2010 Urban Water Management Plan

Final

Prepared for:

Kern County Water Agency Improvement District No. 4

and North of the River Municipal Water District

Prepared by:

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Section 1: Introduction

1.1 Purpose

This document presents the 2010 Urban Water Management Plan (Plan) for Improvement District No. 4 (ID4) of the Kern County Water Agency (Agency) and North of the River Municipal Water District (NORMWD). This chapter describes the general purposes of the 2010 Plan, discusses Plan implementation, and provides general information about ID4 and NORMWD and their service area characteristics.

1.2 Overview

An Urban Water Management Plan (UWMP) is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan include a section which "describes the opportunities for exchanges or water transfers on a short-term or long-term basis." (California Urban Water Planning Act [Act], Article 2, Section 10630(d).) The identification of such opportunities, and the inclusion of those opportunities in a general water service reliability analysis, neither commits a water management agency to pursue a particular water exchange/transfer opportunity, nor precludes a water management agency from exploring exchange/transfer opportunities not identified in the plan. When specific projects are chosen to be implemented, detailed project plans are developed, environmental analysis, if required, is prepared, and financial and operational plans are detailed.

In short, an UWMP is a management tool, providing a framework for action, but not functioning as a detailed project development or action. It is important that the UWMP be viewed as a long-term, general planning document, rather than as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at an UWMP as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what are the reasonable probable yields from them?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming the various probable supplies will be pursued by the implementing agency?

Using these "framework" questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands.

The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five-year increments. (ID4 and NORMWD are going beyond the requirements of the Act by developing a plan which spans 25 years);
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years; and
- Implements conservation and efficient use of urban water supplies.

Additionally, newly passed State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7), was signed into law in November 2009, which calls for progress towards a 20 percent reduction in per capita water use by 2020. As a result, the legislation now mandates each urban retail supplier to develop and report a water use target in the retailer's 2010 UWMP. The legislation further requires that retailers report an interim 2015 water use target, their baseline daily per capita use, and compliance daily per capita use along with the basis for determining those estimates.

SBX7-7 provides three possible methods for an urban retail water supplier to use to calculate their water use target and the Department of Water Resources (DWR) is currently developing a fourth method. DWR has also developed methodologies for calculating base daily per capita water use, baseline commercial, industrial and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use and landscape area water use.

Also of importance is Assembly Bill (AB) 1420. AB 1420, passed in 2007 and in effect as of January 2009, changes the funding eligibility requirements of Section 10631 of the Water Code. For any urban water supplier to be eligible for grant or loan funding administered by DWR, the State Water Resources Control Board (SWRCB), or the Bay-Delta Authority (such as Propositions 50 and 84), the supplier must show implementation of water use efficiency Demand Management Measures/Best Management Practices (DMMs/BMPs) listed and described in the Act and the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding, or show the schedule by which the supplier will begin implementing the DMMs/BMPs. Any supplier not implementing the measures based on cost-effectiveness must submit proof showing why the measures are not cost-effective.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A. Tables ensuring compliance with AB 1420 are provided in the DMM appendix, Appendix D.

This Plan is organized to act as the 2010 UWMP for ID4 as a wholesaler. This Plan also acts as the 2010 UWMP for NORMWD as a wholesaler.

1.3 Implementation of the Plan

The Act applies to every urban water supplier that provides water to *3,000 or more customers*, or that provides *over 3,000 acre-feet (af) of water annually*; and that urban supplier may satisfy the requirements of the Act by participation in area-wide, regional, watershed, or basin-wide urban water management planning where those plans will reduce preparation costs and

contribute to the achievement of conservation and efficient water use. This Plan is being prepared for ID4, which currently has agreements to provide a wholesale treated water supply to four contracting water retailers within its service area:

1. California Water Service Company (CWSC-BAK)
2. City of Bakersfield (COB)
3. East Niles Community Services District (ENCSD)
4. North of the River Municipal Water District (NORMWD)[1]

NORMWD, in its capacity as a wholesale agency, has an agreement to provide a wholesale treated water supply to Oildale Mutual Water Company (OMWC). NORMWD is participating in the preparation of this Plan, and thus will implement and adopt the Plan along with ID4. The remaining purveyors have contributed information necessary to complete the demand analysis required in this plan; however, they will complete their own separate UWMPs. This plan describes the water management tools and options used by these agencies to maximize the resources available to them for water supply management.

This subsection provides the cooperative framework within which the Plan will be implemented, including agency coordination and public outreach.

1.3.1 Joint Preparation of the Plan

Agencies are permitted by the State to work together to develop a cooperative regional plan. ID4 encouraged participation in the Plan by its retailers and entities with urban and agricultural interests in the area. Water resource specialists were retained to assist the local agencies in preparing the details of the Plan. The Agency also assists in coordinating with its member agencies, which includes ID4. Agency coordination for this Plan is summarized in Table 1-1.

[1] NORMWD is both a "retail" and a "wholesale" water agency. NORMWD is subject to the regulatory requirements of the UWMP Act and SBX7-7 only in its role as a wholesaler because the size of its retail service area does not meet the minimum threshold of 3,000 service connections or serving 3,000 afy.

TABLE 1-1
AGENCY COORDINATION

Check At Least One Box On Each Row	Participated In Plan Development	Commented On The Draft	Attended Public Meetings	Was Contacted For Assistance	Was Sent A Copy Of The Draft Plan	Was Sent A Notice Of Intention To Adopt	Not Involved / No Information
California Water Service					x	x	
City of Bakersfield			x		x	x	
County of Kern		x			x	x	
East Niles Community Services District					x	x	
Agency/Improvement District No. 4	x	x			x		
North of the River Municipal Water District	x				x	x	
Oildale Mutual Water Company				x	x	x	
Vaughn Water Company					x	x	

1.3.1 Plan Adoption

ID4 and NORMWD began preparing this Plan in April 2010. The Final Plan was adopted by the Agency Board in May 2011, by the NORMWD Board in June 2011, and then submitted to DWR in July 2011. Signed copies of the resolutions documenting adoption of the Plan are provided in Appendix B. This Plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

1.3.2 Public Outreach

ID4 has a history of community outreach and documenting public participation on its planning efforts. For 2010, the regular monthly public meetings of the Urban Bakersfield Advisory Committee (UBAC) were utilized as a vehicle to obtain input on the Plan. The draft Plan was made available for review and a public hearing was held to receive comments on May 25, 2011. A copy of the public outreach materials, including paid advertisements, newsletter covers, website postings, and invitation letters are attached in Appendix C. Table 1-2 presents a timeline for public participation during the development of the Plan.

