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Appendix 30B Water Contractor Profiles

3 The majority of water supply planning for urban areas occurs at the local water wholesaler and
4 retailer level. SWP and CVP contractors providing water to 3,000 or more customers or providing
5 over 3,000 acre-feet of water annually to urban customers are required to coordinate with local land
6 use agencies (among others) in their pursuit of developing adequate water supplies, and ensuring
7 that those supplies are used efficiently. The results of those coordination efforts are reflected in the
8 contractors' urban water management plans.

9 On the basis of projected increases in water demand and population, representative SWP and/or
10 CVP contractor service areas were selected to assist in developing more in-depth profiles of the
11 BDCP's growth inducement potential. These contractors' urban water management plans were
12 reviewed to assess, among other things, existing and projected water supply and demand, the basis
13 for projected increases in demand, consistency between contractor projections of water supply with
14 projected water deliveries under the BDCP alternatives, and consistency with local agency planning
15 regarding population growth.

16 This appendix is organized as follows:

- 17 • Metropolitan Water District of Southern California Profile
- 18 • Santa Clara Valley Water District Profile
- 19 • Antelope Valley-East Kern Water Agency Profile
- 20 • Coachella Valley Water District Profile
- 21 • Kern County Water Agency Profile
- 22 • Comparison of Contractor Projections to BDCP Water Delivery Projections

23 **30B.1 Metropolitan Water District of Southern**
24 **California**

25 Metropolitan Water District of Southern California (MWD) is the largest SWP contractor receiving
26 approximately 46% of SWP deliveries (MWD 2010; 1-20). MWD's service area encompasses a nearly
27 5,200 square mile area that includes portions of Los Angeles, Orange, Riverside, San Bernardino, San
28 Diego and Ventura counties. As a water wholesaler with no retail customers, MWD provides treated
29 and untreated water directly to its 26 member agencies, which serve residents in 152 cities and 89
30 unincorporated communities (MWD 2010).

31 **30B.1.1 Urban Growth within Contractor Service Area**

32 MWD's service area encompasses 14% of the geographic area, but nearly 90% of the population of
33 the six member counties. Table 30B.1-1 and 30B.1-2 indicate historic and projected population
34 growth, respectively, within the MWD service area. Since MWD population projections are based on
35 SCAG and SANDAG regional population forecasts, MWD projections are assumed to reflect those of

1 local planning agencies. Total population in the MWD service area, as represented in Table 30B-1,
 2 increased from approximately 14.9 million in 1990 to 18.9 million in 2010¹, an increase of
 3 approximately 4 million (25%). Population growth within Los Angeles County represented the
 4 largest net increase in population within the MWD service area, adding nearly 1.3 million people
 5 between 1990 and 2010. Growth within Riverside County constituted the largest percent increase,
 6 with population increasing by approximately 83% (MWD 2010).

7 **Table 30B-1. Historical Population Growth in the MWD Metropolitan Service Area, by County**

County	Population ^a			Change 1990-2010	
	1990	2005	2010	Net	Percent
Los Angeles	8,268,000	9,364,000	9,567,000	1,299,000	16%
Orange	2,412,000	3,057,000	3,205,000	793,000	33%
Riverside	851,000	1,381,000	1,559,000	708,000	83%
San Bernardino	565,000	792,000	832,000	267,000	47%
San Diego	2,407,000	2,934,000	3,109,000	702,000	29%
Ventura County	451,000	588,000	624,000	173,000	38%
Total MWD Service Area	14,954,000	18,116,000	18,896,000	3,942,000	26%

Source: Metropolitan Water District of Southern California, *Regional Urban Water Management Plan 2010*, November 2010, Appendix A.1, Demand Forecast, Table A.1-2, page A.1-8.

Note: Population figures for 1990 and 2005 represent actual population; figures for 2010 were estimated by MWD based on CA Department of Finance annual population estimates.

^a Reflects only the portion of the population within each County that is served by MWD.

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 9 As shown in Table 30B-2, total population within the MWD service area is projected to increase
 10 from approximately 18.9 million in 2010 to 22.4 million in 2035 (the planning horizon for MWD's
 11 2010 Urban Water Management Plan), an increase of approximately 3.5 million (19%). Population
 12 growth within Los Angeles County is expected to comprise the largest net increase in population
 13 (1.2 million) among counties within the MWD service area. Population within Riverside County is
 14 projected to undergo the largest percent increase, nearly doubling by 2035 (MWD 2010).

15 **Table 30B-2. Projected Population Growth in MWD Service Area by County**

County	Population		Change 2010-2035	
	2010	2035	Net	Percent
Los Angeles	9,567,000	10,781,000	1,214,000	13%
Orange	3,205,000	3,654,000	449,000	14%
Riverside	1,559,000	2,292,000	733,000	47%
San Bernardino	832,000	1,117,000	285,000	34%
San Diego	3,109,000	3,899,000	790,000	25%
Ventura County	624,000	731,000	107,000	17%
Total MWD Service Area	18,896,000	22,474,000	3,578,000	19%

Source: Metropolitan Water District of Southern California, *Regional Urban Water Management Plan 2010*, November 2010, Appendix A.1, Demand Forecast, Table A.1-2, page A.1-8.

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¹ MWD 2010 Table A.1-2 lists a population of 18.9 million in 2010, while the text on page 1-12 lists a population on 19.1 million in 2010.

30B.1.2 Water Demand and Supply within MWD Service Area

30B.1.2.1 Demand

The primary water demands within the MWD service area come from the municipal and industrial sectors. In general, the relative share of municipal and industrial water use has increased over time as agricultural water use has declined due to urbanization and other market factors. In 2010, MWD estimated that approximately 93% of retail water demands within its service area were used for municipal and industrial purposes and 7% were used for agricultural purposes (MWD 2010; 1-13). By 2035, MWD estimates that agriculture use will drop to 4% of total retail demands (MWD 2010; A.1-6). Table 30B-3 compares 2010 retail M&I demand to projected (2035) retail M&I demand. Overall demand is projected to increase by 7.2%, with the largest net and percent increase coming from Riverside County. Although total retail demand is projected to increase, MWD notes that per capita water use in the MWD service has shown a general tendency to decrease since the late 1990s, and has remained noticeably lower than the pre-1990 era (MWD 2010; 1-14).

30B.1.2.1.1 Supply

MWD's water supply portfolio is made up of a mix of water from the SWP, Colorado River Aqueduct, Los Angeles Aqueduct and local supplies. Table 30B-4 lists the sources of water to the MWD service area over the past 10 years. MWD's full contracted Table A amount is 1,911,500 acre-feet per year. However, actual deliveries have never reached this amount because they depend on the availability of supplies as determined by DWR. The quantity of water available for export from the SWP through the California Aqueduct can vary significantly year to year. The amount of precipitation and runoff in the Sacramento and San Joaquin watersheds, system reservoir storage, regulatory requirements, and contractor demands for SWP supplies impact the quantity of water available to MWD. The SWP provided between 25 and 50 percent of MWD's total water supply through 2001, after which it provided as much as 70 percent, reaching a high of 1,802 TAF in 2004. SWP deliveries dropped significantly in 2008 and 2009 due to biological opinions issued by USFWS and NMFS in 2008 and 2009, respectively, which significantly restricted SWP pumping from the Delta (MWD 2010; A.2-15).

Table 30B-3. Total Retail M&I Demand in MWD's Service Area with Conservation and SBX7-7 (acre-feet)

County	Demand		Change 2010-2035	
	2010	2035	Net	Percent
Los Angeles	1,761,000	1,704,000	-57,000	-3.2%
Orange	613,000	634,000	21,000	3.4%
Riverside	454,000	641,000	187,000	41.2%
San Bernardino	242,000	279,000	37,000	15.3%
San Diego	596,000	675,000	79,000	13.3%
Ventura County	151,000	158,000	7,000	4.6%
Total MWD Service Area	3,817,000	4,091,000	274,000	7.2%

Source: Metropolitan Water District of Southern California, *Regional Urban Water Management Plan 2010*, November 2010, Appendix A, Table A.1-6.

1 **Table 30B-4. Sources of Water Supply Used in the MWD Service Area, 2000-2010^A (ACRE-FEET)**

Year	Local Supplies	Los Angeles Aqueduct	Colorado River Aqueduct	State Water Project	Total ^d
2000	1,768,000	255,000	1,217,000	1,473,000	4,714,000
2001	1,708,000	267,000	1,245,000	1,119,000	4,340,000
2002	1,706,000	179,000	1,198,000	1,415,000	4,498,000
2003	1,659,000	252,000	676,000	1,561,000	4,148,000
2004	1,627,000	203,000	741,000	1,802,000	4,373,000
2005	1,590,000	369,000	685,000	1,525,000	4,168,000
2006	1,710,000	379,000	535,000	1,695,000	4,319,000
2007	1,852,000	129,000	696,000	1,648,000	4,326,000
2008	1,842,000	147,000	896,000	1,037,000	3,922,000
2009 ^b	1,801,000	137,000	1,043,000	908,000	3,890,000
2010 ^c	1,832,000	243,000	1,150,000	1,500,000	4,725,000

Source: Metropolitan Water District of Southern California, *Regional Urban Water Management Plan 2010*, November 2010, Appendix A.2, Table A.2-1, page A.2-3.

^a Does not include system losses.

^b 2009 local supplies are based on 2006–08 averages

^c 2010 Colorado River Aqueduct and State Water Project are best estimates as of May 2010; Los Angeles Aqueduct is based on actual supplies from January through April plus projections for May through December; Local Supplies are averages of prior years.

^d Totals as provided in source document; discrepancies between components and totals assumed to be due to rounding.

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3 Current (2010) and projected (2035) supply is shown in Table 30B-5². The projected supply for
4 2035 reflects a 27 percent increase over 2010. MWD has indicated that it will continue to rely on
5 SWP deliveries to meet future demand. Colorado River deliveries, which currently contribute
6 24 percent of the total, are only expected to contribute 16 percent of the total supply in 2035. Local
7 supplies are expected to increase slightly but their overall contribution is expected to remain
8 relatively constant. MWD projects that SWP deliveries will increase substantially and the SWP
9 contribution to total supply, currently at 31 percent, would increase to 41 percent. This projection is
10 predicated on the resolution of environmental concerns about the Delta, including the completion of
11 a new Delta conveyance that would be fully operational by 2022 and would return supply reliability
12 to a 2005 condition (i.e., a condition comparable to those prior to restrictions from the 2008 and
13 2009 Biological Opinions) (MWD 2010; ES-4–ES-5).

² Metropolitan includes planned and potentially planned supplies when developing its supply projections. MWD's SWP projections are based on DWR's draft *2009 SWP Delivery Reliability Report*.

1 **Table 30B-5. Existing (2010) and Planned (2035) Water Sources in the MWD Service area (acre-**
 2 **feet)**

Source	Existing (2010) ^a	Planned (2035) ^{b,c}
Local Supplies	1,832,000	2,373,000
Los Angeles Aqueduct	243,000	230,000
Colorado River Aqueduct	1,150,000	954,000
SWP (California Aqueduct)	1,500,000	2,449,000
Total	4,725,000	6,006,000

Source: Metropolitan Water District of Southern California, *Regional Urban Water Management Plan 2010*, November 2010; 2010 data: Appendix A.2 page A.2-3 Table A.2-1; 2035 data: page 2-14 Table 2-8 (Local and LAA), pages A.3-47 and A.3-52 Table A.3-7 (CRA and SWP).

^a 2010 Colorado River Aqueduct and SWP are best estimates as of May 2010; Los Angeles Aqueduct is based on actual supply from January through April plus projections for May through December; Local Supplies are averages of prior years.

^b Planned SWP/California Aqueduct supply includes Central Valley transfers and storage program supplies conveyed by the aqueduct as well as programs currently under development.

^c Planned Colorado River Aqueduct supply includes water management programs and accounts for total aqueduct capacity less non-MWD supplies conveyed through it, including Imperial Irrigation District/San Diego County Water Agency transfers and canal linings projects.

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4 **30B.2 Santa Clara Valley Water District³**

5 Santa Clara Valley Water District (SCVWD) provides wholesale water and groundwater management
 6 services to 13 water retailers, which serve customers in 15 cities, Stanford University and the
 7 unincorporated areas of Santa Clara County.

8 **30B.2.1 Urban Growth within SCVWD Service Area**

9 Table 30B-6 indicates historic population growth within Santa Clara County based on U.S. Census
 10 data from the California Department of Finance. Total population within the SCVWD service area
 11 increased from approximately 1.49 million in 1990 to approximately 1.78 million in 2010, an
 12 increase of nearly 285,000 (19%). The largest net growth occurred in the City of San José, which
 13 added approximately 164,000 people between 1990 and 2010. The largest percent growth occurred
 14 in the Cities of Morgan Hill and Gilroy, which grew by approximately 58% and 55%, respectively.

