of the Bureau of Reclamation; and

WHEREAS, the Bureau requires that the Water Management Plan 5 yr. update be periodically reviewed and updated; and

WHEREAS, THE COLUMBIA CANAL COMPANY has prepared a "Water Management Plan 5 Yr. Update" in accordance with the Bureau's current criteria.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors approves the Water Management Plan 5 yr. Update and directs that a copy of the Plan, along with a certified copy of this Resolution, be forwarded to the Bureau of Reclamation; and

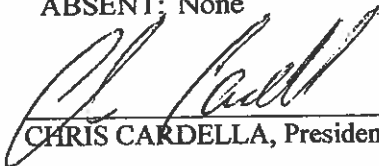
BE IT FURTHER RESOLVED THAT the Manager is hereby authorized to sign and execute on behalf of the Canal Company any documents related to the Water Management Plan.

PASSED AND ADOPTED THIS 17th day of October 2024 by the following vote:

AYES: CHRIS CARDELLA, SHANE BURKHART, BERNARD PUGET, KEN SAMARIN, KIMBERLY BROWN

NOES: None

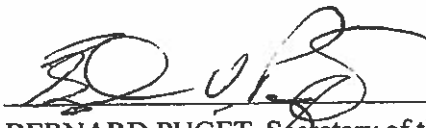
ABSENT: None


CHRIS CARDELLA, President

ATTEST:


BERNARD PUGET, Secretary Treasurer

I, BERNARD PUGET, Secretary of the Board of Directors of COLUMBIA CANAL COMPANY, do hereby certify that the foregoing is a true and current copy of a resolution adopted by said Board of Directors of said District at a regular meeting of the Board held on Thursday, October 17, 2024.


BERNARD PUGET, Secretary of the
Board of Directors of the Columbia
Canal Company