TABLE 1-2
PUBLIC PARTICIPATION TIMELINE

Date	Meeting Title	Public Participation Task
April 26, 2010	Kick-off Meeting Workshop	Described UWMP requirements and process.
June 29, 2010	Technical Workshop	Reviewed data requests and SBX7-7 requirements.
May 25, 2011	ID4 Public Hearing	Reviewed contents of Draft UWMP and take comments.
June 15, 2011	NORMWD Public Hearing	Reviewed contents of Draft UWMP and take comments.

The components of public participation included:

Local Media

- Newspaper ads.

Water Agencies Public Participation

- Agency board meetings, etc.

City/County Outreach

- Meetings with local government agencies, required planning departments, public works departments, etc.

Public Availability of Documents

- Locations of availability – public libraries, City Halls, agency websites, etc

1.4 Water Agencies of the ID4 Service Area

1.4.1 ID4

ID4 was formed by the Agency Board of Directors in 1971, by Resolutions Nos. 16-71 and 17-71, to be the wholesale provider of imported State Water Project (SWP) supply for portions of the Metropolitan Bakersfield area. On September 12, 1972, an election was held within ID4 authorizing $17.5 million of general obligation bonds to construct water purification facilities and ID4's share of the Cross Valley Canal (CVC). ID4 currently has agreements to provide a wholesale treated water supply to four water retailers: COB, CWSC-BAK, ENCSD and NORMWD. NORMWD wholesales treated water to OMWC. All of the agencies receiving ID4 treated water are referred to as the "purveyors."

1.4.2 NORMWD

NORMWD provides treated surface water from ID4 and groundwater to customers within its service area. The treated surface water is provided wholesale to OMWC to serve a population of 32,000 persons. NORWMD provides groundwater directly to a retail population of 6,000 through 2,000 retail connections. In 2008 NORMWD served 2,426 af of groundwater and surface water to 2,100 retail connections and 6,064 af of treated surface water from ID4 as a wholesaler to OMWC. Since the retail service area of NORMWD has only 2,000 connections and serves fewer than 3,000 acre-feet per year (afy), it is not subject to the Act. Therefore, only the NORMWD wholesale service area is analyzed in this Plan, including evaluation of treated surface water from ID4 only and not local groundwater as a supply.

1.4.3 Retail Water Purveyors

1.4.3.1 California Water Service Company

CWSC-BAK is the largest investor-owned water utility in the western United States and one of the largest in the country. It serves 1.5 million people in 58 California communities with 21 operating districts stretching from Chico in the north to Palos Verdes in the south.

CWSC-BAK has provided water utility services in the Bakersfield and ID4 areas since 1927. CWSC-BAK encompasses approximately 49 square miles of service area and provides water to a population of approximately 225,000 through 68,000 service connections. The dominant land use is for residential and commercial purposes. Single and multiple family residential services account for 86 percent of all its services. The CWSC-BAK water supply comes from a combination of local groundwater produced by 82 wells (about 65 percent), surface water from the Kern River (about 18 percent), as well as water purchased from ID4 (17 percent). All of the water supply purchased from ID4 is delivered as treated water from the Henry C. Garnett Water Purification Plant. CWSC-BAK has indicated that pre-design planning for a South Bakersfield Treatment Plant is underway to help augment supply in the southern portion of Bakersfield (CWSC-BAK, 2007).

1.4.3.2 City of Bakersfield

COB is located within the southern San Joaquin Valley in Kern County; approximately 100 miles north of the Los Angeles metropolitan area.

COB is the principal metropolitan city of Kern County, operating under a council-manager form of government, with the Water Board recommending, administering and implementing domestic water policies set by the City Council. COB's water system is a municipally-owned system, acquired in 1976, but managed by CWSC-BAK. COB purchased Kern River water rights, land and the physical water distribution systems for the Ashe Service Area from Tenneco West. COB subsequently added service areas in the Fairhaven and River Lakes areas, which are the only portions of the Metropolitan area that receive water service directly from COB's water system.

COB provides water primarily for residential uses and also for business, commercial, industrial, and public customers in and adjacent to the westerly portion of the city limits. COB provides water to a population of approximately 118,600, or 35 percent of the total population, through 39,400 service connections. COB also owns canals and operates the river channel that runs through Bakersfield, as well as 2,800 acres of recharge ponds along the Kern River.

Several agricultural districts also have contracts with COB. Through these contracts, the agricultural water districts receive about 70,000 af annually of Kern River water for irrigation purposes through 2011. The majority of the water provided to the agricultural districts is transported through a series of canals throughout the region. These canals play an important role in groundwater replenishment activities by way of percolation (COB, 2007).

1.4.3.3 East Niles Community Services District

ENCSD has provided water utility services in the eastern portion of the unincorporated metropolitan Bakersfield area since 1955. ENCSD provides water to a population of approximately 25,000 through 7,400 service connections. To meet its customers' needs, the District uses a combination of local groundwater and treated surface water from ID4 and CWSC-BAK (ENCSD, 2007). In 2000, ENCSD produced 3,688 af of water via the district's six (6) wells (RBF Consulting, 2002).

1.4.3.4 Oildale Mutual Water Company

OMWC, incorporated in 1919, provides municipal, industrial and domestic water service to its service area, which is located in the northerly portion of the unincorporated metropolitan Bakersfield area. OMWC currently serves a population of approximately 26,000 people via 7,800 active service connections. The current service area ("Oildale Service Area") encompasses approximately 10 square miles and is adjacent to the recently annexed "Southeast Shafter Service Area," which consists of 5,226 acres of agricultural land. The Southeast Shafter Service Area is identified as a proposed development site in the 2005 General Plan Update adopted by the City of Shafter and is expected to undergo urban development commencing immediately and extending over the next several years (OMWC, 2007). It is anticipated that 11,778 housing units will be constructed with a total population of 33,568 residents (OMWC, 2005).