³ Information in this section is drawn from SCVWD's 2010 Urban Water Management Plan, SCVWD 2010.

1 **Table 30B-6. Historic Population Growth within SCVWD Service Area**

City	Population		Change (1990–2000)	
	1990	2010	Net	Percent
Campbell	36,088	39,349	3,261	9%
Cupertino	39,967	58,302	18,335	46%
Gilroy	31,487	48,821	17,334	55%
Los Altos	26,599	28,976	2,377	9%
Los Altos Hills	7,514	7,922	408	5%
Los Gatos	27,357	29,413	2,056	8%
Milpitas	50,690	66,790	16,100	32%
Monte Sereno	3,287	3,341	54	2%
Morgan Hill	23,928	37,882	13,954	58%
Mountain View	67,365	74,066	6,701	10%
Palo Alto	55,900	64,403	8,503	15%
San Jose	782,224	945,942	163,718	21%
Santa Clara	93,613	116,468	22,855	24%
Saratoga	28,061	29,926	1,865	7%
Sunnyvale	117,324	140,081	22,757	19%
Unincorporated	106,173	89,960	-16,213	-15%
Total Santa Clara County	1,497,577	1,781,642	284,065	19%

Source: California Department of Finance 2007, California Department of Finance 2011

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3 Table 30B-7 indicates projected population growth within Santa Clara County based on data from
 4 the Association of Bay Area Governments (ABAG) Projections 2009 (SCVWD 2010; 2-1). Since
 5 SCVWD population projections are based on ABAG regional population forecasts, SCVWD
 6 projections are assumed to reflect those of local planning agencies. Population within Santa Clara
 7 County is expected to increase from approximately 1.78 million in 2010 to 2.43 million in 2035, an
 8 increase of approximately 650,000 (36%).

9 **Table 30B-7. Projected Population Growth within SCVWD Service Area**

	Population		Change (2010–2035)	
	2010	2035	Net	Percent
Santa Clara County Total Population	1,781,642	2,431,400	649,758	36.47%

Source: California Department of Finance 2011; SCVWD 2010, Table 2-1

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11 **30B.2.2 Water Demand and Supply within Contractor Service** 12 **Area**

13 **30B.2.2.1 Supply**

14 SCVWD's water supply portfolio consists of a mix of groundwater, local surface water and imported
 15 water from the SWP and CVP. SCVWD has a contract for 100,000 acre-feet per year (Table A

1 deliveries) from the SWP and 152,500 acre-feet per year from the CVP (SCVWD 2010; 3-11).
 2 However, the amount of SWP and CVP water actually delivered is typically less than contractual
 3 amounts and depends on hydrology, conveyance limitations and regulatory considerations.
 4 Deliveries of imported water from the SWP and CVP is either treated and delivered to water
 5 retailers or is delivered to SCVWD's raw water conveyance system for groundwater recharge
 6 (SCVWD 2010; 3-13). Historically, nearly all SWP supply is used for M&I needs, while approximately
 7 83% of CVP supply is used for M&I needs and 17% is delivered for irrigation uses (SCVWD 2010; 3-
 8 11). In addition, eight retail agencies within the SCVWD service area contract with the San Francisco
 9 Public Utilities Commission (SFPUC) to receive water imported from the Hetch-Hetchy system.
 10 SFPUC supplies reduce demand on SCVWD supplied water; however, SCVWD does not control or
 11 administer the SFPUC supplies (SCVWD 2010; 3-11).

12 Since 1989, SCVWD's supply sources have remained relatively constant as a percentage of total
 13 supply. The majority of supply, ranging from 40 to 50%, is pumped from the County's groundwater
 14 basins, while another 30 to 38% is delivered directly to the District's treatment plants. Figure 30B-1
 15 shows historical imported water deliveries to SCVWD from the SWP, CVP and Hetch Hetchy system.

16 Table 30B-8 presents SCVWD's projected supply portfolio under normal hydrologic conditions for
 17 the timeframe of 2015 through 2035. SCVWD's supply portfolio in 2035 is projected to be similar to
 18 its historical supply portfolio in terms of share of total supply. In 2035, SWP and CVP deliveries are
 19 projected to make up approximately 40% of total supply. Local supplies are projected make up 36%
 20 of supply, SFPUC supplies are projected to make up 15% of supply and recycled water and new
 21 supplies/conservation are projected to make up 7% and 1% of supply, respectively.

22 **Table 30B-8. Projected Average Year Supply Capability (acre-feet)**

Source	2015	2020	2025	2030	2035
SWP ^a	64,000	64,000	64,000	64,000	64,000
CVP ^a	108,100	108,100	108,100	108,100	108,100
Local Supplies	145,020	145,020	153,800	153,800	153,800
Recycled Water	18,680	22,280	25,780	29,180	29,380
SFPUC	61,000	63,700	63,850	63,850	63,850
New supplies/Conservation per Water Master Plan	0	0	0	0	3,790
Total Supplies	396,800	403,100	415,530	418,930	422,920

Source: SCVWD 2010, Table 10-1

^a SWP and CVP supplies are based on the *State Water Project Delivery Reliability Report 2009* modeling results under 2029 conditions with climate change and assume no additional imported supplies are secured through transfer, spot market or options

24 **30B.2.2.1.1 Demand**

25 SCVWD divides its service area into North and South Santa Clara County. Historical records show
 26 that demand in North County has varied from a low of about 175,000 acre-feet in 1965 to a high of
 27 about 349,000 acre-feet in 1987. In South County, demand has ranged from a low of about 42,000
 28 acre-feet in 1989 to a high of about 56,000 acre-feet in 1997 (SCVWD 2010; 4-2) Historically, the
 29 primary water demands within SCVWD's service area come from the M&I sector, which accounts for
 30 more than 90% of total demand. The remaining demand (less than 10%) within the service area
 31 comes from the agricultural sector (SCVWD 2010; 4-3). In 2009, total water use in SCVWD service

1 area was approximately 382,000 acre-feet, of which 30,000 acre-feet went to agricultural needs
2 (SCVWD 2010; 4-2).

3 Table 30B-9 presents projected demand within the SCVWD service area for year 2035. Total
4 demand is projected to increase from approximately 382,000 acre-feet per year in 2009 to
5 approximately 422,920 acre-feet per year in 2035, an increase of approximately 40,920 acre-feet
6 per year (10%). The relative share of demand by sector is projected to be relatively similar to 2010
7 demand, with agricultural use making up approximately 6% of demand and the remaining 94% of
8 demand going to M&I uses.

9 **Table 30B-9. Projected 2035 Demand after Conservation Savings (acre-feet per year)**

	2035 Demand ^a	Percent of Total Demand
Retailer Demand ^b	382,070	90%
Independent Groundwater Pumping ^c	15,600	4%
Agriculture ^d	25,250	6%
Total Demand	422,920	

Source: SCVWD 2010, Table 4-1.

^a Includes conservation savings for both urban and agricultural conservation.

^b Total of demand projections provided by each of the 13 retailers within SCVWD service area.

^c Consists of independent groundwater pumping by small water users such as residential well owners.

^d Calculated from estimates of projected total agricultural acreage and a water use factor (1.7 acre-feet per acre).

11 **30B.3 Antelope Valley East Kern Water Agency⁴**

12 Antelope Valley East Kern Water Agency (AVEK) is the third largest SWP contractor, with a
13 maximum contract allocation of 141,000 acre-feet per year (Antelope Valley East Kern Water
14 Agency 2010; 2-1). AVEK's service area covers approximately 2,400 square miles of the western of
15 the Mojave Desert and includes portions of northern Los Angeles County, eastern Kern County and a
16 very small portion of Ventura County. Major population centers within the service area include cities
17 of Lancaster and Palmdale (approximately 50% of Palmdale lies within AVEK's service area),
18 Edwards Air Force Base and the unincorporated communities of Acton and Lake Los Angeles in Los
19 Angeles County and California City, Mojave, Boron, North Edwards and Rosamond in Kern County
20 (Antelope Valley East Kern Water Agency 2010; Appendix H). AVEK serves as a wholesaler of
21 treated water to 24 purveyors and a retailer of untreated water to agricultural users within its
22 service area (Antelope Valley East Kern Water Agency 2010; 3-2, Appendix G).

23 **30B.3.1 Urban Growth within AVEK Service Area**

24 AVEK does not include historic population data for its service area in its UWMP. Table 30B-10 is
25 included for informational purposes and indicates historic population growth based on U.S. Census
26 data for the main communities within the AVEK service area. Between 2000 and 2010, the City of

⁴ Information in this section is drawn largely from Antelope Valley East Kern Water Agency's *2010 Urban Water Management Plan*, AVEK 2010.

Lancaster experienced the largest net growth, adding approximately 38,000 people. The community of Acton experienced the largest percent growth, with population increasing by nearly 218% between 2000 and 2010.

Table 30B-10. Historic Population Growth of Communities within the AVEK Service Area

Community	Population		Change 2000-2010	
	2000	2010	Net	Percent
Acton	2,390	7,596	5,206	217.8%
Boron	2,025	2,253	228	11.3%
California City	8,385	14,120	5,735	68.4%
Edwards Air Force Base	5,909	2,063	-3,846	-65.1%
North Edwards	1,227	1,058	-169	-13.8%
Lake Los Angeles	11,523	12,328	805	7.0%
Lancaster	118,718	156,663	37,945	32.0%
Mojave	3,836	4,238	402	10.5%
Palmdale ^a	116,670	152,750	36,080	30.9%
Rosamond	14,349	18,150	3,801	26.5%

Source: California City: California Department Of Finance 2011. All other communities: US Census Bureau 2000, US Census Bureau 2010

^a Approximately 50% of the City of Palmdale lies within AVEK's service area.

Table 30B-11 displays projected population growth within the AVEK service area as calculated by AVEK in its 2010 UWMP. AVEK relied on data from the California Department of Finance, the Greater Antelope Valley Economic Alliance (GAVEA) and the Southern California Association of Governments in the development of its population projections. Since AVEK population projections incorporate GAVEA and SCAG regional population forecasts, AVEK projections are assumed to reflect those of local planning agencies. By 2030, population within the service area is projected to increase by approximately 222,367, an increase of approximately 76% compared to 2010 population.

Table 30B-11. Projected Population Growth within AVEK Service Area

	Population		Change (2010-2030)	
	2010	2030	Net	Percent
Service Area Population	291,063	513,430	222,367	76.4%

Source: AVEK 2010, Table 2

30B.3.2 Water Demand and Supply within AVEK Service Area

30B.3.2.1 Supply

The SWP is currently AVEK's sole source of water (Antelope Valley East Kern Water Agency 2010; 4-3). AVEK's full contracted Table A amount is 141,000 acre-feet per year. However, actual deliveries have never reached this amount because they depend on the availability of supplies as determined by DWR. The quantity of water available for export from the SWP through the California Aqueduct can vary significantly from year to year based upon the amount of precipitation and runoff in the Sacramento and San Joaquin watersheds, system reservoir storage, regulatory requirements, and contractor demands for SWP supplies. AVEK received its first SWP deliveries in 1972. Table 30B-12 displays SWP deliveries to AVEK from 2000 to 2010. During this time period, SWP deliveries have ranged from approximately 47,000 acre-feet in 2009 to approximately 84,000 acre-feet in 2000 (Antelope Valley East Kern Water Agency 2010; Appendix F).

Table 30B-12. SWP Deliveries to AVEK, 2000–2010^a (acre-feet)

Year	State Water Project Delivery
2000	84,016
2001	63,508
2002	59,888
2003	61,162
2004	61,252
2005	60,401
2006	81,485
2007	80,384
2008	49,821
2009	47,018
2010	59,674

Source: AVEK 2010, Appendix F

Table 30B-13 displays AVEK's 2010 and projected 2030 supply portfolio. AVEK is currently implementing a groundwater banking project to improve reliability by providing the infrastructure necessary to store excess water from the SWP during wet periods (Antelope Valley East Kern Water Agency 2010; 4-2). Projected SWP deliveries are based on DWR's *2009 SWP Reliability Report*. AVEK projects that SWP deliveries will increase to approximately 89,000 acre-feet per year by 2030; this would be approximately 62% of AVEK's contracted Table A supply. In addition, groundwater banking may provide approximately 20,000 acre-feet of supply in 2030 (Antelope Valley East Kern Water Agency 2010; 4-3).

