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

A. Water Supply Quantity

1. Surface Water Supply

Most of the water supply utilized within the District is surface water from the State Water Project (SWP) and is delivered to the District through the California Aqueduct (Aqueduct) by virtue of a contract signed with the KCWA. The KCWA in turn has a contract with DWR. In most years, the District purchases supplemental water supplies from KCWA and from other sources to partially offset SWP shortages (Table 34).

The District's annual entitlement of SWP water is 119,110 acre-feet (af). Historically in many years, Article 21 water and Turnback water has been available for purchase that can be used to supplement the District's contract supply. But those supplies have diminished in recent years. In many years, the District is water short and needs to purchase supplemental water from others besides KCWA. Also, the landowners will periodically transfer water into the District to help meet their crop water requirements.

The District's contracted water allotment is subject to deficiencies. Historically these shortages were due to drought conditions but in recent years significant deficiencies are the result of numerous restrictions in the delta by fishery agencies (Table 33). In fact, water supply deficiency is one of the major concerns of the District. Without a firm water supply, it is difficult, if not impossible, for growers to effectively plan for the coming growing season. Often the anticipated water supply changes from month to month and is not finalized until late spring or early summer, by which time it may be too late for a grower to obtain financing or obtain economical supplemental water for crops.

Table 33. Surface Water Supplies (AF)						
Source	**Diversion Restriction**	**2016**	**2017**	**2018**	**2019**	**2020**
Pre-1914 water rights	NA	0	0	0	0	0
CVP class I water contract	NA	0	0	0	0	0
SWP water contract	ESA & Delta BIOps	71,466	101,244	41,689	89,333	23,822
Other Surface Water*	ESA & Delta BIOps	-12,815	27,080	27,550	2,729	15,743
Banked water recovery	NA	13,763	-63,546**	6333	-19,704**	10,547
Upslope drain water	NA	0	0	0	0	0
Carryover		10,544	24,457	10,351	17,077	33,669
Other		0	0	0	0	0
Total		**82,958**	**89,235**	**85,923**	**89,435**	**83,781**
Notes:						
ESA = Endangered Species Act						
NA = Not Applicable						
BiOps = Smelt and Salmon Biological Opinions						
*Other Surface Water = Surface imports – Next Year Carryover						
** Negative number indicates Recharged Water						

Table 34. Restrictions on Water Sources			
Source	**Restrictions***	**Name of Agency Imposing Restrictions**	**Operational Constraints**
SWP	ESA & Water Quality	USF&WS, NMFS & SWRCB	Restricted Delta Pumping
SWP	Facility Operations and Maintenance	NA	Restricted SWP Deliveries and increased cost
Notes: SWP = State Water Project *ESA = Endangered Species Act protection measures *USF&WS = US Fish and Wildlife Service *NMFS = National Marine Fisheries Service *SWRCB = State Water Resources Control Board *Water Quality restrictions relate to maintenance of Delta salinity standards.			

2. Groundwater Supply

A few private groundwater wells have historically supplied limited amounts of water for blending with SWP water, usually during shortage years. Limited records are available of the historical quantity of water pumped, as these were private wells. LHWD contacted the landowners for pumper groundwater quantities shown in table 38. The District does participate in the Berrenda Mesa and Pioneer groundwater banking projects to supplement dry-year water supplies.

The District drilled a test well in late 1992 in Service Area 6 in an attempt to find some good quality groundwater that could be used to supplement the surface water supply during shortage years and help stabilize the water supply. This well was drilled to a depth of 900 feet, and when the water was tested in 1992, the water quality analysis showed total dissolved solids of 372 mg/l and an electrical conductivity of 0.62 µmhos/cm, which is generally acceptable for irrigation.

The District periodically monitors the water level in the test well that was drilled in 1992. The most recent information obtained by the District shows the standing water level at approximately 185 feet. Farming operations in the area of this well have ceased and the well has not been utilized for a number of years.

The District periodically operates a well to supply water to its evaporation basin mitigation site. The water quality is not suitable for agricultural use.