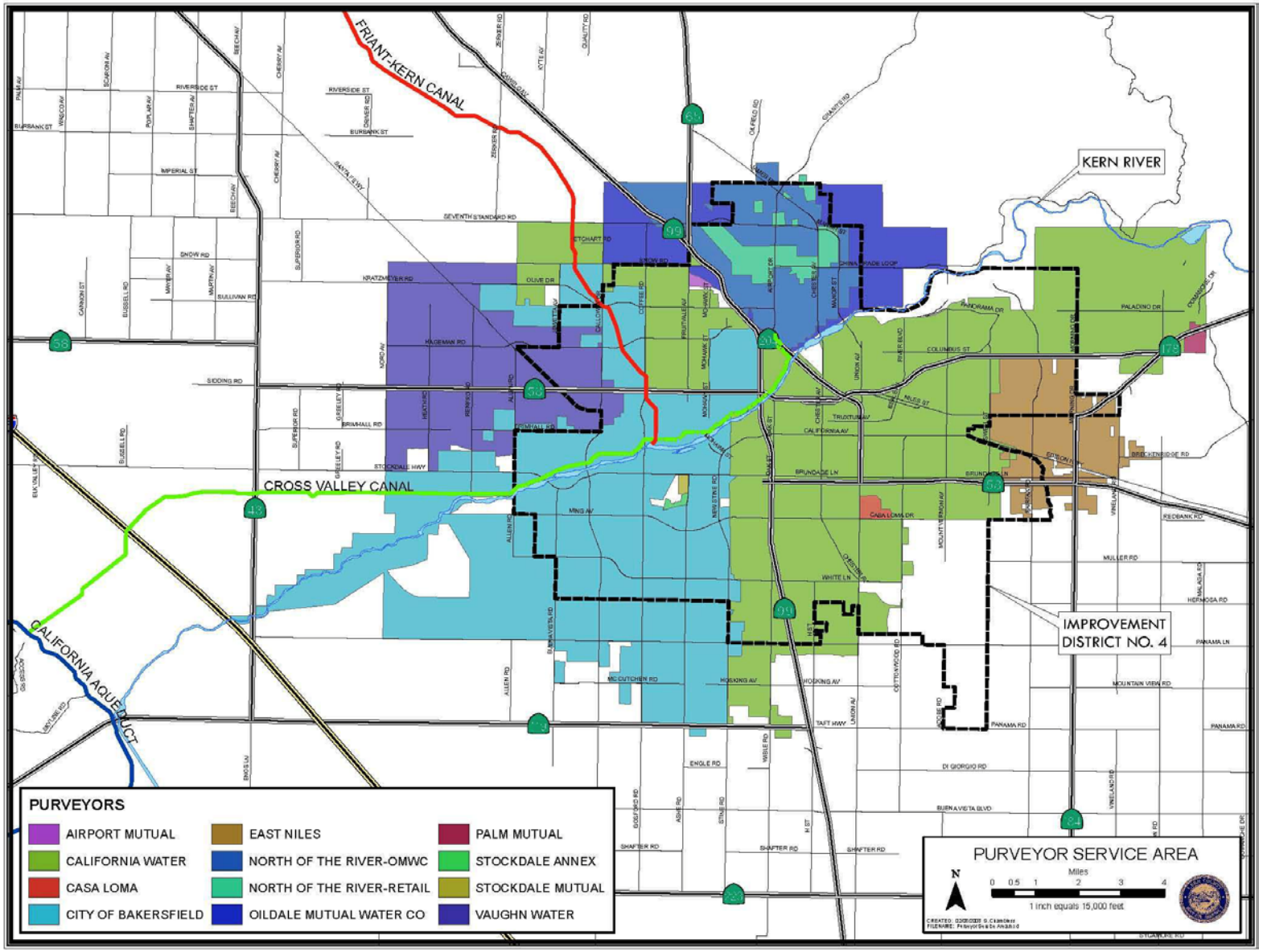
OMWC distributes water from two sources: groundwater and treated water from ID4 through NORMWD. OMWC has relied on imported water for over 95 percent of its total supply (OMWC, 2005). Over the past 25 years, OMWC has pumped an average of 250 af of groundwater per year (RBF Consulting, 2002).

1.4.4 Other Retail Water Agencies within the ID4 Service Area

Other retail water agencies that are within the ID4 service area, but not served treated water by ID4 include: Vaughn Mutual Water Company, Casa Loma Water Company, Palm Mutual Water Company, Stockdale Annex Mutual Water Company, and Stockdale Mutual Water Company. These retail agencies serve their customers local groundwater.

The service area for ID4, NORMWD, and the retail water purveyors is shown on Figure 1-1.

FIGURE 1-1
PURVEYORS WITHIN IMPROVEMENT DISTRICT NO. 4



1.5 Regional Climate

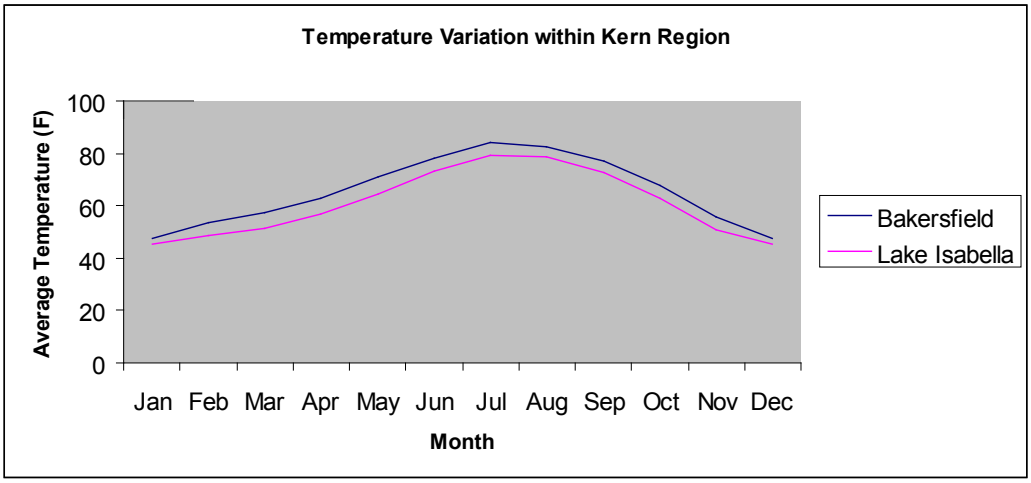
ID4, NORMWD, and the purveyors are located in Kern County at the southern end of the San Joaquin Valley. The climate in the region is characterized by hot, dry summers and cool, humid winters. The mean maximum daytime temperature ranges from a low of about 57 degrees Fahrenheit in December, with occasional frosts, to a high of about 96 degrees Fahrenheit in July and August. Precipitation averages 6 inches annually, mostly between the months of November and April. Fog is common in the winter and may last for two to three weeks at a time. Table 1-3 summarizes the historical range in temperatures and precipitation on the Valley floor for metropolitan Bakersfield. Figure 1-2 shows how these variables, along with evapotranspiration (ETo), can differ between the Valley floor and higher mountain/foothill regions.