Table 30B-13. Existing (2010) and Planned (2030) Water Sources in the AVEK Service Area (acre-feet)

Source	Existing (2010)	Planned (2030)
SWP	59,674	87,688
Recoverable Banked Groundwater	0	20,000
Total	57,674	107,688

Source: AVEK 2010, Appendix F (2010 Supplies), Table 6 (2030 Supplies).

30B.3.2.1.1 Demand

Table 30B-14 displays historic and projected 2030 demands by sector within the AVEK service area. Primary demands within the AVEK service area come from the municipal and industrial sector. In 2010, M&I use made up approximately 87% of demand, agricultural use made up approximately 11% of demand and system losses accounted for approximately 2% of demand. By 2030, overall demand is projected to increase to approximately 96,558 acre-feet, with nearly all of the demand growth coming from the M&I sector. By 2030, M&I use is projected to increase to 90% of demand, agricultural use is projected to decrease to 7% of demand and system losses are projected to account for approximately 3% of demand.

Table 30B-14. Total Demand within AVEK's Service Area (acre-feet) ^a

Category	1999	2004	2006	2010	2030
Deliveries to Purveyors (M & I)	45,800	53,627	65,540	53,062	87,043
Raw Water (Agricultural)	24,302	7,625	9,206	6,612	6,612
System Losses	2,103	1,001	2,103	1,001	2,903
Total AVEK Service Area	72,205	62,253	76,849	60,675	96,558

Source: AVEK 2010, Tables 4 and Table 5, AVEK 2005, Tables 7 and 8

^a Demand is not adjusted for reductions in per capita demand due to improved conservation or water re-use.

30B.4 Coachella Valley Water District⁵

Coachella Valley Water District's (CVWD) boundary covers approximately 1,000 square miles primarily within the Coachella Valley in central Riverside County, with a small portion extending into northern San Diego County and northeastern Imperial County. CVWD is a water importer and retail water agency that provides water for agricultural and M&I users in the cities of Palm Springs, Cathedral City, Rancho Mirage, Indian Wells, Palm Desert, La Quinta and portions of Coachella and Indio, as well as the communities of Bermuda Dunes, Mecca and Thermal (Coachella Valley Water District 2011; 2-1). Note that CVWD does not serve domestic water to all cities within its boundary; however, all cities within its boundary use groundwater for urban use and participate in replenishment programs managed by CVWD.

⁵ Information in this section is drawn largely from Coachella Valley Water District's *2010 Urban Water Management Plan*, Coachella Valley Water District, 2011.

30B.4.1 Urban Growth within CVWD Service Area

Table 30B-15 shows historical CVWD service area population growth as presented in CVWD's 2010 UWMP. CVWD calculated the aggregate population for its entire service area (for years 1995 and 2010) using data from the 2000 census and 1995-2010 billing data (Coachella Valley Water District 2011; 2-6). From 1995 to 2010, the total population within the CVWD service area grew by approximately 57,331 people, an increase of nearly 40%. For informational purposes, Table 30B-16 shows historical population growth based on U.S. Census data (for years 1990 and 2010) for the cities within CVWD's service area. Over this period, population growth in the City of Indio represented the largest net increase in population growth within the CVWD service area, adding approximately 39,000 people between 1990 and 2010 (a 106% increase) and growth within the city of La Quinta represented the largest percent increase, with population increasing by 234% (a net increase of about 26,000 people). Because tourism is a main industry in the Coachella Valley, the CVWD service area also has a significant, seasonal population not accounted for in U.S. Census data. It is estimated that this seasonal population represents an additional 50,000 to 60,000 water users.

Table 30B-15. Historical Population Growth within CVWD Service Area

	Population		Change (1995–2010)	
	1995	2010	Net	Percent
Service Area Population	145,329	202,660	57,331	39.5%

Source: Coachella Valley Water District 2011, Table 2-2 and Table 2-4

Table 30B-16. Historical Population Growth of Communities within the CVWD Service Area

City ^a	Population		Change 1990–2010	
	1990	2010	Net	Percent
Cathedral City	30,085	51,200	21,115	70.2%
Coachella ^b	16,896	40,704	23,808	140.9%
Indian Wells	2,647	4,958	2,311	87.3%
Indio ^c	36,850	76,036	39,186	106.3%
La Quinta	11,215	37,467	26,252	234.1%
Palm Desert	23,252	48,445	25,193	108.3%
Palm Springs ^d	40,144	44,552	4,408	11.0%
Rancho Mirage	9,778	17,218	7,440	76.1%

Source: California Department of Finance 2007, California Department of Finance 2011, Coachella Valley Water District 2011.

^a Cities in italics are partially within the CVWD service area.

^b Coachella is served mainly by Coachella Water Authority.

^c Indio is mainly served by Indio Water Authority.

^d Palm Springs is served by Desert Water Agency.

Table 30B-17 displays projected population growth within the CVWD service area presented in CVWD's 2010 UWMP. CVWD's population projections were based on data from the Riverside County Center for Demographic Research's *Riverside County Projections 2006 (RCP-06)* which were

1 approved by the Coachella Valley Association of Governments (CVAG), which includes all the cities
 2 within the CVWD service area as well as the Western Riverside Council of Governments (WRCOG)
 3 and Riverside County Board of Supervisors.⁶ As shown, by 2035, population within the service area
 4 is projected to increase by approximately 309,500 people, an increase of approximately 153%
 5 compared to 2010 population.

6 **Table 30B-17. Projected Population Growth within CVWD Service Area**

	Population		Change (2010–2035)	
	2010	2035	Net	Percent
Service Area Population	202,660	512,200	309,540	152.7%

Source: Coachella Valley Water District 2011, Table 2-4

8 **30B.4.2 Water Demand and Supply within CVWD Service** 9 **Area**

10 **30B.4.2.1 Supply**

11 CVWD's principal sources of supply are local groundwater and imported water from the Colorado
 12 River and the SWP (Coachella Valley Water District 2011; 4-18). CVWD initially contracted for SWP
 13 water in 1963, and jointly manages its SWP supplies with Desert Water Agency (DWA). However,
 14 since neither CVWD nor DWA have a direct connection to the SWP, their SWP water is exchanged
 15 with MWD for a like amount of Colorado River water (referred to in the CVWD UWMP and herein as
 16 "SWP Exchange water") via the MWD's Colorado River Aqueduct (Coachella Valley Water District
 17 2011; 4-18).

18 CVWD's original 1963 SWP contract provided a Table A allocation of 23,100 acre-feet per year.
 19 CVWD and DWA have since obtained several Table A transfers to increase deliveries of imported
 20 water from the SWP to the Coachella Valley region. In 2003, CVWD and DWA acquired an additional
 21 100,000 acre-feet per year (88,100 and 11,900 acre-feet per year, respectively) of Table A water
 22 under a permanent transfer from MWD. This water is exchanged for a like amount of Colorado River
 23 water (Coachella Valley Water District 2011; 4-18). In 2004, CVWD purchased an additional 9,900
 24 acre-feet per year of SWP Table A water from the Tulare Lake Basin Water Storage District
 25 (TLBWSD). In 2007, CVWD and DWA made additional purchases of SWP Table A water from
 26 TLBWSD of 5,250 and 1,750 acre-feet per year, respectively. Also in 2007, a SWP Table A transfer
 27 was completed with Berrenda Mesa Water District for 12,000 acre-feet per year for CVWD and
 28 4,000 acre-feet per year for DWA (Coachella Valley Water District 2011; 4-19). With these additional
 29 transfers, CVWD's total Table A amount is 138,350 acre-feet per year, while DWA's is 55,750 acre-
 30 feet per year, for a total of 194,100 acre-feet per year. However, actual deliveries in any given year
 31 vary based on the availability of SWP supplies as determined by DWR.

32 All imported Colorado River and SWP Exchange water is currently used by CVWD and DWA for
 33 groundwater recharge. Water for recharge is allocated to three groundwater subbasins within

⁶ Since CVWD's preparation of its 2010 UWMP, the Riverside County Center for Demographic Research has released an updated set of projections, *Riverside County Projections 2010 (RCP-10)*; CVAG's website currently provides growth profiles for cities within its planning area based on the updated forecasts.

1 Coachella Valley (Coachella Valley Water District 2010; 4-19). In the western portion of the
 2 Coachella Valley, CVWD and DWA recharge the Upper Whitewater Subbasin and the Mission Creek
 3 Subbasin via SWP water delivered via the MWD Aqueduct. In the eastern portion of the Coachella
 4 Valley CVWD recharges the Lower Whitewater Subbasin with Colorado River Water delivered via
 5 the All American and Coachella Canals. CVWD's potable water system currently does not receive any
 6 imported water directly; all potable urban use within the CVWD service area is supplied by
 7 groundwater, although as noted imported water is used to replenish the groundwater basin
 8 (Coachella Valley Water District 2011; 4-3). In addition to urban users, CVWD has non-potable
 9 irrigation customers who receive untreated Colorado River water via the Coachella Canal, which is
 10 separate from CVWD's potable system (Coachella Valley Water District 2011; 3-12). Recycled water,
 11 delivered via non-potable water delivery systems, is also used by private groundwater producers,
 12 such as golf courses, to reduce their reliance on groundwater. Although use of recycled water does
 13 not offset CVWD's urban water demand, it does reduce overall demands on Coachella Valley's
 14 groundwater supply, which indirectly increases groundwater supply available to CVWD (Coachella
 15 Valley Water District 2011; 4-23).

16 CVWD is currently planning to install infrastructure to allow urban customers to directly receive
 17 imported Colorado River water. This would include both treated Colorado River water for potable
 18 use and untreated Colorado River water for irrigation use (Coachella Valley Water District 2011; 4-
 19 3). In addition, CVWD has plans to treat and re-use agricultural drainage water for non-potable use
 20 in the Coachella Canal system, which would offset groundwater pumping within the Coachella Valley
 21 (Coachella Valley Water District 2011; 4-12). CVWD plans to begin implementation of the drain
 22 water desalination program by 2015 and gradually increase production in the future.

23 Table 30B-18 indicates CVWD's current (2010) and projected (2035) supply portfolio as shown in
 24 CVWD's 2010 UWMP. CVWD assumed that total water supplies are equal to total urban demand plus
 25 system losses (Coachella Valley Water District 2011; 4-3). In the future, supplies of treated and
 26 untreated Colorado River water and desalinated agricultural drain water are projected to increase,
 27 providing nearly 114,000 acre-feet of new supply.

28 **Table 30B-18. Existing (2010) and Planned (2035) Urban Water Sources in the CVWD Service Area**
 29 **(acre-feet)**

Source	Existing (2010)	Planned (2035)
Supplier-produced Groundwater	109,488	128,700
Treated Colorado River Water	0	49,100
Untreated Colorado River Water	0	54,800
Desalinated Agricultural Drain Water	0	10,000
Total	109,488	242,700

Source: Coachella Valley Water District 2010 Urban Water Management Plan 2011 Table 4-1

30

31 While CVWD's 2010 UWMP identifies SWP as a source of supply, it does not delineate SWP supply in
 32 its supply projections; however, this information is provided in CVWD's *Coachella Valley Water*
 33 *Management Plan Update Draft Report* (Coachella Valley Water District 2010). CVWD bases its
 34 projections of SWP availability on the DWR's *2009 SWP Reliability Report* (Coachella Valley Water
 35 District 2010; 4-19). CVWD assumed two scenarios to calculate future SWP reliability. In the "worst
 36 case" scenario, without conveyance and habitat improvements in the Delta, CVWD projects that
 37 future average SWP reliability will be 50% of CVWD and DWA's combined Table A amounts. The

1 “best case” scenario, which assumes implementation of improvements under the BDCP and Delta
 2 Habitat Conservation and Conveyance Plan, would provide future average SWP reliability of 77% of
 3 CVWD and DWA’s combined Table A amounts (Coachella Valley Water District 2010; 6-16). Table
 4 30B-19 below provides estimated SWP deliveries under existing conditions and CVWD’s planning
 5 scenarios. CVWD projects that future SWP deliveries to CVWD and DWA may range from
 6 approximately 72,200 acre-feet per year without improvements to the Delta, to 111,200 acre-feet
 7 per year with Delta improvements (Coachella Valley Water District 2010; 6-16).

8 **Table 30B-19. Existing (2010) and Projected (2030) SWP Availability for the Coachella Valley Area**
 9 **(acre-feet per year)**

SWP Supply Component	Existing (2010)	Future (2030) Low Range ^a	Future (2030) High Range ^b
2010 Table A Amount ^c	194,100	194,100	194,100
Assumed SWP Reliability	60%	50%	77%
Average SWP Delivery	116,460	97,050	149,457
MWD Call-back ^d	32,856	24,847	38,257
Average Net SWP Supply	83,604	72,203	111,200

Source: Coachella Valley Water District 2010 Table 4-5

^a Assumes no conveyance and habitat improvements in the Delta.