3. Sustainable Groundwater Management Act (SGMA)

Lost Hills Water District is located within the Kern Subbasin (Table 35). Lost Hills' SGMA compliance is handled through the Westside District Water Authority (WDWA), which is a member of the Kern Groundwater Authority (KGA), a Groundwater Sustainability Agency in the Kern Subbasin. An initial plan was submitted in early 2020, and the WDWA has been employing the management actions since then. The Management Area Plan (MAP) outlined three management actions to be completed over the course of SGMA implementation. All the management actions identified in the WDWA chapter GSP continue to progress. The three current management actions as stated in the WDWA chapter GSP are:

- Collection and analysis of representative hydrogeologic data to remedy a documented lack of groundwater data in the Westside.
- Water resource coordination – due to poor groundwater quality, Westside landowners rely primarily on surface water. As such to further reduce groundwater use and increase drought resiliency, WDWA Districts and their landowners will continue to work cooperatively in pursuing supplemental surface water opportunities, including trades and purchases both between themselves and with parties outside of the WDWA.
- Conjunctive reuse of brackish water as a new source of water supply is in the feasibility study and economic assessment phase. Sources of brackish water under study for treatment and beneficial reuse include groundwater with TDS above 2,000 mg/L and oilfield produced water.

For more information on Lost Hills Water District's compliance with SGMA, please see the Kern Groundwater Authority Groundwater Sustainability Plan, and reference the WDWA Management Area Plan.

Table 35. Groundwater Basins			
Basin Name	**Size (Sq. Mi.)**	**Usable Capacity (AF)**	**Safe Yield (AF/Yr)**
LHWD portion of Kern sub-basin of Tulare Lake basin (Water Banking Projects)	116	Unknown	Unknown
Note: Area of main Tulare Lake Hydrologic Region: 5,149,000 acres = 8,045 sq. mi. Area of Kern County sub-basin: 1,950,000 acres = 3,047 sq. mi. (37.9% of Tulare Lake Hydrologic Region) Area of LHWD: 74,357 acres = 116 sq. mi. (3.8% of Kern County Sub-basin)			

4. Delta Plan Consistency

To provide "the expected outcome for measurable reduction in Delta reliance", baseline historic Delta supplies delivered to DRWD were compared to supplies delivered over the past decade. Additionally, Delta supply reduction projections were made for comparison and future planning. For the purposes of comparison, the historic baseline period selected begins in 1996 and ends in 2010 because it is consistent with the typical historic water budget reporting period included in the recently completed Groundwater Sustainability Plans. This period provides a reasonable time frame for assessing average current conditions and to demonstrate consistency with reduced Delta reliance after enactment of the Delta Reform Act (2009). The table below shows projected water supplies from the Delta. The California Water Commission CALSIM 2030 and 2070 climate change scenarios were used to project future water supplies under 2030 and 2070 climate change scenarios. The table and figure below demonstrate reduced Delta reliance. Over the 2015 AWMP period, a 18% reduction in Delta water supplies was observed when compared to the baseline condition discussed above. Over the past decade (combined 2015 and 2020 AWMP period), a 15% reduction was observed. Due to increasing environmental commitments and restrictions on Delta Flows, landowners in the District will continue to experience reductions in Delta supply, likely exceeding the 2030 and 2070 projections.

Table 36. Comparison of Historic Average Annual Delta Supplies vs. Projected Average Annual Delta Supplies					
Value	**Baseline Delta Supplies (1995-2010)**	**2015 Conditions Delta Supplies**	**2020 Conditions Delta Supplies**	**2030 Climate Conditions Delta Supplies**	**2070 Climate Conditions Delta Supplies**
Average Annual Supplies	108,000	88,000	92,000	91,000	84,000
Percent of Baseline Supply	n/a	82%	85%	84%	78%
Percent Reduction in Supplies		18%	15%	16%	22%