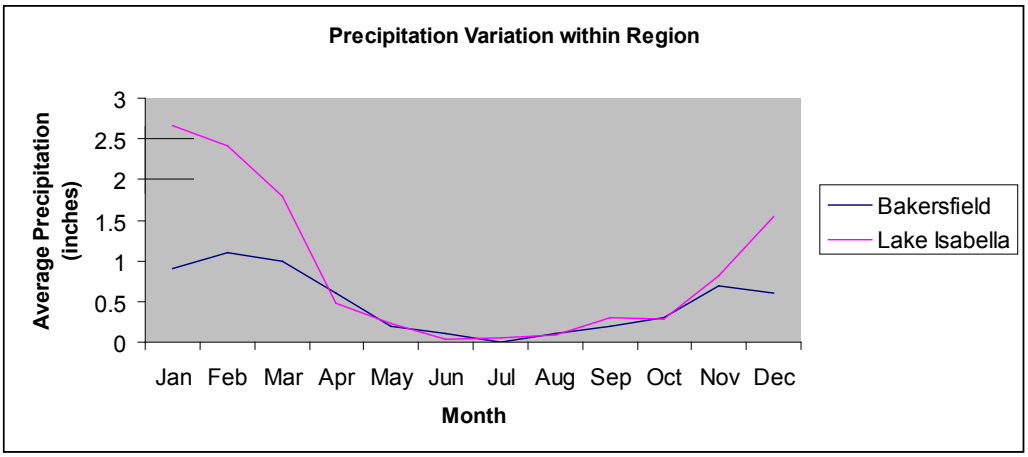
TABLE 1-3
CLIMATE DATA FOR SERVICE AREA

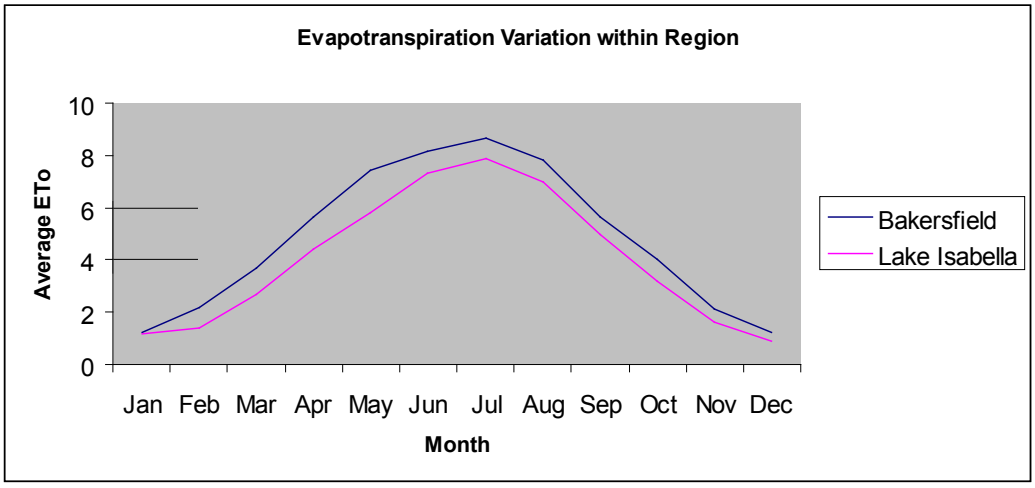
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Monthly Avg. ETo (inches)[(a)]	2.01	2.44	4.67	6.45	7.65	9.29	9.15	8.81	6.25	4.42	1.9	1.43	5.37
Avg. Rainfall (inches)[(b)]	1.40	1.17	0.79	0.76	0.17	0.00	0.01	0.01	0.08	0.35	0.40	0.66	5.79
Avg. Max Temp. (°F)[(b)]	56.6	63.2	68.8	73.7	84.2	91.8	97.8	95.8	90.7	79.2	65.6	58.8	77.2
Avg. Min Temp. (°F)[(b)]	36.4	38.8	43.0	47.2	54.8	61.2	67.9	65.9	60.7	52.0	42.6	36.8	50.6

Notes:
(a) CIMIS Data for Arvin-Edison Station 125
(b) Western Regional Climate Center, Bakersfield 5 NW 354 Station for the Years 1999 to 2007.

FIGURE 1-2
CLIMATIC VARIATION WITHIN KERN COUNTY







1.6 Potential Effects of Climate Change

A topic of growing concern for water planners and managers is climate change and the potential impacts it could have on California's future water supplies. Climate change models have predicted that potential effects of from climatic changes will result in increased temperature, reduction in Sierra Nevada snowpack depth, early snow melt and a rise in sea level.

In June 2005, Governor Arnold Schwarzenegger issued Executive Order S-3-05, which requires biennial reports on climate change impacts in several areas, including water resources. The Climate Action Team (CAT) was formed in response to executive order S-3-05. To help unify analysis across topic areas, the CAT worked with scientists from the California Applications Program's California Climate Change Center to select a set of future climate projections to be used for analysis. For the 2008-2009 assessment of climate change impacts, the CAT selected six (6) different global climate change models, assuming two (2) different greenhouse gas emission levels (a high end and a low end), for a total of 12 scenarios. The results of the study indicated that climate change has already been observed, in that in the last 100 years, air temperatures have risen about 1 degree Fahrenheit, and there has been a documented greater variance in precipitation, with greater extremes both in terms of heavy flooding and severe droughts.

In July 2006, DWR issued "*Progress on Incorporating Climate Change into Management of California's Water Resources*," as required by Executive Order S-3-05. That report demonstrated how various analytical tools could be used to address issues related to climate change. The report presents analysis results showing potential impacts on SWP operations, including reservoir inflows, delivery reliability, and average annual carryover storage, as well as many other operational parameters. Some of the main impacts include changes to south of Delta SWP deliveries (from an increase of about 1 percent in a wetter climate change scenario to about a 10 percent reduction for a drier scenario), increased winter runoff and lower SWP allocations in the three driest scenarios, lower carryover storage in drier scenarios and higher carryover storage in a wetter scenario.