^b Assumes implementation of improvements under the BDCP and Delta Habitat Conservation and Conveyance Plan.

^c Reflects the combined Table A amounts of CVWD and DWA.

^d Under their 2003 transfer agreement, MWD retained the option to call back water in years when needed. For purposes of calculating SWP reliability, CVWD assumed MWD would exercise its option to callback 100,000 acre-feet in 4 wet years out of every 10 years.

10

11 Demand

12 Table 30B-20 displays historic, current and projected demands by sector within the CVWD service
 13 area. Historically, the largest demand within CVWD’s service area came from customers using non-
 14 potable recycled and Colorado River water for agricultural, golf course and landscape irrigation. In
 15 the future, CVWD projects that agricultural demand will decrease, while M&I and landscaping
 16 demands will increase as a result of urban development in the eastern portion of the service area
 17 (Coachella Valley Water District 2011; 3-13). By 2035, M&I demand is projected to increase by
 18 approximately 130,500 acre-fee (an increase of 125%) and non-potable landscaping demands are
 19 projected to increase by approximately 66,000 acre-feet (an increase of 195%), compared to 2010
 20 levels. CVWD plans to meet these future increases in demand with direct supply of water from the
 21 Colorado River, recycled water, desalinated agricultural drain water and continued implementation
 22 of conservation programs to reduce per-capita groundwater use (Coachella Valley Water District
 23 2011; 4-3). Thus, while groundwater made up 100% of CVWD’s potable urban supply in 2010, it is
 24 projected to be reduced to 50% of total supply in 2035 (Coachella Valley Water District 2011; 4-14).

25 Because imported water from the SWP and Colorado River is used for groundwater recharge, the
 26 amount of groundwater recharge has varied historically due to variability in SWP supplies
 27 (Coachella Valley Water District 2011, 4-13). In the future, groundwater recharge is expected to
 28 increase by approximately 31,000 acre-feet or 24%.

1 **Table 30B-20. Total Demand within CVWD's Service Area (acre-feet) ^a**

Category	2005	2010	2035	Change 2010-2035	
				Net	Percent
Urban (Municipal and Industrial)				130,491	125.1%
Non-potable (Agricultural) ^b	283,000	313,400	184,000	-129,400	-41.3%
Non-potable (Golf Course and Landscaping) ^b	22,800	33,700	99,600	65,900	195.5%
Groundwater Recharge With Non-Potable Water ^c	195,100	132,100	163,100	31,000	23.5%
System Losses	-1,470	5,179	7,900	2,721	52.5%
Total CVWD Service Area	622,637	588,688	689,400	100,712	17.1%

Source: Coachella Valley Water District 2010, Urban Water Management Plan 2011, Tables 3-17, Table 3-19 and Table 3-20

^a Future demand is adjusted for reductions in per capita demand due to improved conservation and tiered water rates.

^b Non-potable agricultural and landscape irrigation demands are met with deliveries of recycled water and untreated Colorado River water from the Coachella Canal. Sources of recycled water for agriculture include desalinated agricultural drain water and fish farm effluent, agriculture does not receive any recycled municipal effluent.

^c Non-potable water used for groundwater recharge consists of imported SWP Exchange water and Colorado River water.

2

3 **30B.5 Kern County Water Agency**

4 Kern County Water Agency (KCWA) was created in 1961 and serves as the local contracting entity
5 for the State Water Project (SWP) in Kern County. KCWA is the second largest of the 29 participants
6 in the SWP, with a Table A contract amount of 982,730 acre-feet per year. KCWA retains a portion of
7 its Table A water, and provides the remainder to 13 local water districts (member units) and Kern
8 County Water Agency Improvement District No. 4 through long-term contracts; Figure 30B-2 shows
9 the service areas of KCWA's member units. Of these 14 entities that receive SWP water from KCWA,
10 four serve M&I uses:

- 11 • Kern County Water Agency Improvement District No. 4 (ID4)
- 12 • West Kern Water District (WKWD)
- 13 • Tehachapi-Cummings County Water District (TCCWD)
- 14 • Tejon-Castac Water District (TCWD)

15 These four entities have M&I contracts to receive a total of 119,000 acre-feet per year of SWP Table
16 A water from KCWA. Profiles are included below describing population growth, water supply and
17 water demand for the three of these four agencies that prepared UWMPs. The fourth, TCWD, does
18 not currently meet the threshold for preparation of a UWMP (using more than 3,000 acre-feet of
19 water or serving 3,000 or more connections), therefore only a brief description of this agency is
20 provided. (Kern County Water Agency 2012).

30B.5.1 Kern County Water Agency Improvement District No. 4⁷

ID4 was formed in 1971 by the KCWA to be the wholesale provider of imported SWP water to portions of the Metropolitan Bakersfield area (Kern County Water Agency Improvement District No. 4 2011; 1-6). ID4 provides wholesale treated water to four water retailers in the Metropolitan Bakersfield area: California Water Service Company – Bakersfield District, City of Bakersfield, East Niles Community Services District, and North of the River Municipal Water District (Kern County Water Agency Improvement District No. 4 2011; 1-6). In turn, these retailers provide water primarily to M&I users within their service areas (Kern County Water Agency Improvement District No. 4 2011; 1-6 – 1-7).

30B.5.1.1 Urban Growth within the ID4 Service Area

ID4 does not provide historical population growth information in its 2010 UWMP. Since a majority of the ID4 service area falls within the limits of the City of Bakersfield, for informational purposes, Table 30B-22 below presents historical population growth within the City of Bakersfield based on the U.S. Census data. Between 1990 and 2010, the City of Bakersfield grew by approximately 172,000 people, an increase of nearly 99%.

Table 30B-22. Historical Population Growth within the City of Bakersfield

	Population		Change (1990-2010)	
	1990	2010	Net	Percent
City of Bakersfield	174,978	347,483	172,505	98.6%

Source: California Department of Finance 2001c, California Department of Finance 2011

Table 30B-23 presents projected population growth within the ID4 service area as calculated by ID4 in its 2010 UWMP. ID4 calculated aggregated population for its entire service area based on the Kern Council of Government's (KernCOG) 2009 Regional Growth Forecast, which maintained the forecast adopted by KernCOG in 2005 (Kern County Water Agency Improvement District No. 4 2011; 2-1; Kern County Council of Governments 2009; 1). By 2035, the population within the service area is projected to increase by approximately 139,400, an increase of approximately 42% compared to 2010 population.

Table 30B-23. Projected Population Growth within ID4 Service Area

	Population		Change (2010-2035)	
	2010	2035	Net	Percent
Service Area Population	335,842	475,210	139,368	41.5%

Source: Kern County Water Agency Improvement District No. 4 2011, Table 2-1

⁷ Information in this section is drawn largely from Kern County Water Agency Improvement District No. 4's 2010 *Urban Water Management Plan*, Bakersfield, CA, 2011

30B.5.1.2 Water Supply and Demand within ID4 Service Area

30B.5.1.2.1 Supply

ID4's water supply consists of SWP Table A water and previously banked groundwater. ID4 also utilizes CVP Section 215 surplus water, Kern River water, SWP Article 21 water, Turnback Pool water and Dry Year Water Purchase Program water when these sources are available, for use in direct recharge and/or banking projects (Kern County Water Agency Improvement District No. 4 2011; 3-1, 3-6).

KCWA allocates 82,946 acre-feet of its SWP Table A amount to ID4. In years when ID4 receives its full Table A allocation, approximately 77,000 acre-feet is provided to M&I uses, and 5,946 acre-feet is provided to agricultural users (Kern County Water Agency Improvement District No. 4 2011; 3-2). Table 30B-24 presents total SWP Table A deliveries to ID4's service area from 1999 to 2010.

Table 30B-24. SWP table a deliveries to ID4, 1999–2010^a (acre-feet)

Year	State Water Project Delivery
1999	82,946
2000	74,651
2001	32,349
2002	58,062
2003	74,651
2004	33,915
2005	74,651
2006	82,946
2007	49,768
2008	21,851
2009	2,912
2010	12,963

Source: Kern County Water Agency Improvement District No. 4 2011, Table 3-3

During this time period, SWP Table A deliveries to ID4 ranged from a low of 2,912 acre-feet in 2009 to a high of 82,946 acre-feet in 1999 and 2006.

Table 30B-25 presents ID4's estimated future supply portfolio. The values shown for SWP cover the period of 2009 to 2029 and are based upon estimates identified in DWR's State Water Project Delivery Reliability Report at the 2009 level for current conditions and at the 2029 level for future conditions (Kern County Water Agency Improvement District No. 4 2011; 3-6). Under normal hydrologic conditions, ID4 expects to receive a long-term average of 49,768 acre-feet per year, or 60% of its Table A amount (Kern County Water Agency Improvement District No. 4 2011; 3-6). SWP deliveries under single dry and multiple dry years are projected to decrease to 7% and 34% of ID4's SWP Table A supplies, respectively.

ID4 participates in a variety of programs to recharge groundwater in the underlying San Joaquin Valley Groundwater Basin. Since 1971, ID4 has recharged a total of 1,688,394 acre-feet of water. Of this, approximately 838,758 acre-feet was SWP Table A water and the remainder was obtained from exchanges for Kern River and CVP water as well as from ID4 banking projects, SWP Article 21 water,

1 Turnback Pool water and Dry Year Water Purchase Program water, when available. Since these
 2 individual supplies are not certain, ID4 does not include them in its 2010 UWMP supply planning
 3 (Kern County Water Agency Improvement District No. 4 2011; 3-6). However, as indicated in Table
 4 30B-25, previously banked groundwater is an important source of supply for ID4. ID4 projects that
 5 it will be able to receive 100% of its banked groundwater supplies in a normal and single dry water
 6 year. However, under multiple dry years, availability of banked groundwater is projected to
 7 decrease to as low as 60% of normal supplies.

8 **Table 30B-25. Projected Supply Availability for the ID4 Service Area (acre-feet per year)**

	Normal Water Year ^a	Single Dry Year ^b	Multiple Dry Years ^c			
			Year 1	Year 2	Year 3	Year 4
Assumed SWP Reliability ^d	60%	7%	34%	34%	34%	34%
Available SWP Table A	49,768	5,806	28,202	28,202	28,202	28,202
Assumed Banking Project Reliability	100%	100%	100%	76%	66%	60%
Available from Banking Projects ^e	86,066	86,066	86,066	65,410	56,804	51,640
Total Available Supply	135,834	91,872	114,268	93,612	85,006	79,842

Source: Kern County Water Agency Improvement District No. 4 2011, Table 3-4

^a The percentages of SWP Table A amount projected to be available are referenced from DWR's "2009 State Water Project Delivery Reliability Report: August 2010". Supplies are calculated by multiplying ID4's SWP Table A amount of 82,946 AFY by the referenced percentages.

^b Based on worst case historical single dry year of 1977.

^c Percentages shown are annual averages over four consecutive dry years based on the historical four-year dry period of 1931-1934

^d Normal year is a year in the historical sequence that most closely represents median runoff levels and patterns. Median percentage developed from Table B-8 of DWR's "Excerpts from Working Draft of the 2005 State Water Project Delivery Reliability Report", May 2005.

^e Deliveries made from ID4's groundwater banking projects made to supplement SWP Table A deliveries in order to meet demands on ID4.

9 Demand

10 Table 30B-26 displays current (2010) and projected (2035) demands within the ID4 service area. In
 11 2010, groundwater recharge constituted the largest use of water within the ID4 service area,
 12 followed by deliveries to ID4's retail water purveyors for M&I use.

13
 14 In September 2005, ID4 executed new water supply agreements with its water retailers which will
 15 increase deliveries to California Water Service Company - Bakersfield District, City of Bakersfield,
 16 East Niles Community Services District, and North of the River Municipal Water District from 25,000
 17 acre-feet per year in 2005 to 53,000 acre-feet per year in 2035 (Kern County Water Agency
 18 Improvement District No. 4 2011; 2-4). As a result of these contracts, by 2035, ID4 has projected
 19 that deliveries to retail water purveyors will increase by 28,000 acre-feet per year (112%)
 20 compared to 2010 deliveries. In contrast, water used for groundwater recharge and banking is
 21 projected to decrease by approximately 24,000 acre-feet per year and 6,200 acre-feet per year,
 22 respectively. To meet the increased demands from its retailers, ID4 plans to implement
 23 improvements to its treatment, pumping and transmission facilities including expansion of the

1 Henry C. Garnett Water Purification Plant and expansion and construction of several feeder
2 pipelines 2035 (Kern County Water Agency Improvement District No. 4 2011; 2-4).