Figure 2. Historic, 2015 & 2020 AWMP and Projected Delta Supplies

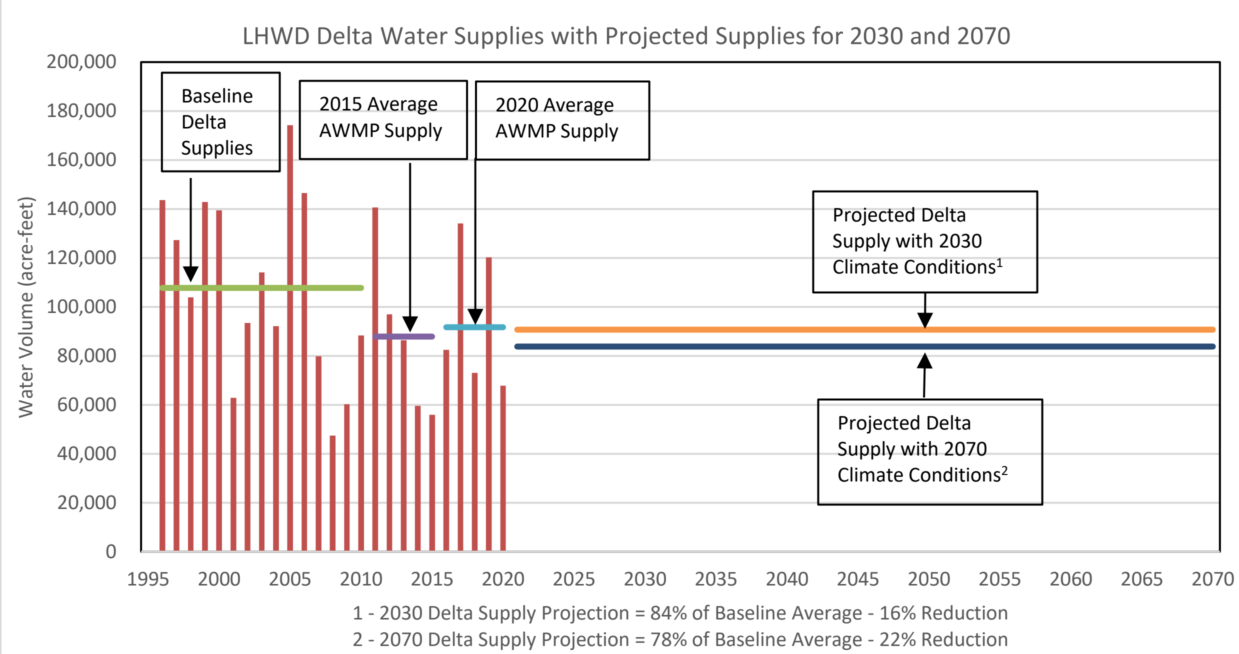

Table 37. Groundwater Management Plan	
Written By	LHWD
Year	2020
Is Appendix Attached?	Yes

Table 38. Groundwater Supplies (AF)

Groundwater Basin	Diversion Restriction	2016	2017	2018	2019	2020
Water Supplier Direct Pumping	None	N/A	N/A	N/A	N/A	NA
Private Pumping	None	N/A	N/A	N/A	N/A	8415
Transfers / Exchanges	None	N/A	N/A	N/A	N/A	NA
TOTAL						**8415**

5. Other Water Supplies

The District has no other water supplies.

6. Drainage from the Water Supplier's Service Area

A significant portion of land within the District is affected by saline shallow groundwater. Shallow groundwater in the area is high in salts and some other naturally occurring elements, including Boron and Selenium. Approximately 6,800 acres within the District are currently tile drained and produce subsurface drainwater that is routed to evaporation ponds. The tiled land is primarily located in Service Area 4, although some tiled land is located in the northern area of Service Area 5. The evaporation ponds were installed by landowners and later acquired by the District. Portions of Service Areas 2, 3, 6 and the remainder of 5 are also subject to some perched water conditions but do not currently have any drainage facilities.

When the District acquired the evaporation pond system from the landowners in 1993, the system was composed of 6 ponds totaling 660 acres. Through drainage reduction efforts, the District has been able to reduce drainage inflows and also reduce the size of the evaporation pond system. Significant cropping pattern changes, installation of micro-irrigation systems, and canal lining in the drainage area also helped to reduce the amount of drainwater collected. The District's evaporation pond system is now comprised of four interconnected evaporation ponds. During 2012 only one pond totaling 12 acres was utilized. The amount of drainwater discharged to the evaporation pond system has been reduced from a high of 3,831 AF in 1989 to less than 100 AF in 2012. The District conducts a monitoring and wildlife hazing program at the pond system in compliance with the Waste Discharge Requirement issued by the Regional Water Quality Control Board (RWQCB).