In the 2009 update of the *DWR California Water Plan*, multiple scenarios of future climate conditions are evaluated. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. The *California Water Plan* identifies the following probable impacts due to changes in temperature and precipitation:

- Decrease in snowpack, which is a major part of annual water storage, due to increasing winter temperatures.
- More winter runoff and less spring/summer runoff due to warmer temperatures.
- Greater extremes in flooding and droughts.
- Greater water demand for irrigation and landscape water due to increased temperatures and their impacts on plant water needs.
- Increased sea level rise, further endangering the functions of the SWP, which can depend on movement of water through the low-lying channels of the low-lying Sacramento-San Joaquin Delta. Sea level rise could also require the SWP to release additional storage water to avoid sea water intrusion into the Delta.

In its *State Water Project Delivery Reliability Report 2009*, DWR included the potential effects of climate change in its analysis of SWP delivery reliability under future conditions. For that report, DWR used a single climate change scenario, selecting a scenario with median effects out of a number of climate change scenarios it analyzed in 2009.

Since ID4 is reliant on imported SWP and Central Valley Project (CVP) supplies as part of its overall supply mix, any reduction or change in the timing of availability of those supplies could have negative impacts on the water supply for the Kern County region. Reductions in the quantity of SWP water available would force the region to rely more heavily on local groundwater and local surface flows, or other sources of imported water.

The California Natural Resources Agency has identified several climate change adaptation strategies for water management systems. One of the primary strategies is the preparation of integrated regional water management plans. Other adaptation strategies identified by the California Natural Resources Agency include: aggressive water use efficiency in urban and agricultural sectors; use of recycled water; integrated flood management; development of a Central Valley Flood Protection Plan; local emergency flood preparedness; land use policies to decrease flood risk; establishment of flood plain corridors; and protection of recharge areas.

These effects and their potential to impact the supplies available to ID4 and NORMWD have been evaluated indirectly in DWR's 2009 SWP Reliability Report, and their potential to impact demand is considered in the assessment of demand and supply in Sections 2 and 3 of this UWMP.

Section 2: Water Use

2.1 Overview

This section describes historic and current water usage and the methodology used to project future demands within ID4 and NORMWD respective service areas. Water usage is divided into sectors such as residential, industrial, institutional, landscape, agricultural and other purposes. These demands were analyzed by comparison of three categories of water demand; municipal and industrial (M&I), agricultural and groundwater recharge. M&I demands are urban water demands that include residential (single-family and multi-family), commercial / industrial / institutional, large landscape and other water use types (including water losses) as provided by the purveyors participating in this Plan. In addition, weather and water conservation effects on historical water usage were factored into the evaluation.

2.2 Population

The Kern Council of Governments (KernCOG) Transportation Advisory Zone (TAZ) population projection database was used to project the ID4 and NORMWD populations from 2010 to 2035 (see Table 2-1).

TAZ data are derived by the U.S. Census and defined as special-purpose geographic entities delineated by State and local transportation officials for tabulating traffic-related data from the decennial census. TAZ boundaries, which are subdivisions of Census Tracts, were drawn by KernCOG in consultation with its member agencies during the 2000 Census and submitted to the Census Bureau. KernCOG maintains current year estimates and 30-year future forecasts of socioeconomic characteristics by TAZ. The characteristics include Population, Household Population, Group Quarters, Households, Income, Employment, and School Enrollment. These forecasts are disaggregated based on historic growth and available land set aside in the General Plans of the 11 jurisdictions in Kern County. For these reasons, ID4 and NORMWD believe that use of this data accurately portrays service area population.

Based on these assumptions, it is predicted that the ID4 and NORMWD service areas will grow at rates of approximately 1.7 and 1.9 percent per year, respectively from 2010 to 2035 based on the data received from KernCOG.

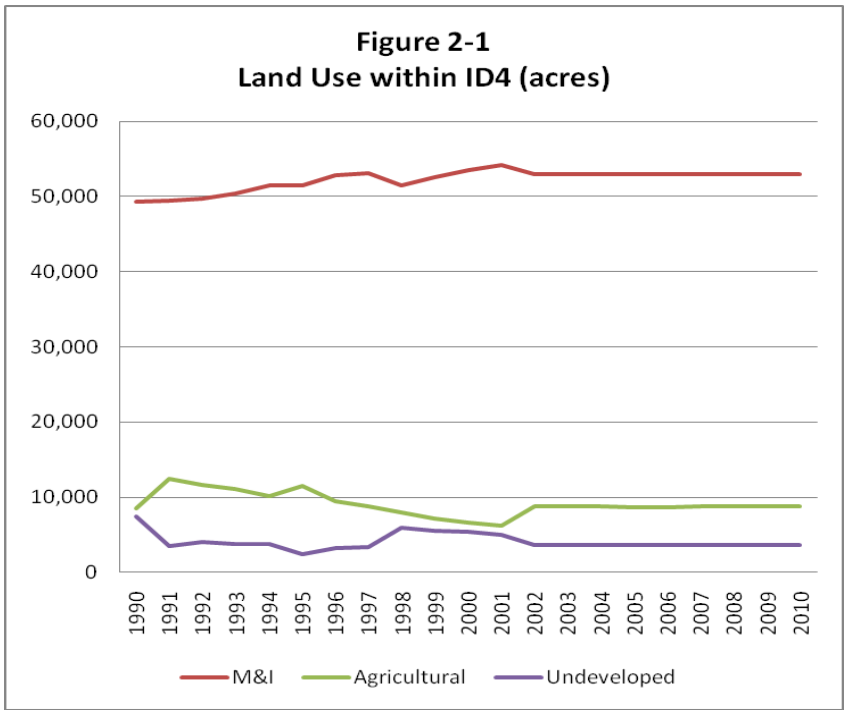
TABLE 2-1
CURRENT AND PROJECTED POPULATION ESTIMATES

Purveyor Service Area	2010	2015	2020	2025	2030	2035
ID4[(a)]	335,842	362,447	374,122	423,624	428,118	475,210
NORMWD[(b)]	33,970	36,937	39,905	43,365	46,825	49,842

Notes:
(a) Kern Council of Governments, Transportation Advisory Zone, Population Projection
(b) Based on 2005 UWMP; year 2035 extrapolated from year 2030.

2.3 Demographics

As depicted in Figure 2-1, land use within the ID4 service area is predominantly municipal and industrial (M&I). Figure 2-1 shows little fluctuation in ID4 land uses between 1990-2010 but population statistics within the ID4 service area and the County of Kern (County) have shown increasing growth.