3 **Table 30B-26. Total Demand within ID4 Service Area (acre-feet) ^a**

Category	2010	2035	Change 2010–2035	
			Net	Percent
Deliveries to Retail Water Purveyors ^a			28,000	112.0%
Groundwater Recharge ^b	34,475	10,600	-23,875	-69.3%
ID4 Banking Projects ^b	6,339	140	-6,199	-97.8%
Total ID4 Service Area	65,814	63,740	-2,074	-3.2%

Source: Kern County Water Agency Improvement District No. 4 2011, Tables 2-5 and 2-7

^a Demand based on the Treated Water Contracts between ID4 and its retail agencies (California Water Service Company – Bakersfield District, City of Bakersfield, East Niles Community Services District and North of the River Municipal Water District) executed September 22, 2005.

^b Groundwater recharge and banking project values based on ID4 hydrologic model results and are subject to change based on ID4 water supply availability.

4

5 **30B.5.2 West Kern Water District⁸**

6 West Kern Water District's (WKWD) service area encompasses approximately 300 square miles in
7 western Kern County. WKWD is a retail water agency and provides water directly for M&I use
8 within the incorporated cities of Taft and Maricopa as well as the communities of Taft Heights, South
9 Taft, Ford City, Tupman, Dustin Acres, Valley Acres, Derby Acres, Fellows and McKittrick (West Kern
10 Water District 2011; 1-3).

11 **30B.5.2.1 Urban Growth within WKWD Service Area**

12 Approximately 80% of WKWD's annual water sales are served to the oil and electrical power
13 generating industries in western Kern County. These companies, along with government agencies,
14 control the majority of the land surrounding the City of Taft; therefore this land has not been
15 available for development. As a result, historical population growth within WKWD's service area has
16 been low (West Kern Water District 2011; 1-5). WKWD does not provide historical population
17 information in its UWMP. For informational purposes, Table 30B-27 below presents historical
18 population growth for cities and communities within the WKWD service area based on decennial
19 census data from the U.S. Census Bureau and the California Department of Finance. Overall, growth
20 within the WKWD service area was slow between 2000 and 2010. The community of Ford City
21 experienced the fastest growth among communities within the WKWD service area, growing by
22 approximately 766 people (22%). In contrast, several of the smaller communities within the WKWD
23 service area such as Derby Acres, Fellows, McKittrick and Tupman experienced a decline in
24 population.

⁸ Information in this section is drawn largely from West Kern Water District's *2010 Urban Water Management Plan*, Taft, CA, June 2011.

1 **Table 30B-27. Historical Population Growth within WKWD Communities**

	Population		Change (2000–2010)	
	2000	2010	Net	Percent
Derby Acres	376	322	-54	-14.4%
Dustin Acres	585	652	67	11.5%
Fellows	153	106	-47	-30.7%
Ford City	3,512	4,278	766	21.8%
Maricopa	1,111	1,154	43	3.9%
McKittrick	160	115	-45	-28.1%
South Taft	1,898	2,169	271	14.3%
Taft	8,811	9,327	516	5.9
Taft Heights	1,865	1,949	84	4.5%
Tupman	227	161	-66	-29.1%
Valley Acres	512	527	15	2.9%

Source: U.S. Census Bureau 2000, U.S. Census Bureau 2010, California Department of Finance 2011

2

3 Table 30B-28 presents projected population growth within the WKWD service area as calculated by
4 WKWD in its 2010 UWMP. WKWD calculated future population for its entire service area based on
5 persons per connection and the historical rate of increase in residential connections. Year 2000
6 Census data from the Kern Council of Governments was used to calculate persons per connection,
7 while data from the California Department of Finance was used to project the rate of increase in
8 population (West Kern Water District 2011; 2-8). By 2035, the population within the service area is
9 projected to increase by approximately 1,900, an increase of approximately 10.5% compared to
10 2010 population.

11 **Table 30B-28. Projected Population Growth within ID4 Service Area**

	Population		Change (2010–2035)	
	2010	2035	Net	Percent
Service Area Population	18,048	19,948	1,900	10.5%

Source: West Kern Water District 2011, Table 2-4

12

13 **30B.5.2.2 Water Demand and Supply within WKWD Service Area**

14 **30B.5.2.2.1 Demand**

15 Table 30B-29 displays current (2010) and projected (2035) demands within the WKWD service
16 area. Approximately 80% of WKWD's water deliveries are to industrial customers, including oil
17 production operations, electrical co-generation plants and one golf course (West Kern Water District
18 2011; 2-9). WKWD supplies La Paloma Power Company with untreated SWP water delivered
19 directly from WKWD's turnout along the California Aqueduct. An agreement was established in
20 2001 between WKWD and La Paloma Power Company for a maximum delivery of 6,500 acre-feet
21 per year. Historically, La Paloma Power Company has taken less than 6,500 acre-feet per year and

1 WKWD utilizes the balance of the water for groundwater recharge or exchanges (West Kern Water
2 District 2011; 3-3).

3 Between 2010 and 2035, total annual demand is projected to increase by approximately 2,900 acre-
4 feet, an increase of nearly 12%. This estimate assumes that La Paloma Power Company begins to
5 take its maximum SWP delivery; this would represent the largest increase in demand, an increase of
6 approximately 60% over 2010 levels. Demand from single-family residential customers in 2035 is
7 projected to increase by 836 acre-feet (22%) compared to 2010, while demand from industrial users
8 (other than La Paloma Power) is projected to decrease by approximately 375 acre-feet (2%) by
9 2035.

10 **Table 30B-29. Demand within WKWD Service Area ^a (acre-feet)**

Category	2010	2035	Change 2010–2035	
			Net	Percent
Single-family Residential			826	22.3%
Industrial ^b	15,441	15,065	-376	-2.4%
Institutional/governmental	465	465	0	0.0%
Landscape	812	812	0	0.0%
Agriculture	0	0	0	0.0%
Raw Water (La Paloma Power Co.) ^c	4,059	6,500	2,441	60.1%
Conveyance Loss ^d	247	274	27	10.9%
Total WKWD Service Area	24,729	27,647	2,918	11.8%

Source: West Kern Water District 2011, Table 2-2

^a Projections for 2035 include conservation.

^b Includes deliveries to oil production operations, the electrical co-generation industry and one golf course.

^c WKWD supplies La Paloma Power Company with untreated SWP water delivered directly from WKWD's turnout along the California Aqueduct.

^d Conveyance loss is based on past reports and monitoring of conveyance loss by WKWD, the current loss rate was calculated at 1.5%.

11 12 **30B.5.2.2.2 Supply**

13 WKWD's water supply is primarily obtained from groundwater through its active groundwater
14 recharge and banking program, which includes an in-lieu transfer of its SWP water to Buena Vista
15 Water Storage District in exchange for groundwater pumping and recharge (West Kern Water
16 District 2011; 1-3 and 3-7). As a result, WKWD's supply reliability is strongly tied to SWP deliveries
17 (West Kern Water District 2011; 6-6). WKWD receives SWP water through two contracts with
18 KCWA totaling 31,500 acre-feet per year of Table A water – one M&I contract for 25,000 acre-feet
19 per year and one agricultural contract for 6,500 acre-feet per year – which is used for M&I purposes
20 (Kimm pers. comm.). These amounts represent the maximum amount of water that the agencies can
21 request; actual deliveries vary and may be affected by hydrologic conditions, reservoir levels, and
22 regulatory and operational constraints (West Kern Water District 2011; 6-5).

23 In addition to banked groundwater and SWP water through the KCWA contracts, WKWD obtains
24 additional water supplies via purchases, exchanges and transfers with other agencies. WKWD

1 currently has short-term transfer agreements with Rosedale Rio Bravo Water Storage District,
 2 Tehachapi Cummings County Water District and Palmdale Water District, and a long term transfer
 3 agreement with Buena Vista Water Storage District (West Kern Water District 2011; 3-12).

4 Table 30B-30 below presents WKWD's current and projected supply portfolio for 2010 to 2035
 5 (under normal hydrologic conditions). Future SWP supply is based on delivery of 60% of WKWD's
 6 31,500 acre-foot allotment from KCWA, based on DWR's average year long term delivery reliability
 7 estimates presented in the 2009 *State Water Project Delivery Reliability Report*. Due to the short-
 8 term agreements described above, WKWD's projected supply through 2020 is larger than projected
 9 demand, and excess supply will be used for groundwater banking (see Table GI 2-8 above for
 10 projected demand within the WKWD service area). However, future supplies beyond 2025 are not
 11 projected to provide excess water for banking, and WKWD will begin to increase extraction of
 12 banked groundwater to meet demand. Under normal hydrologic conditions, WKWD projects that by
 13 2035, banked groundwater supply will increase from 0 acre-feet per year to 1,973 acre-feet per year
 14 and that SWP supply will increase from 15,750 acre-feet per year to 18,900 acre-feet per year.
 15 However, during dry years, SWP supplies may be as low as 2,205 acre-feet per year, and WKWD will
 16 increase groundwater production to as much as 15,029 acre-feet to meet demand (West Kern Water
 17 District 2011; 6-7). WKWD currently has approximately 176,700 acre-feet of water in groundwater
 18 storage, which represents eight years of supply (West Kern Water District 2011; 6-9).

19 **Table 30B-30. Current and Projected Supply (acre-feet)**

Source	2010	2015	2020	2025	2030	2035
SWP (from KCWA) ^a	15,750	18,900	18,900	18,900	18,900	18,900
WKWD Groundwater Bank Extraction	0	0	0	1,777	1,875	1,973
Exchanges ^b	10,000	11,666	11,666	0	0	0
Water Purchases ^c	10,279	0	0	0	0	0
Transfers ^d	0	11,500	6,500	6,500	6,500	6,500
Total	36,029	42,066	37,066	27,177	27,275	27,373

Source: West Kern Water District 2011, Table 3-1

^a Projected SWP quantities based on 60% delivery of WKWD's total 31,500 acre-foot allotment from KCWA, based on DWR's average year long term delivery reliability estimates presented in the 2009 *State Water Project Delivery Reliability Report*.

^b Based on WKWD's short term exchange with Rosedale Rio Bravo Water Storage District, which ends in 2018.

^c Includes State and Federal water purchased for groundwater recharge.

^d Includes transfers with Tehachapi-Cummings County Water District, Palmdale Water District and Buena Vista Water Storage District.

20

30B.5.3 Tehachapi-Cummings County Water District⁹

The Tehachapi-Cummings County Water District (TCCWD) encompasses an area of about 266,000 acres in the Tehachapi Mountains between the cities of Bakersfield and Mojave in southeastern Kern County. The TCCWD manages three of four groundwater basins in the area¹⁰ and provides imported SWP water supply, water resources management, and flood protection to the greater Tehachapi area (Tehachapi-Cummings County Water District et al. 2011; 13). Three community services districts (CSDs) and the City of Tehachapi located within TCCWD service area are retail water service providers within their respective service areas. TCCWD provides wholesale SWP water to the CSDs and the City as well as water service to the TCCWD service area that is outside the service areas of the retail providers.

30B.5.3.1 Urban Growth within TCCWD Service Area

Tables 30B-31 and 30B-32 indicate recent and projected population growth, respectively, within the TCCWD service area. As shown, the area grew by almost 30% over the past decade, and is projected to grow by about 45% over the next three decades – from a population of 36,300 in 2010 to 52,923 in 2040, the planning horizon for the 2010 Tehachapi Regional Urban Water Management Plan.

Table 30B-31. Population Growth in the TCCWD Service Area 2000–2010, by Agency

Agency	Population		Change 2000–2010	
	2000	2010	Net	Percent
TCCWD ^{a, b}	8,654	11,311	2,657	31%
Bear Valley Community Services District (CSD)	4,232	5,172	940	22%
Golden Hills CSD	7,434	8,656	1,222	16%
Stallion Springs CSD	1,522	2,488	966	63%
City of Tehachapi ^c	6,558	8,673	2,115	32%
Total TCCWD Service Area	28,400	36,300	7,900	28%

^a Population shown excludes the community services districts and the City of Tehachapi.

^b Year 2000 population based on total service area population of 28,400 stated in RUWMP (TCCWD et al. 2011; 21) minus the 2000 populations of the CSDs and City of Tehachapi. Year 2010 population includes 5,741 inmates at the California Correctional Institute (CCI) (TCCWD et al. 2011; Table 2-2).

^c Population exclude inmates residing at CCI.