The evaporation pond system is shown in Appendix 6. Table 39 lists evaporation surface areas for the evaporation pond system as acquired by the District in 1993:

Table 39. Evaporation Pond Acres

	Pond 1	Pond 2	Pond 3A	Pond 3B	Pond 3C	Pond 4	Total
Area (ac)	200	114	112	65	12	31	534

In 1995, Pond 3C and Pond 4 (an emergency overflow cell which was used for a few years while Pond 2 was being constructed) were closed in accordance with the District's Closure Plan. Ponds 3C and 4 have been eliminated from future regular service by removing all of the levees that are not adjacent to other active ponds. Closure activities were initiated on Ponds 3A and 3B in 1996 but not completed. In 2002, one levee of Pond 3A that had previously been removed was rebuilt so that Pond 3A could be used to store drain water as an alternative for Pond 1 and/or Pond 2. Pond 3B was re-configured into a smaller (12 acre) pond to allow the District greater flexibility in managing the depth of the ponded drainwater. In 2012, closure activities were initiated in Pond 1 which contains 200 acres.

There are three sump discharges into the pond system where the drainage volume is metered. The historical volume entering the various ponds is shown below for each calendar year (Table 40).

Table 40. Historical Drainage Volumes (AF) (1988-2020)					
Calendar Year	Pond 1	Pond 2	Pond 3A	Pond 3B	Total
1988	1676	0	321	455	2452
1989	2662	0	490	679	3831
1990	1995	0	446	647	3088
1991	810	0	334	690	1834
1992	979	0	12	734	1725
1993	1010	810	0	34	1854
1994	1092	647	0	0	1739
1995	791	758	0	0	1549
1996	1057	443	0	0	1500
1997	1086	545	0	0	1631
1998	864	446	0	0	1310
1999	1150	321	0	0	1471
2000	1064	405	0	0	1469
2001	480	161	0	0	641
2002	494	0	12	0	506
2003	10	0	675	0	685
2004	0	0	330	0	330
2005	0	0	101	0	101
2006	0	0	0	105	105
2007	0	0	0	72	72
2008	0	7	0	68	75
2009	4	5	0	11	20
2010	0	0	10	39	49
2011	0	0	0	94	94
2012	0	0	0	0	0
2013	0	0	0	0	0
2014	0	0	0	0	0
2015	0	0	0	0	0
2016	0	0	0	0	0
2017	0	0	0	0	0
2018	0	0	0	0	0
2019	0	0	0	0	0
2020	0	0	0	0	0

As part of the annual evaporation pond monitoring program, the District monitors a series of observation wells around the perimeter of the ponds as shown in Appendix 6.

With cooperation from water users implementing drainage reduction measures and changes in cropping patterns, there has been no drainwater discharged into the pond system in recent years (Table 41). As mentioned earlier, the District reconfigured Pond 3B into a smaller cell to minimize the ponded area and maximize the pond water depth in the future.

Table 41. Drainage Discharge (AF)						
Surface/ Subsurface Drainage Path	**2020**	**2019**	**2018**	**2017**	**2016**	**Inside/ Outside Service Area**
Subsurface drainage into evaporation pond	0	0	0	0	0	Inside

B. Water Supply Quality

1. Surface Water Supply

There have been no water quality problems that limit the use of the SWP water within the District. The District does not monitor the surface water quality since all of the water delivered by the District is from the SWP and other agencies are already analyzing this water. The DWR has an on-going monitoring program where the quality of the SWP water is monitored on a monthly basis. The water is sampled at several locations along the Aqueduct and analyzed for electrical conductivity, standard minerals, selected trace elements and chemical residue. Table 42 presents historical water quality data for the months of January and June for the years 2010 through 2020. The water quality data shown in Table 42 was collected by DWR at Check 21 in the Aqueduct near Kettleman City, just upstream of the District.

The SWP water quality is generally very good for irrigation purposes, although even good quality water contains some salt. The evapotranspiration (ET) process returns water to the atmosphere but leaves the salts behind in the soil. To avoid damaging buildup of salt in the crop root zone, water in excess of the crops' ET is required. The amount of excess water needed, known as the leaching requirement, varies with the crop, soil, climate and quality of the applied water and is used as an indicator of the minimum amount of water needed to flush salts from the root zone.