According to the most recent Regional Growth Forecast from KernCOG, COB's population as of 2009 equals 40 percent of the population for the entire County. The growth forecasts predict a slowing over the next few years due to economic recovery conditions assumed from the subsidence of the influx of Los Angeles commuters during the housing boom in 2006 and low jobs-to-housing ratio. Over the long-term (2050), the Regional Forecast (2009) assumes the County will grow at a rate of 1.8 percent per year, similar to the 1.5 percent assumed for the ID4 and NORMWD service area.

2.4 Historical Water Use

Predicting future water supply requires accurate historical water use patterns and water usage records. For example, Figure 2-2 illustrates the change in groundwater demand since 1990. Figures 2-1 and 2-2 show that groundwater extraction is closely related to land use within the ID4 and NORMWD service areas. A short-term dry period in 2007-2009 can be seen as a reflection of the increased pumping over the same time period in Figure 2-2, attributable to the need to augment surface water supplies.

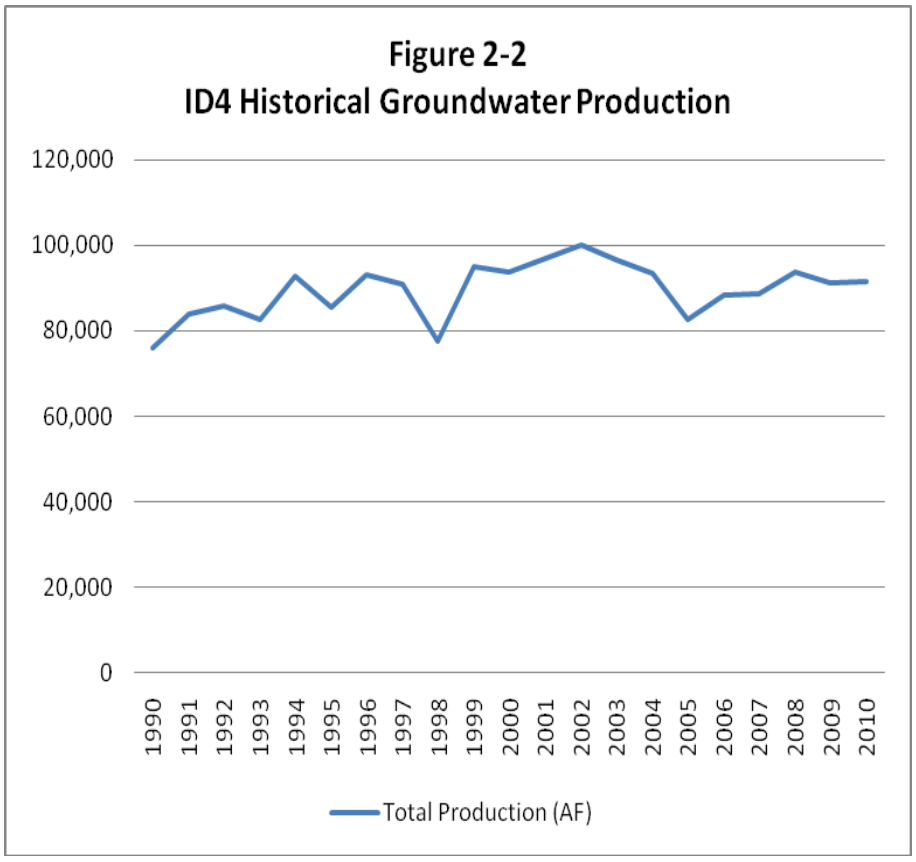


Table 2-2 presents the historical groundwater production quantities for ID4 from 1990 through 2010.

TABLE 2-2
HISTORICAL GROUNDWATER PRODUCTION (af)

Year	Agricultural	All Other	Total Production
1990	5,000	71,000	76,000
1991	12,000	72,000	84,000
1992	4,454	81,230	85,684
1993	3,281	79,455	82,736
1994	5,743	87,009	92,752
1995	4,834	80,673	85,507
1996	3,889	89,226	93,115
1997	2,089	88,721	90,810
1998	988	76,492	77,480
1999	2,676	92,197	94,873
2000	1,569	92,182	93,751
2001	1,098	95,677	96,775
2002	360	99,821	100,181
2003	173	96,522	96,695
2004	157	93,290	93,447
2005	108	82,614	82,722
2006	194	88,068	88,262
2007	506	88,016	88,522
2008	462	93,388	93,850
2009	627	90,446	91,073
2010	465	91,100	91,565
Total	**50,673**	**1,829,127**	**1,879,800**

Source: ID4 2009 Report on Water Conditions (ROWC), updated 2010.

2.5 Projected Water Use

2.5.1 Water Use Data Collection

CWSC-BAK, COB, ENCSD, NORMWD, and OMWC coordinate water deliveries and exchange data with ID4. The purveyors maintain historical data, as well as work closely with property owners and developers in their service areas, to ensure they have an adequate water supply and the necessary infrastructure to provide water service.

Each retail water purveyor provided its projected water demands to ID4 based on projects that are under evaluation, are in the planning process, or are the result of water planning efforts within each respective service area. In September 2005, ID4 executed new water supply agreements with CWSC-BAK, COB, ENCSD, and NORMWD. The new agreements increased the total treated water deliveries to ID4's purveyors from 25,000 afy in 2005 to 53,000 afy in 2035. This information is provided in Table 2-3. To meet these new demands, improvements to ID4's treatment, pumping and transmission facilities were required. A new project entitled the *Treated Water Capacity Expansion Project* was developed to expand the Henry C. Garnett Water Purification Plant, the North Feeder Pipeline, and the East Feeder Pipeline and to construct the Northwest Feeder Pipeline.

ID4's agreement with NORMWD provides 15,000 afy of treated water from the Henry C. Garnett Water Purification Plant by 2035. This water supply amount represents an increase of 6,500 af over the original (June 13, 1974) 8,500 af contract amount. The contract allows for NORMWD to request additional deliveries within those capacities, subject to Agency review and approval.

NORMWD similarly has a contract with OMWC for a supply of 12,000 afy (up from 6,500 afy since 2005). These contractual amounts are shown in Table 2-4.

ID4's additional regional water uses and losses are shown in Table 2-6; ID4 does not sell water outside of its existing contracts (Table 2-5). Water conveyance and process losses are estimated at 2 percent for future years. NORMWD's additional service area water uses and losses are unknown due to the majority of the service area being unmetered (Table 2-6).