Sources: Tehachapi Cummings County Water District et al. 2011, p. 21, Table 3-10, Table 4-12, Table 5-12, Table 6-9, and Table 2-2

⁹ Information in this section is drawn from the *2010 Tehachapi Regional Urban Water Management Plan*; according to adoption resolutions included as Appendix A of the plan, it was adopted by the participating agencies in June 2011 (TCCWD et al. 2011). As stated in the RUWMP, the participating agencies submitted a regional plan in order to share information, avoid duplication of efforts, reduce cost, and implement a more coordinated regional approach to water management. None of the five participating agencies is required to prepare an UWMP, because none serves 3,000 or more water service connection or provides more than 3,000 AF of water to urban users (TCCWD et al. 2011, 2).

¹⁰ The TCCWD serves as watermaster for the Brite, Cummings and Tehachapi Basins. The fourth basin, the Bear Valley Basin, underlies and is managed by the Bear Valley Community Services District.

1 **Table 30B-32. Projected Population Growth in TCCWD Service Area by Agency**

Agency	Population		Change 2010–2040	
	2010	2040	Net	Percent
TCCWD ^{a, b}	11,311	14,447	3,136	0.8%
Bear Valley CSD	5,172	7,397	2,225	43%
Golden Hills CSD	8,656	11,667	3,011	35%
Stallion Springs CSD	2,488	3,701	1,213	49%
City of Tehachapi	8,673	15,710	7,037	81%
Total TCCWD Service Area	36,300	52,923	16,622	46%

Source: Tehachapi-Cummings County Water District et al. 2011, Table 2-2

Note: Numbers may not sum to totals due to rounding.

^a Population shown excludes the CSDs and City of Tehachapi.

^b Includes 5,741 inmates at the California Correctional Institute (CCI) in Tehachapi in 2010 and 2040.

2

3 **30B.5.3.2 Water Demand and Supply within TCCWD Service Area**4 **30B.5.3.2.1 Demand**

5 Water demands within the CSDs and City of Tehachapi are for M&I uses whereas demand within the
6 TCCWD service area outside these urban areas consists of both M&I and agricultural uses. Table
7 30B-33 shows current and projected M&I demand within the TCCWD service area, and Table 30B-
8 34 shows overall M&I and agricultural demand for the service area. Deliveries for both M&I and
9 agricultural uses are projected to increase by about 40% between 2010 and 2040, as shown in Table
10 30B-34 In both years, M&I use represents about 53% of total demand and agricultural use
11 represents about 47%.

12 **Table 30B-33. M&I Demand^a in TCCWD Service Area with Reduction Targets (acre-feet)**

Agency	Demand		Change 2010–2040	
	2010	2040	Net	Percent
TCCWD ^b	1,963	2,080	117	6%
Bear Valley CSD	956	1,638	682	71%
Golden Hills CSD	1,210	1,783	573	47%
Stallion Springs CSD	399	693	294	74%
City of Tehachapi	1,958	2,975	1,017	52%
Total M&I Demand TCCWD Service Area	6,486	9,169	2,683	41%

Source: Tehachapi-Cummings County Water District et al. 2011, Table 2-14

^a Demand is assumed to equal “deliveries” shown in RUWMP Table 2-14.

^b Demand shown includes CCI, excludes the CSDs and City of Tehachapi.

13

Table 30B-34. Total M&I and Agricultural Demand^a in TCCWD Service Area (acre-feet)

Sector	Demand		Change 2010–2040	
	2010	2040	Net	Percent
M&I Demand	6,486	9,169	2,683	41%
Agricultural Demand	5,828	8,144	2,316	40%
Total Demand TCCWD Service Area	12,314	17,314	4,999	41%

Source: Tehachapi-Cummings County Water District et al. 2011, Table 2-14

^a Demand is assumed to equal “deliveries” shown in RUWMP Table 2-14. Data for 2010 reflects actual deliveries; data for 2040 is based on a combination of projected population increases and demand reduction targets (TCCWD et al. 2011; 52)

Supply

Groundwater is the principal source of water supply in the TCCWD service area, supplemented by SWP deliveries (Tehachapi-Cummings County Water District et al 2011; 34). Table 30B-35 shows the sources of water supply in the TCCWD service area from 2005 through 2010. On average over these six years, SWP deliveries represented 37% of the water used and native groundwater represented 63%.

The TCCWD has two contracts for SWP water with the KCWA – one contract is for 15,000 acre-feet of M&I water and one contract is for 5,000 acre-feet of agricultural water (4,300 acre-feet firm supply plus 700 acre-feet surplus supply) (Tehachapi-Cummings County Water District et al. 2011; 33). However, under short-term drought conditions, with subsequent reductions in allocations of SWP water, TCCWD does not anticipate that additional 700 acre-feet of surplus agriculture contract water will be readily available (Tehachapi-Cummings County Water District et al 2011; 34). To date TCCWD has not imported more than 45% of its SWP Table A water and does not expect 100 percent delivery of its Table A allocation due to constraints on DWR’s ability to deliver SWP water. SWP water is delivered directly to agricultural users and is delivered indirectly to M&I users via the groundwater basins to which it is recharged. TCCWD sells this SWP water to the CSDs, the City of Tehachapi, the California Correctional Institution (CCI) (which is located within the city of Tehachapi and operated by the California Department of Corrections and Rehabilitation), and other retail water agencies¹¹ within the TCCWD through conjunctive use (Tehachapi-Cummings County Water District et al 2011; 34).

The RUWMP notes that none of the four basins is identified as overdrafted in the 2003 update of DWR’s Groundwater Bulletin 118; however, the RUWMP states that the Cummings Basin is overdrafted and that extractions have exceeded safe yield in four of the past nine years. The RUWMP attributes this to several factors, including (1) the adjudication of the basin does not restrict pumping for use within the basin, (2) some farmers prefer pumping groundwater to purchasing SWP due to the cost differential, and (3) conjunctive use by M&I users has not until recently taken into account system losses associated with conjunctive use (Tehachapi-Cummings County Water District et al 2011; 29-30). Starting in 2010 a factor has been incorporated into the conjunctive use program to account for associated spreading loss and TCCWD anticipates that a program to correct the overdraft, including changes to the rate structure, will be developed and implemented (Tehachapi-Cummings County Water District et al 2011; 30).

¹¹ Water use outside of the three CSDs and City of Tehachapi is shown as TCCWD water use.

1 Table 30B-36 shows existing (2010) total potential sources and planned 2040 water sources. The
 2 estimate for 2010 includes groundwater potential based on basin safe yield and/or allocations
 3 allowed under basin adjudications and SWP carryover water from 2009, as well as Table A water
 4 assuming 50% reliability, and together are greater than actual use in 2010.

5 **Table 30B-35. Sources of Water Supply Used in the TCCWD Service area, 2005–2010^a (acre-feet)**

Year	Cummings Basin	Tehachapi Basin	Brite Basin	Bear Valley Basin	Total Groundwater	State Water Project ^b	Total
2005	3,647	4,315	325	506	8,793	5,731	14,524
2006	3,900	4,648	328	528	9,404	5,258	14,662
2007	3,729	4,632	328	491	9,180	6,964	16,144
2008	3,958	5,127	328	535	9,948	5,352	15,300
2009	4,406	4,569	346	631	9,952	4,626	14,578
2010	3,650	4,252	345	509	8,756	5,401	14,157

Source: Tehachapi-Cummings County Water District et al 2011; Table 2-4 (SWP deliveries), Table 2-10 (groundwater by basin), Table 2-15 (groundwater totals without SWP)

^a Assumed not to include system losses based on characterization of SWP deliveries as “net” deliveries (RUWMP Table 2-4).

^b Based on net SWP deliveries reported in RUWMP Table 2-4.

6
 7 **Table 30B-36. Existing (2010) and Planned (2040) Water Sources in the TCCWD Service area (acre-**
 8 **feet)**

Source	Existing (2010)	Planned (2040)
Groundwater	10,714 ^a	10,714 ^a
SWP (California Aqueduct)	8,067 ^b	9,502 ^c
Subtotal	18,781	20,216
Recycled Water (Bear Valley WWTP)	35	35
Recycled Water (CCI WWTP)	0	900
Total	18,816	21,151

Source: Tehachapi-Cummings County Water District et al., 2011, Table 2-6, Table 2-13

^a Includes system safe yield/ basin allocations pursuant to basin adjudications (rather than quantity actually pumped in 2010).

^b Includes 2,000 acre-feet carryover water from 2009, Table A supply of 9,650 (50% average reliability of Table A amount), and losses of 16.4% in the Tehachapi-Cummings System.

^c Includes total M&I and agriculture Table A supply of 11,366 (58.9% average reliability of Table A amount) and losses of 16.4% in the Tehachapi-Cummings System.

9 10 **30B.5.4 Tejon-Castac Water District**

11 TCWD’s current service area includes approximately 30 commercial and industrial connections in
 12 the Tejon Industrial Complex located in Lebec near the intersection of Interstate 5 and State Route
 13 99 (Makinde-Odusola pers. comm.). At this time, TCWD does not meet the threshold for preparation
 14 of a UWMP. However, TCWD is planning to annex the proposed Tejon Mountain Village residential

1 development, which was approved by the Kern County Board of Supervisors in October 2009, but
 2 has not yet been built. The proposed Tejon Mountain Village would include approximately 3,500
 3 homes, and 160,000 square foot shopping center and two golf courses.

4 TCWD has two contracts with KCWA to receive SWP water – one M&I contract for 2,000 acre-feet
 5 per year and one agricultural contract for 3,278 acre-feet per year (Kimm pers. comm.). Based on
 6 DWR's *State Water Project Delivery Reliability Report*, TCWD projects that its long term average year
 7 total SWP deliveries to be 3,325 acre-feet per year (Kern County Water Agency 2009).

8 **30B.6 Comparison to BDCP Water Delivery** 9 **Projections**

10 **30B.6.1 MWD**

11 **Tables 30B-37 and 30B-38** summarize projected annual deliveries to MWD under the BDCP, as
 12 prepared by DWR based on the CalSim II modeling results, and factors such as contract terms and
 13 system capacity. In the Early Long Term period, Table A plus Article 21 deliveries to MWD are
 14 projected to vary from approximately 923,900 acre-feet per year under Alternatives 6A, 6B, and 6C,
 15 to 1,465,500 acre-feet per year under Alternatives 1A, 1B, and 1C. In the Late Long Term, SWP
 16 deliveries to MWD may range from approximately 833,000 acre-feet per year under Alternatives 6A,
 17 6B, and 6C to 1,368,500 acre-feet per year under Alternatives 1A, 1B, and 1C.

18 **Table 30B-37. Baseline Conditions and No Action Alternative Summary of Annual Deliveries to**
 19 **MWD (thousand acre-feet)**

Baseline Conditions		No Action Alternative			
		Early Long Term		Late Long Term	
Table A	Table A + Article 21	Table A	Table A + Article 21	Table A	Table A + Article 21
1,122.1	1,147.6	1,148.0	1,159.6	1,081.1	1,092.6

Source: BDCP Modeling results as reported in
 SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls and
 SWP_TableA_Art21_delivery_by_contractor_tables_110111.xls, November 2011, adapted by ESA

20
 21 MWD's year 2035 supply projections presented in Table 30B-38 include the maximum supply
 22 capability of SWP deliveries, considering current storage and transfer programs as well as programs
 23 under development. However, MWD's contractual Table A plus Article 21 deliveries make up only a
 24 portion of these projected SWP deliveries. In its 2010 RUWMP, MWD estimated its SWP Table A and
 25 Article 21 deliveries to be approximately 1,683,000 acre-feet per year with the Project¹², or
 26 approximately 69% of total SWP supply capability in 2035 (MWD 2011; Table A.3-7). This estimate
 27 for an average year condition is greater than projected deliveries under the BDCP for all
 28 alternatives.

¹² Includes 605 thousand acre-feet per year associated with Delta improvements.