Table 42. Surface Water Supply Quality

Selected Laboratory Results

Station Name/NR CALIFORNIA AQU NR KETTLEMAN CK-21 (KA017226)

		Sample Date													
Parameter	**Units**	**1/12/2010**	**6/15/2010**	**1/18/2011**	**6/14/2011**	**1/17/2012**	**6/19/2012**	**1/15/2013**	**6/18/2013**	**1/14/2014**	**6/17/2014**	**1/20/2015**	**6/16/2015**	**1/14/2020**	**6/16/2020**
Alkalinity as CaCO3	mg/L	78	76	47	40	77	73	72	72	89	93	95	92	71	76
Aluminum	mg/L	N/A	N/A	N/A	).173,0.175**	0.077	0.092	0.124	0.048	r	r	0.015	r	0.0441	0.063
Dissolved Ammonia	mg/L	0.04	0.01	0.05	<0.01	0.02	0.01	0.05	r	0.002	0.02	0.08	0.04	<0.05	<0.05
Dissolved Arsenic	mg/L	0.002	0.002	0.001	0.001	0.002	0.002	0.001	0.002	0.001	0.003	0.004	0.002	<0.001	0.002
Arsenic	mg/L	N/A	N/A	N/A	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.003	0.0023	0.002
Barium	mg/L	N/A	N/A	N/A	<0.05	0.039	0.033	0.033	0.037	0.031	0.026	0.045	0.039	0.037	0.032
Dissolved Beryllium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Beryllium	mg/L	N/A	N/A	N/A	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Dissolved Boron	mg/L	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.151
Dissolved Bromide	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.18	0.193
Dissolved Cadmium	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.001	<0.001
Cadmium	mg/L	N/A	N/A	N/A	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Dissolved Calcium	mg/L	22	21	15	12	22	20	22	22	25	25	26	25	18	19
Dissolved Chloride	mg/L	75	70	28	24	109	62	74	76	107	110	116	109	59.5	68
Dissolved Chromium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Chromium	mg/L	N/A	N/A	N/A	0.001	0.003	0.001	r	r	r	r	r	r	<0.001	<0.001
Conductance (EC) µS/cm	µS/cm	496	449	259	223	630	426	474	469	624	648	671	645	415	450
Dissolved Copper	mg/L	0.002	0.002	0.008	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	<0.001	0.001
Copper	mg/L	N/A	N/A	N/A	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.002	0.003	<0.001
Dissolved Hardness as CaCO3	mg/L	112	105	68	53	114	98	113	111	132	135	137	136	93	95
Dissolved Iron	mg/L	<0.005	<0.005	0.017	0.016	0.019	<0.005	0.034	r	0.005	r	r	r	<0.005	0.0132
Iron	mg/L	N/A	N/A	N/A	).389,0.395**	0.131	0.12	0.14	0.08	0.017	0.017	0.017	0.023	0.099	0.076
Kjeldahl Nitrogen as N	mg/L	0.4	0.4	0.6	0.4	0.4	0.3	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.3
Dissolved Lead	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Lead	mg/L	N/A	N/A	N/A	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Dissolved Lithium	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Magnesium	mg/L	14	13	8	6	15	12	14	14	17	18	18	18	11	11.6
Dissolved Manganese	mg/L	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	r	0.005	r	0.005	0.01	r	<0.005	<0.005
Manganese	mg/L	N/A	N/A	N/A	0.049,0.05**	0.014	0.021	0.007	0.015	0.008	0.015	0.023	0.017	0.013	0.018
Dissolved Mercury	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<0.0002	<0.0002
Dissolved Molybdenum	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Nickel	mg/L	0.001	0.001	0.002	<0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	<0.001	0.002
Nickel	mg/L	N/A	N/A	N/A	0.002	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Dissolved Nitrate	mg/L	3.7	2.5	2.9	2.4	3.8	1.8	4.6	1.6	2.4	0.4	0.2	2	4.6	0.7
Dissolved Nitrate + Nitrite as N	mg/L	0.69	0.54	0.65	0.41	0.87	0.4	1	0.32	0.57	0.09	r	0.49	1.06	0.156
Dissolved Ortho-phosphate as	mg/L	0.05	0.08	0.08	0.05	0.06	0.06	0.07	0.05	0.05	0.05	0.08	0.08	0.085	0.054
Dissolved Organic Carbon	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.5	3.3
Total Organic Carbon	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.7	3.2
Phosphorus	mg/L	0.09	0.1	0.12	0.11	0.08	0.08	0.09	0.08	0.07	0.08	0.09	0.1	0.08	0.07
Dissolved Selenium	mg/L	0.001	0.001	0.001	<0.001	<0.001	0.001	r	r	0.001	0.001	0.001	0.001	<0.001	0.001
Selenium	mg/L	N/A	N/A	N/A	<0.001	<0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	<0.001	0.001
Silver	mg/L	N/A	N/A	N/A	<0.001	<0.001	<0.001	r	r	r	r	r	r	<0.001	<0.001
Dissolved Sodium	mg/L	52	50	24	21	68	46	56	54	76	80	79	71	45	48
Total Dissolved Solids	mg/L	275	274	151	124	347	236	270	261	345	367	370	357	230	249
Total Suspended Solids	mg/L	2	11	7	20	2	11	1	3	1	1	r	1	1	2.3
Volatile Suspended Solids	mg/L	1	<1	1	2	<1	3	r	1	1	r	r	r	<1	<1
Dissolved Strontium	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Sulfate	mg/L	42	43	26	25	45	35	44	40	52	52	47	52	31	36
Dissolved Zinc	mg/L	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	r`	r	r	r	r	r	<0.005	<0.005
Zinc	mg/L	N/A	N/A	N/A	<0.005	<0.005	<0.005	0.005	r	r	r	r	0.007	<0.005	<0.005
pH		8	8.2	7.6	7.7	7.8	8.1	7.6	7.8	8.6	8.7	8	8.2	7.7	8.7