TABLE 2-3
DEMAND PROJECTIONS PROVIDED TO WHOLESALE SUPPLIER (to ID4)

Water Demand[a]	Year					
	2010	2015	2020	2025	2030	2035
ENCSD	5,000	11,000	11,000	11,000	11,000	11,000
COB	0	6,500	6,500	6,500	6,500	6,500
CWSC-BAK	11,500	19,500	20,500	20,500	20,500	20,500
NORMWD[b]	8,500	11,000	11,500	12,500	13,750	15,000
Total	**25,000**	**48,000**	**49,500**	**50,500**	**51,750**	**53,000**

Notes:
(a) Water demand values for years 2005 through 2035 based on Exhibit D of the ID4 Treated Water Contracts executed September 22, 2005.
(b) Includes projected deliveries for OMWC.

TABLE 2-4
DEMAND PROJECTIONS PROVIDED TO WHOLESALE SUPPLIER (to NORMWD)

Water Demand[a]	Year					
	2010	2015	2020	2025	2030	2035[a]
OMWC	8,400	8,800	9,200	10,000	11,000	11,000
Total	**8,400**	**8,800**	**9,200**	**10,000**	**11,000**	**11,000**

Note: (a) 2030 value assumed for 2035

TABLE 2-5
ID4 - ADDITIONAL WATER USES AND LOSSES

Water Use	2010	2015	2020	2025	2030	2035
Sales to Other Agencies	0	0	0	0	0	0
Saline Barriers	0	0	0	0	0	0
Groundwater Recharge[a]	34,475	9,540	9,890	10,075	10,325	10,600
Conjunctive Use	0	0	0	0	0	0
Raw Water	0	0	0	0	0	0
Recycled	0	0	0	0	0	0
ID4 Banking Projects[b]	6,339	1,050	620	440	270	140
Unaccounted-for System Losses	0	0	0	0	0	0
Total	**40,814**	**10,590**	**10,510**	**10,515**	**10,595**	**10,740**

Notes:
(a) Groundwater recharge totals for years 2015-2035 are based on ID4 hydrologic model results. Values subject to change based on ID4 water supply.
(b) Deliveries to ID4 banking projects for years 2015-2035 are based on ID4 hydrologic model results. Values subject to change based on ID4 water supply.

TABLE 2-6
NORMWD - ADDITIONAL WATER USES AND LOSSES

Water Use	2010	2015	2020	2025	2030	2035
Sales to Other Agencies	0	0	0	0	0	0
Saline Barriers	0	0	0	0	0	0
Groundwater Recharge	0	0	0	0	0	0
Conjunctive Use	0	0	0	0	0	0
Raw Water	0	0	0	0	0	0
Recycled	0	0	0	0	0	0
Unaccounted-for System Losses[(a)]	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Total	**0**	**0**	**0**	**0**	**0**	**0**

Note: (a) Unknown, due to majority of retail system being unmetered.

TABLE 2-7
TOTAL WATER USE

Water Use	2010	2015	2020	2025	2030	2035
ID4						
Total water deliveries (from Table 2-3)	**25,000**	**48,000**	**49,500**	**50,500**	**51,750**	**53,000**
Sales to other water agencies and additional water uses and losses (from Table 2-5)	40,814	10,590	10,510	10,515	10,595	10,740
Subtotal ID4	*65,814*	*58,590*	*60,010*	*61,015*	*62,345*	*63,740*
NORMWD						
Total water deliveries (from Table 2-4)	8,400	8,800	9,200	10,000	11,000	11,000
Sales to other water agencies and Additional water uses and losses (from Table 2-6)	0	0	0	0	0	0
Subtotal NORMWD	*8,400*	*8,800*	*9,200*	*10,000*	*11,000*	*11,000*
Total[(a)]	**74,214**	**67,390**	**69,210**	**71,015**	**73,345**	**74,740**

Note: (a) NORMWD's total demands are included within ID4's total water deliveries; totals not additive.

2.5.2 Low Income Demands

Senate Bill 1087 requires that water use projections of an UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county general plan in the service area of the supplier.

Housing elements rely on the Regional Housing Needs Allocation (RHNA) generated by the State Department of Housing and Community Development (HCD) to allocate the regional need for housing to the regional Council of Governments (COG) (or a HCD for cities and counties not covered by a COG) for incorporation into housing element updates. Before the housing element is due, the HCD determines the total regional housing need for the next planning period for each region in the state and allocates that need. The COGs then allocate to each local jurisdiction its "fair share" of the RHNA, broken down by income categories; very low, low, moderate, and above moderate, over the housing element's planning period.

Jurisdictions located within the region covered by the Kern Council of Governments (for ID4), were required to submit their adopted Housing Elements to the State Department of Housing and Community Development by July 1, 2008.

COB and the County last updated their housing elements in 2008, covering the planning period 2008-2013. On September 8, 2006 HCD formally transmitted Kern County's housing allocation for the period from January 1, 2006 to June 30, 2006 to KernCOG. The allocation for very low and low income classes as defined by the California Health and Safety Code were the following:

- Very Low – 24.3%
- Low – 16.5%

Neither the KernCOG RHNA nor the COB and County housing elements further classify the allocation of low income households into single-family and multi-family residential housing units. For this reason, it is not possible to project water use for lower income households by this specific land use category. However, to remain consistent with the intent of the SB1087 legislation and also to comply with the UWMP Planning Act, intent has been made to identify those water use projections for very low- and low- residential income households based on the income category, classification percentage, calculated demand projections as shown in Table 2-8 below.

Note that the current planning period for the RHNA is January 1, 2006 to June 30, 2014. The next RHNA planning cycle will cover January 1, 2011 to September 30, 2021. Thus, the 2015 UWMP update will need to be updated with the next RHNA planning cycle and allocation of low income category percentages.

The COB and/or County will not deny or condition approval of water services, or reduce the amount of services applied for by a proposed development that includes housing units affordable to lower income households unless one of the following occurs:

- COB and/or the County specifically finds that it does not have sufficient water supply
- COB and/or the County is subject to a compliance order issued by the California Department of Health Services that prohibits new water connections
- The applicant has failed to agree to reasonable terms and conditions relating to the provision of services

Both ID4 and NORMWD plan to serve all future demand forecasted to occur within their service areas.