1 **Table 30B-38. Alternatives 1 to 9: Summary of Annual Deliveries to MWD (thousand acre-feet)**

Alternative	Water Deliveries for Each Alternative				Change in Water Deliveries for Each Alternative															
					Compared to Baseline Conditions								Compared to No Action Alternative							
	Early Long Term		Late Long Term		Early Long Term				Late Long Term				Early Long Term				Late Long Term			
	Table A	Table A + Article 21	Table A	Table A + Article 21	Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21	
				Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	
1A, 1B, 1C	1424.7	1465.5	1332.2	1368.5	302.5	27%	317.9	28%	210.1	19%	220.9	19%	276.7	24%	305.8	26%	251.2	23%	275.9	25%
2A, 2B, 2C	1308.8	1334.3	1234.1	1255.8	186.7	17%	186.7	16%	111.9	10%	108.1	9%	160.9	14%	174.7	15%	153.0	14%	163.2	15%
3	1410.7	1446.1	1311.6	1341.3	288.5	26%	298.5	26%	189.5	17%	193.7	17%	262.7	23%	286.5	25%	230.6	21%	248.7	23%
4	1279.1	1299.7	1206.0	1221.9	156.9	14%	152.1	13%	83.9	7%	74.3	6%	131.1	11%	140.1	12%	125.0	12%	129.4	12%
5	1263.3	1283.1	1170.6	1184.0	141.2	13%	135.5	12%	48.5	4%	36.4	3%	115.4	10%	123.4	11%	89.6	8%	91.4	8%
6A, 6B, 6C	916.7	923.9	824.0	833.0	-205.4	-18%	-223.7	-19%	-298.2	-27%	-314.6	-27%	-231.2	-20%	-235.8	-20%	-257.1	-24%	-259.6	-24%
7	930.7	938.1	843.3	848.8	-191.4	-17%	-209.6	-18%	-278.8	-25%	-298.8	-26%	-217.3	-19%	-221.6	-19%	-237.7	-22%	-243.8	-22%
8	641.0	647.0	579.6	587.8	-481.2	-43%	-500.6	-44%	-542.5	-48%	-559.8	-49%	-507.0	-44%	-512.7	-44%	-501.4	-46%	-504.8	-46%
9	1056.4	1062.5	1012.6	1020.5	-65.7	-6%	-85.2	-7%	-109.5	-10%	-127.1	-11%	-91.5	-8%	-97.2	-8%	-68.4	-6%	-72.0	-7%

Source: BDCP modeling results for SWP contractors (SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011; SWP_TableA_Art21_delivery_by_contractor_Alt2A_tables_021412.xls, February 2012; SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls, March 2012; and SWP_TableA_Art21_delivery_by_contractor_Alt4A_tables_050112.xls, May 2012). California Department of Water Resources, 2011b; California Department of Water Resources, 2012c; California Department of Water Resources, 2012d; California Department of Water Resources, 2012f, adapted by ESA

2

30B.6.2 SCVWD

Tables 30B-39 and 30B-40, 30B-41 and 30B-42 summarize projected annual deliveries to SCVWD under the BDCP, as prepared by DWR based on the CalSim II modeling results, and factors such as contract terms and system capacity. Modeling results indicate that in the Early Long Term period, SWP Table A plus Article 21 deliveries to SCVWD under the BDCP may vary from approximately 40,600 acre-feet per year under Alternative 8, to 84,900 acre-feet per year under Alternatives 1A, 1B and 1C. In the Late Long Term, SWP deliveries to SCVWD under the BDCP may range from approximately 38,600 acre-feet per year under Alternative 8 to 77,800 acre-feet per year under Alternatives 1A, 1B, and 1C. In the Early Long Term, CVP deliveries to SCVWD under the BDCP are projected to range from 53,400 acre-feet per year under Alternative 8 to approximately 100,400 acre-feet per year under Alternative 1. In the Late Long Term, CVP deliveries to SCVWD under the BDCP are projected to range from 49,100 acre-feet per year under Alternative 8 to approximately 93,000 acre-feet per year under Alternative 3.

Table 30B-39. Baseline Conditions and No Action Alternative Summary of Annual SWP Deliveries to SCVWD (thousand acre-feet)

Baseline Conditions		No Action Alternative			
		Early Long Term		Late Long Term	
Table A	Table A + Article 21	Table A	Table A + Article 21	Table A	Table A + Article 21
60.7	61.3	60.6	61.7	57.2	58.1

Source: BDCP Modeling results as reported in SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls and SWP_TableA_Art21_delivery_by_contractor_tables_110111.xls, November 2011, adapted by ESA

Table 30B-40. Baseline Conditions and No Action Alternative Summary of Annual CVP Deliveries to SCVWD (thousand acre-feet)

Baseline Conditions	No Action Alternative Early Long Term	No Action Alternative Late Long Term
95.3	90.8	85.0

Source: BDCP Modeling results as reported BDCP_Alternatives_CVP_M&I_Deliveries_020212, February 2012, adapted by ESA

In its 2010 UWMP, SCVWD estimated its SWP Table A and Article 21 deliveries to be approximately 64,000 acre-feet per year in 2035. In the Early Long Term, SCVWD would receive SWP deliveries equal to or greater than its projected Table A plus Article 21 deliveries under all alternatives except Alternatives 6A, 6B, 6C, 7, 8 and the No Action Alternative. In the Late Long Term, SCVWD would receive SWP deliveries equal to or greater than its projected Table A plus Article 21 deliveries under all alternatives except Alternatives 6A, 6B, 6C, 7, 8, 9 and the No Action Alternative.

In its 2010 UWMP, SCVWD estimated its CVP deliveries to be approximately 108,100 acre-feet per year in 2035. This projection is higher than projected CVP deliveries under the BDCP.

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1 **Table 30B-41. Alternatives 1 to 9: Summary of Annual SWP Deliveries to SCVWD (thousand acre-feet)**

Alternative	Water Deliveries for Each Alternative				Change in Water Deliveries for Each Alternative															
					Compared to Baseline Conditions								Compared to No Action Alternative							
	Early Long Term		Late Long Term		Early Long Term				Late Long Term				Early Long Term				Late Long Term			
	Table A	Table A + Article 21	Table A	Table A + Article 21	Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21	
				Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	
1A, 1B, 1C	77.7	84.9	72.0	77.8	16.9	28%	23.6	39%	11.2	19%	16.5	27%	17.0	28%	23.1	37%	14.7	26%	19.7	34%
2A, 2B, 2C	72.4	76.2	68.8	72.6	11.7	19%	14.9	24%	8.1	13%	11.3	18%	11.7	19%	14.4	23%	11.5	20%	14.5	25%
3	76.6	82.4	70.6	75.0	15.9	26%	21.2	35%	9.9	16%	13.8	23%	16.0	26%	20.7	34%	13.4	23%	16.9	29%
4	70.8	73.7	67.2	69.5	10.1	17%	12.4	20%	6.5	11%	8.2	13%	10.2	17%	12.0	19%	9.9	17%	11.4	20%
5	68.3	70.4	63.2	64.6	7.6	12%	9.2	15%	2.4	4%	3.4	5%	7.7	13%	8.7	14%	5.9	10%	6.5	11%
6A, 6B, 6C	51.9	53.7	47.4	49.2	-8.8	-14%	-7.6	-12%	-13.3	-22%	-12.1	-20%	-8.7	-14%	-8.0	-13%	-9.9	-17%	-8.9	-15%
7	54.5	55.3	51.2	51.7	-6.2	-10%	-6.0	-10%	-9.6	-16%	-9.5	-16%	-6.2	-10%	-6.5	-10%	-6.1	-11%	-6.4	-11%
8	39.2	40.6	37.6	38.6	-21.5	-35%	-20.7	-34%	-23.1	-38%	-22.7	-37%	-21.4	-35%	-21.1	-34%	-19.6	-34%	-19.5	-34%
9	64.2	64.8	60.1	60.5	3.5	6%	3.6	6%	-0.6	-1%	-0.8	-1%	3.6	6%	3.1	5%	2.9	5%	2.3	4%

Source: BDCP modeling results for SWP contractors (SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011; SWP_TableA_Art21_delivery_by_contractor_Alt2A_tables_021412.xls, February 2012; SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls, March 2012; and SWP_TableA_Art21_delivery_by_contractor_Alt4A_tables_050112.xls, May 2012). California Department of Water Resources, 2011b; California Department of Water Resources, 2012c; California Department of Water Resources, 2012d; California Department of Water Resources, 2012f, adapted by ESA

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3 **Table 30B-42. Alternatives 1 to 9: Summary of Annual CVP Deliveries to SCVWD (thousand acre-feet)**

Alternative	Water Deliveries for Each Alternative		Change in Water Deliveries for Each Alternative							
			Compared to Existing Conditions ^b				Compared to No Action Alternative ^b			
	Early Long Term	Late Long Term	Early Long Term		Late Long Term		Early Long Term		Late Long Term	
	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent
1A, 1B, 1C	100.4	92.5	5.1	5%	-2.8	-3%	9.6	11%	7.5	9%
2A, 2B, 2C	94.2	88.5	-1.1	-2%	-6.8	-11%	3.4	6%	3.5	6%
3	99.9	93.0	4.7	8%	-2.3	-4%	9.2	15%	8.0	14%
4	94.0	88.5	-1.3	-2%	-6.8	-11%	3.2	5%	3.5	6%
5	94.1	88.3	-1.1	-2%	-7.0	-12%	3.4	6%	3.2	6%
6A, 6B, 6C	76.1	73.2	-19.2	-32%	-22.1	-36%	-14.7	-24%	-11.9	-21%
7	75.2	73.2	-20.1	-33%	-22.1	-36%	-15.5	-26%	-11.9	-21%
8	53.4	49.1	-41.9	-69%	-46.2	-76%	-37.4	-62%	-36.0	-63%
9	89.2	85.6	-6.1	-10%	-9.7	-16%	-1.6	-3%	0.5	1%

Source: Based on projected water deliveries as reported in BDCP modeling results for CVP contractors (BDCP_Alternatives_CVP_M&I_Deliveries_020212.xls, February 2012; BDCP_Alternatives_CVP_M&I_Deliveries_with_Alt8_050112.xls, May 2012; and BDCP_Alternatives_CVP_M&I_Deliveries_ELT_052112, May 2012). California Department of Water Resources, 2012b; California Department of Water Resources 2012e; California Department of Water Resources 2012g, adapted by ESA.

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30B.6.3 AVEK

Tables 30B-43 and 30B-44 summarize deliveries based on CalSim II modeling results and factors such as contract terms and system capacity of projected annual deliveries to AVEK under the BDCP. In the Early Long Term period, Table A plus Article 21 deliveries to AVEK are projected to vary from approximately 59,900 acre-feet per year under Alternative 8 to 111,700 acre-feet per year under Alternatives 1A, 1B, and 1C. In the Late Long Term, SWP deliveries to AVEK under BDCP may range from approximately 54,900 acre-feet per year under Alternative 8 to 103,200 acre-feet per year under Alternatives 1A, 1B, and 1C.

Table 30B-43. Baseline Conditions and No Action Alternative Summary of Annual Deliveries to AVEK (thousand acre-feet)

Baseline Conditions		No Action Alternative			
		Early Long Term		Late Long Term	
Table A	Table A + Article 21	Table A	Table A + Article 21	Table A	Table A + Article 21
88.0	88.4	85.8	86.0	81.2	81.3

Source: BDCP Modeling results as reported in
 SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011;
 and SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls, March 2011,
 adapted by ESA

In its 2010 UWMP, AVEK estimated its SWP Table A deliveries to be approximately 88,000 acre-feet per year in 2030. In the Early Long Term, AVEK would receive SWP deliveries equal to or greater than its projected Table A deliveries under all alternatives except Alternatives 6A, 6B, 6C, 7, 8, and the No Action Alternative. In the Late Long Term, AVEK would receive SWP deliveries equal to or greater than its projected Table A deliveries under all alternatives except Alternatives 6A, 6B, 6C, 7, 8, 9 and the No Action Alternative.