http://www.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA017226&source=map

mg/L = milligrams per liter

µS/cm = microSiemens per centimeter

2. Groundwater Supply

There are three groundwater zones within the District: "perched" or shallow, "unconfined" and "confined". Shallow groundwater is found above a clay layer called the "A” clay, which is about 40 feet below the ground surface. This shallow groundwater is generally of such poor quality that it is unacceptable for irrigation use. Observation wells located within the shallow groundwater area have shown TDS (total dissolved solids) levels ranging from 5,000 to near 100,000 parts per million (ppm). In recent years, shallow observation wells have been dry, with very few exceptions.

The unconfined aquifer lies on top of a thick, nearly impervious clay layer called the Corcoran Clay. The Corcoran Clay lies 600 to 700 feet below the ground surface. The water quality of the unconfined aquifer as measured by KCWA generally ranges from 500 to over 5,000 ppm TDS within the eastern part of the District. KCWA's mapping of the unconfined aquifer terminates near the Aqueduct so very little information is available for the area west of the Aqueduct. The maps prepared by KCWA utilize chemical analyses of well water samples collected over several years.

The confined aquifer is found below the Corcoran Clay. This water is generally of better quality than the unconfined aquifer water and is the best chance to obtain useable groundwater within the District. The water quality of the confined aquifer as measured by KCWA generally ranges from 500 to 3,000 ppm TDS within the eastern part of the District. The northeast corner of the District appears to contain the best quality groundwater, and is where the majority of groundwater in 2020 was pumped.

3. Other Water Supplies

Water transferred into the District and/or returned from banking projects has Aqueduct quality (because it is exchanged and conveyed in the Aqueduct).

4. Drainage from the Water Supplier's Service Area

As explained in Section IV.A.4, the amount of subsurface drainage water is very limited and its chemical characteristics present limitations for its reuse in irrigation. All the drainage water is managed as wastewater which is contained and eliminated in evaporation ponds within the District's Service Area.

Table 43. Drainage Reuse Effects

Analyte	Detected (Check)	Drainage Reuse Limitations				
		Increased Leaching	Blending Supplies	Restricted Area of Use	Restricted Crops	Other
TDS	✓	✓	✓	✓	✓	
Se	✓			✓		
B	✓	✓	✓	✓	✓	
Mo						
As						
Na	✓	✓	✓	✓	✓	
Cl	✓	✓	✓	✓	✓	
Pesticide						
Herbicide						
Fertilizer(NO_3)						
Other						

C. Water Quality Monitoring Practices

1. Source Water

Regarding surface water supply, DWR maintains an automated sampling station at Check 21 (just upstream from the District turnouts) that records electrical conductivity, water temperature, and turbidity on a daily basis. In addition, grab samples are taken on monthly intervals. Groundwater is not used in the District. Drainage water is discharged directly into the evaporation ponds in which water is evaporated. Table 44 describes the monitoring practices and Table 45 summarizes sampled constituents and analysis standards.