1 **Table 30B-44. Alternatives 1 to 9: Summary of Annual Deliveries to AVEK (thousand acre-feet)**

Alternative	Water Deliveries for Each Alternative				Change in Water Deliveries for Each Alternative																
					Compared to Baseline Conditions								Compared to No Action Alternative								
	Early Long Term		Late Long Term		Early Long Term				Late Long Term				Early Long Term				Late Long Term				
	Table A	Table A + Article 21	Table A	Table A + Article 21	Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		
				Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent
1A, 1B, 1C	110.3	111.7	102.0	103.2	22.2	25%	23.3	26%	14.0	16%	14.8	17%	24.4	28%	25.7	30%	20.8	26%	21.8	27%	
2A, 2B, 2C	102.8	103.6	98.3	99.0	14.8	17%	15.3	17%	10.2	12%	10.6	12%	17.0	20%	17.6	20%	17.1	21%	17.7	22%	
3	108.5	109.8	100.1	101.1	20.4	23%	21.4	24%	12.1	14%	12.8	14%	22.6	26%	23.7	28%	19.0	23%	19.8	24%	
4	100.9	101.5	96.2	96.7	12.8	15%	13.1	15%	8.2	9%	8.3	9%	15.0	17%	15.5	18%	15.0	19%	15.4	19%	
5	96.7	97.2	89.7	90.0	8.7	10%	8.9	10%	1.6	2%	1.6	2%	10.9	13%	11.2	13%	8.5	10%	8.7	11%	
6A, 6B, 6C	75.0	75.5	68.8	69.2	-13.0	-15%	-12.8	-15%	-19.3	-22%	-19.2	-22%	-10.8	-13%	-10.5	-12%	-12.4	-15%	-12.2	-15%	
7	76.5	76.7	71.7	71.8	-11.5	-13%	-11.7	-13%	-16.4	-19%	-16.6	-19%	-9.3	-11%	-9.3	-11%	-9.5	-12%	-9.5	-12%	
8	59.9	59.9	54.9	54.9	-28.1	-32	-28.5	-32	-33.1	-38	-33.5	-38	-25.9	-30	-26.1	-30	-26.3	-32	-26.4	-32	
9	92.0	92.1	86.5	86.5	3.9	4%	3.7	4%	-1.6	-2%	-1.8	-2%	6.1	7%	6.0	7%	5.3	7%	5.2	6%	

Source: BDCP Modeling results as reported in SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011; and SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls, March 2011, adapted by ESA

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30B.6.4 CVWD

Tables 30B-45 and 30B-46 summarize projected annual deliveries to CVWD under the BDCP, as prepared by DWR based on the CalSim II modeling results, and factors such as contract terms and system capacity. In the Early Long Term period, Table A plus Article 21 deliveries to CVWD are projected to vary from approximately 46,100 acre-feet per year under Alternative 8, to 103,000 acre-feet per year under Alternatives 1A, 1B, and 1C. In the Late Long Term, SWP deliveries to CVWD may range from approximately 40,300 acre-feet per year under Alternative 8 to 95,500 acre-feet per year under Alternatives 1A, 1B, and 1C.

Table 30B-45. Baseline Conditions and No Action Alternative Summary of Annual Deliveries to CVWD (thousand acre-feet)

Baseline Conditions		No Action Alternative			
		Early Long Term		Late Long Term	
Table A	Table A + Article 21	Table A	Table A + Article 21	Table A	Table A + Article 21
75.5	75.7	80.3	80.3	76.0	76.1

Source: BDCP Modeling results as reported in SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011, and SWP_TableA_Art21_delivery_by_contractor_tables_110111.xls, November 2011, adapted by ESA

Because CVWD and DWA jointly manage their SWP supply, CVWD's projections for SWP supply reflect the combined Table A deliveries of CVWD and DWA. CVWD and DWA have conservatively estimated that in their combined SWP Table A deliveries in 2030 will range from approximately 72,200 acre-feet per year without improvements proposed under the BDCP, to 111,200 acre-feet per year if the BDCP is implemented. In both the Early Long Term and Late Long Term periods, CVWD would receive SWP deliveries equal to or greater than its projected "worst case" Table A deliveries under all alternatives except Alternatives 6A, 6B, 6C and 7 and 8.

1 **Table 30B-46. Alternatives 1 to 9: Summary of Annual Deliveries to CVWD (thousand acre-feet)**

Alternative	Water Deliveries for Each Alternative				Change in Water Deliveries for Each Alternative																
					Compared to Baseline Conditions								Compared to No Action Alternative								
	Early Long Term		Late Long Term		Early Long Term				Late Long Term				Early Long Term				Late Long Term				
	Table A	Table A + Article 21	Table A	Table A + Article 21	Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		
				Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent
1A, 1B, 1C	102.2	103.0	94.8	95.5	26.6	35%	27.3	36%	19.3	26%	19.7	26%	21.9	27%	22.7	28%	18.8	25%	19.4	25%	
2A, 2B, 2C	95.1	95.5	90.4	90.7	19.5	26%	19.7	26%	14.9	20%	15.0	20%	14.8	18%	15.1	19%	14.4	19%	14.6	19%	
3	100.8	101.5	93.5	94.2	25.3	33%	25.8	34%	18.0	24%	18.4	24%	20.5	26%	21.2	26%	17.5	23%	18.1	24%	
4	93.1	93.5	88.8	89.0	17.6	23%	17.8	23%	13.3	18%	13.3	18%	12.9	16%	13.2	16%	12.8	17%	13.0	17%	
5	90.2	90.3	83.9	84.0	14.6	19%	14.6	19%	8.4	11%	8.3	11%	9.9	12%	10.0	12%	7.9	10%	7.9	10%	
6A, 6B, 6C	66.5	66.7	59.7	59.8	-9.0	-12%	-9.0	-12%	-15.9	-21%	-15.9	-21%	-13.8	-17%	-13.6	-17%	-16.3	-22%	-16.3	-21%	
7	68.1	68.1	62.0	62.1	-7.4	-10%	-7.6	-10%	-13.5	-18%	-13.7	-18%	-12.2	-15%	-12.2	-15%	-14.0	-18%	-14.0	-18%	
8	45.8	46.1	40.0	40.3	-29.7	-39%	-29.6	-39%	-35.5	-47%	-35.4	-47%	-34.5	-43%	-34.2	-43%	-36.0	-47%	-35.8	-47%	
9	82.6	82.6	77.3	77.3	7.1	9%	6.9	9%	1.8	2%	1.6	2%	2.3	3%	2.3	3%	1.3	2%	1.3	2%	

Source: BDCP modeling results for SWP contractors (SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011; SWP_TableA_Art21_delivery_by_contractor_Alt2A_tables_021412.xls, February 2012; SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls, March 2012; and SWP_TableA_Art21_delivery_by_contractor_Alt4A_tables_050112.xls, May 2012). California Department of Water Resources, 2011b; California Department of Water Resources, 2012c; California Department of Water Resources, 2012d; California Department of Water Resources, 2012f, adapted by ESA

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30B.6.5 KCWA

CalSim II modeling of projected annual SWP deliveries under the BDCP only provides an estimate of annual deliveries for KCWA as a whole; it does not provide results for the individual member units of KCWA. Therefore, for this analysis, the combined projected SWP deliveries for ID4, WKWD, TCCWD and TCWD as reported in each agency's respective planning documents are compared to the projected annual M&I deliveries to KCWA under the BDCP based on CalSim II modeling. While this analysis focuses on projected changes in M&I deliveries, note that KCWA receives SWP water for agricultural users as well.

Table 30B-47 below provides a summary of the contracted and projected Table A SWP deliveries for the four member units of KCWA that serve M&I uses, as reported in each agency's respective water planning documents. Based on their contracts with KCWA, these four agencies may receive a maximum of 119,000 acre-feet of SWP Table A M&I deliveries per year. As described above, actual deliveries vary and depend on a variety of regulatory, hydrologic and operational conditions. Planned long term average year SWP Table A M&I deliveries to ID4, WKWD, TCCWD, and TCWD total 69,846 acre-feet per year.

Table 30B-47. SWP Deliveries to KCWA Member Units Serving M&I Uses (acre-feet per year)

Agency	SWP Table A Total Contracted Amount	SWP Table A M&I Contracted Amount	Planned SWP Delivery Reliability ^a	Projected Total SWP Deliveries	Projected M&I SWP Deliveries ^b
Improvement District No. 4	82,946	77,000	60.0%	49,768	46,200
West Kern Water District	31,500	25,000	60.0%	18,900	15,000
Tehachapi-Cummings County Water District	19,300	15,000	58.9%	9,503 ^c	7,386 ^c
Tejon-Castac Water District	5,278	2,000	63.0%	3,325	1,260
Total	139,024	119,000		81,496	69,846

Source: Kern County Water Agency Improvement District No. 4 2011, West Kern Water District 2011, Tehachapi Cummings County Water District 2011, County of Kern 2009

^a Based on projected long term average year reliability as reported in Kern County Water Agency Improvement District No. 4 2011, Table 3-4; West Kern Water District 2011, Table 3-1; Tehachapi Cummings County Water District 2011, Table 2-6; County of Kern 2009, Appendix N1 Table 6.

^b The SWP delivery projections reported in each agency's UWMP combine water from SWP M&I and agriculture contracts. To estimate projected delivery of SWP M&I contract water only, the SWP delivery reliability percentage used by each agency in its UWMP was multiplied by each agency's M&I SWP Table A contract amount. Tejon-Castac information is from County of Kern 2009.

^c Projected delivery modified to account for system losses of 16.4% per methodology in TCCWD's UWMP.

Tables 30B-48 and 30B-49 summarize projected annual SWP M&I deliveries to KCWA under the BDCP, as prepared by DWR based on the CalSim II modeling results, and factors such as contract terms and system capacity. In the Early Long Term period, Table A plus Article 21 deliveries to KCWA are projected to vary from approximately 59,900 acre-feet per year under Alternative 8, to

1 104,800 acre-feet per year under Alternatives 1A, 1B and 1C. In the Late Long Term, SWP deliveries
 2 to KCWA may range from approximately 54,900 acre-feet per year under Alternative 8 to 97,000
 3 acre-feet per year under Alternatives 1A, 1B, and 1C.

4 In the Early Long Term, KCWA's member units would receive SWP deliveries equal to or greater
 5 than their combined projected Table A deliveries under all alternatives except Alternatives 6A, 6B,
 6 6C, 7 and 8. In the Late Long Term, KCWA's member units would receive SWP deliveries equal to or
 7 greater than their combined projected Table A deliveries under all alternatives except Alternatives
 8 6A, 6B, 6C, 7 and 8.

9 **Table 30B-48. Baseline Conditions and No Action Alternative Summary of Annual Deliveries to**
 10 **KCWA (thousand acre-feet)**

Baseline Conditions		No Action Alternative			
		Early Long Term		Late Long Term	
Table A	Table A + Article 21	Table A	Table A + Article 21	Table A	Table A + Article 21
86.9	86.9	81.6	81.6	77.2	77.2

Source: Modeling results reported in
 SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011;
 SWP_TableA_Art21_delivery_by_contractor_Alt2A_tables_021412.xls, February 2012; and
 SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls; March 2012. California
 Department of Water Resources 2011b; California Department of Water Resources 2012c;
 California Department of Water Resources 2012d, adapted by ESA

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1 **Table 30B-49. Alternatives 1 to 9: Summary of Annual Deliveries to KCWA (thousand acre-feet)**

Alternative	Water Deliveries for Each Alternative				Change in Water Deliveries for Each Alternative																
					Compared to Baseline Conditions								Compared to No Action Alternative								
	Early Long Term		Late Long Term		Early Long Term				Late Long Term				Early Long Term				Late Long Term				
	Table A	Table A + Article 21	Table A	Table A + Article 21	Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		Table A		Table A + Article 21		
				Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent	Net	Percent
1A, 1B, 1C	104.8	104.8	97.0	97.0	17.9	21%	17.9	21%	10.1	12%	10.1	12%	23.1	28%	23.1	28%	19.8	26%	19.8	26%	
2A, 2B, 2C	97.7	97.7	93.5	93.5	10.9	13%	10.9	13%	6.6	8%	6.6	8%	16.1	20%	16.1	20%	16.3	21%	16.3	21%	
3	103.1	103.1	95.2	95.2	16.2	19%	16.2	19%	8.3	10%	8.3	10%	21.5	26%	21.5	26%	18.0	23%	18.0	23%	
4	95.8	95.8	91.5	91.5	9.0	10%	9.0	10%	4.6	5%	4.6	5%	14.2	17%	14.2	17%	14.3	19%	14.3	19%	
5	92.0	92.0	85.4	85.4	5.2	6%	5.2	6%	-1.5	-2%	-1.5	-2%	10.4	13%	10.4	13%	8.2	11%	8.2	11%	
6A, 6B, 6C	71.3	71.3	65.6	65.6	-15.5	-18%	-15.5	-18%	-21.3	-24%	-21.3	-24%	-10.3	-13%	-10.3	-13%	-11.6	-15%	-11.6	-15%	
7	72.8	72.8	68.3	68.3	-14.1	-16%	-14.1	-16%	-18.6	-21%	-18.6	-21%	-8.9	-11%	-8.9	-11%	-8.9	-12%	-8.9	-12%	
8	59.9	59.9	54.9	54.9	-27	-31	-27	-31	-32	-37	-32	-37	-21.7	-27	-21.7	-27	-22.3	-29	-22.3	-29	
9	87.5	87.5	82.3	82.3	0.7	1%	0.7	1%	-4.5	-5%	-4.5	-5%	5.9	7%	5.9	7%	5.1	7%	5.1	7%	

Source: Modeling results as reported in SWP_TableA_Art21_delivery_by_contractor_newAlt1A2B_tables_110211.xls, November 2011; SWP_TableA_Art21_delivery_by_contractor_Alt2A_tables_021412.xls, February 2012; and SWP_TableA_Art21_delivery_by_contractor_tables_110111(031412).xls; March 2012. California Department of Water Resources 2011b; California Department of Water Resources 2012c; California Department of Water Resources 2012d, adapted by ESA

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