Table 44. Water Quality Monitoring Practices

Water Source	Monitoring Location	Measurement/ Monitoring Method or Practice	Frequency
Surface water	DWR California Aqueduct (Kettleman City) Check 21 Station KA017226	See DWR standards	DWR standards
Groundwater	Various	As required by ILRP/SGMA	As required by ILRP/SGMA
Subsurface drainage water	Pond influent sumps and pond itself	Grab sampling of drainwater at influent sumps and evaporation pond	Quarterly

Table 45. Water Quality Monitoring Programs for Surface/Sub-Surface Drainage		
Constituent	**Units**	**Standard**
Total Alkalinity as CaCO3	mg/L	Std Method 2320 B
Total Aluminum	mg/L	EPA 200.8 (T)
Dissolved Ammonia as N	mg/L	EPA 350.1
Dissolved Arsenic	mg/L	EPA 200.8 (D)
Total Arsenic	mg/L	EPA 200.8 (T)
Total Barium	mg/L	EPA 200.8 (T)
Dissolved Beryllium	mg/L	EPA 200.8 (D)
Total Beryllium	mg/L	EPA 200.8 (T)
Dissolved Boron	mg/L	EPA 200.7 (D)
Total Cadmium	mg/L	EPA 200.8 (T)
Dissolved Calcium	mg/L	EPA 200.7 (D)
Dissolved Chloride	mg/L	EPA 300.0 28d Hold
Dissolved Chromium	mg/L	EPA 200.8 (D)
Total Chromium	mg/L	EPA 200.8 (T)
Conductance (EC)	µS/cm	Std Method 2510-B
Dissolved Copper	mg/L	EPA 200.8 (D)
Total Copper	mg/L	EPA 200.8 (T)
Dissolved Hardness as CaCO3	mg/L	Std Method 2340 B
Dissolved Iron	mg/L	EPA 200.8 (D)
Total Iron	mg/L	EPA 200.8 (T)
Total Kjeldahl Nitrogen as N	mg/L	EPA 351.2
Dissolved Lead	mg/L	EPA 200.8 (D)
Total Lead	mg/L	EPA 200.8 (T)
Dissolved Lithium	mg/L	EPA 200.8 (D)
Dissolved Magnesium	mg/L	EPA 200.7 (D)
Dissolved Manganese	mg/L	EPA 200.8 (D)
Total Manganese	mg/L	EPA 200.8 (T)
Dissolved Mercury	mg/L	EPA 200.8 (Hg Dissolved)
Dissolved Molybdenum	mg/L	EPA 200.8 (D)
Dissolved Nickel	mg/L	EPA 200.8 (D)
Total Nickel	mg/L	EPA 200.8 (T)
Dissolved Nitrate	mg/L	EPA 300.0 28d Hold
Dissolved Nitrate + Nitrite as N	mg/L	Std Method 4500-NO3-F (28Day)
Dissolved Ortho-phosphate as P	mg/L	EPA 365.1 (DWR Modified)
Total Phosphorus	mg/L	EPA 365.4
Dissolved Selenium	mg/L	EPA 200.8 (D)
Total Selenium	mg/L	EPA 200.8 (T)
Total Silver	mg/L	EPA 200.8 (T)
Dissolved Sodium	mg/L	EPA 200.7 (D)
Total Dissolved Solids	mg/L	Std Method 2540 C
Total Suspended Solids	mg/L	EPA 160.2
Volatile Suspended Solids	mg/L	EPA 160.4
Dissolved Strontium	mg/L	EPA 200.8 (D)
Dissolved Sulfate	mg/L	EPA 300.0 28d Hold
Dissolved Zinc	mg/L	EPA 200.8 (D)
Total Zinc	mg/L	EPA 200.8 (T)
pH	pH	Std Method 2320 B

Source of data:
http://www.water.ca.gov/waterdatalibrary/waterquality/station_county/select_station.cfm?URLStation=KA017226&source=map