TABLE 2-8
LOW INCOME DEMANDS

Income Category[a]	2015	2020	2025	2030	2035
ID4[b]					
Very Low	14,237	14,582	14,827	15,150	15,489
Low	9,667	9,902	10,067	10,287	10,517
Subtotal ID4	*23,905*	*24,484*	*24,894*	*25,437*	*26,006*
NORMWD[c]					
Very Low	2,138	2,236	2,430	2,673	2,673
Low	1,452	1,518	1,650	1,815	1,815
Subtotal NORMWD	*3,590*	*3,754*	*4,080*	*4,488*	*4,488*
Total	**27,495**	**28,238**	**28,974**	**29,925**	**30,494**

Notes:
(a) 2007 Adopted KernCOG RHNA; allocation for very low income (24.3%), low income (16.5%)
(b) ID4 Total water use (from Table 2-7)
(c) NORMWD Total water use (from Table 2-7)

2.6 Baselines and Targets

As described in SBX7-7, it is the intent of the California legislature to increase water use efficiency and the legislature has set a goal of a 20 percent per capita reduction in urban water use statewide by 2020. Only retail agencies supplying more than 3,000 connections or 3,000 afy are subject to SBX7-7's requirements. Urban wholesale water suppliers are not required to comply with the target-setting and reporting requirements of SBX7-7. ID4 has no retail connections. In 2008 NORMWD served 2,426 af to 2,100 retail connections and 6,064 af as a wholesaler to OMWC. Therefore, ID4 and NORMWD are subject to regulatory requirements only in their role as wholesalers.

According to Water Code §10608.36, wholesale agencies are required to include in their UWMPs an assessment of present and proposed future measures, programs, and policies that would help the other retailers within their service area achieve the water use reductions required under SBX7-7. ID4 and NORMWD encourage the participation of the retailers in existing conservation programs and welcome the introduction of creative ideas for new and collaborative efforts that will lead to the successful fulfillment of each entity's conservation goals.

Chapters 4 and 7 of this UWMP provide additional information on the types of plans and programs that ID4 and NORMWD intend to implement to support water demand reduction goals.

2.6.1 Weather Effects on Water Usage

Two major factors that affect water usage are weather and water conservation. Historically, when the weather is hot and dry, water usage increases. This is seen above in Figure 2-2 for the years 2007 to 2009 when California had its most recent drought. The increases vary according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool-wet years, historical water usage has decreased to reflect less water usage for external landscaping. Water conservation measures employed within ID4, NORMWD, and purveyors service areas have, and will continue to, have a direct long-term effect on water usage.

In recent years, water conservation has become an increasingly important factor in water supply planning in California. Since 2005 there have been a number of regulatory changes related to conservation including new standards for plumbing fixtures, a new landscape ordinance, a state universal retrofit ordinance, metering and billing requirements, new Green Building standards, demand reduction goals and more. These legislative and code changes will have the long-term impact of reducing demand for water in the M&I sector in California, and can be expected to be observed in the ID4 and NORMWD service areas.

Residential, commercial, and industrial usage can be expected to decrease as a result of the implementation of more aggressive water conservation practices. As previously discussed, the greatest opportunity for conservation is in developing greater efficiency and reduction in landscape irrigation. The irrigation demand can represent as much as 50 percent of the water demand for residential customers depending upon lot size and the amount of irrigated turf and plants.

Section 3: Water Resources

3.1 Overview

This section describes the current and planned water resources available to ID4 and NORWMD for the 25-year period covered by the Plan. These are summarized in Tables 3-1 and 3-2 and are discussed in more detail below.

ID4's water supply consists of SWP Table A water, previously banked groundwater, CVP Section 215 surplus water, and Kern River water. NORMWD's water supply consists of water supplies by ID4 and local groundwater. Approximately 80 percent of NORMWD water supply from ID4 is contractually supplied to OMWC.

TABLE 3-1
SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES FOR ID4

Water Supply Source	2010	2015	2020	2025	2030	2035
Wholesale(Imported)						
SWP[(b)]	82,946	82,946	82,946	82,946	82,946	82,946
Banked Water[(c)]	86,066	86,066	86,066	86,066	86,066	86,066
Total Water Supply	169,012	169,012	169,012	169,012	169,012	169,012

Notes:
(a) The values shown are total supplies available.
(b) ID4's current SWP Table A Amount is 82,946 AFY.
(c) Supply shown is the total amount that can be recovered from water banking projects ID4 participates plus wells owned by ID4. ID4 typically recovers water only during dry years.

TABLE 3-2
SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES FOR NORMWD

Water Supply Source	2010	2015	2020	2025	2030	2035[(b)]
ID4[(a)]	10,500	11,000	11,500	12,500	13,750	15,000
Total Water Supply	10,500	11,000	11,500	12,500	13,750	15,000

Notes:
(a) Wholesale supply from ID4.
(b) Year 2035 values presumed continued from 2030; 2005 NORMWD

3.2 Wholesale (Imported) Water Supplies

3.2.1 State Water Project

The SWP is the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most initial facilities completed by 1973. Today, the SWP includes 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts and is managed by the DWR.

The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Lake Oroville on the Feather River flows down natural river channels to the Sacramento-San Joaquin Rivers Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped

from the southern Delta into the 444-mile-long California Aqueduct. Several centrally located water districts within the County, including ID4, lie to the east of the California Aqueduct and receive SWP water through the CVC. CVC conveyance capacity was recently expanded from 922 to 1,422 cubic feet per second (cfs).

In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural water supply agencies located throughout northern, central, and southern California. The Agency is one of 29 water agencies that have a SWP Water Supply Contract with DWR. Each SWP Water Supply Contract contains a "Table A," which lists the maximum amount of water an agency may request each year throughout the life of the contract. Table A is used in calculating each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 million acre-feet (maf). The initial SWP storage facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional storage facilities planned as demands increased. However, essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of some Table A amounts by two agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now totals about 4.17 maf. Currently, the Agency's annual Table A amount is 982,730 af of which 82,946 af is allocated to ID4. This includes 77,000 af of M&I water, plus 5,946 af of agricultural water.

While Table A identifies the maximum annual amount of water a SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrology, the amount of water in SWP storage facilities at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by SWP contractors. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time, which increases the competition for limited SWP dry-year supplies.

Table 3-3 presents ID4's total SWP Table A deliveries to its service area from 1999 to 2010.

TABLE 3-3
HISTORICAL TOTAL SWP DELIVERIES

Year	Deliveries (afy)	Year[(a)]	Deliveries (afy)
1999	82,946	2005	74,651
2000	74,651	2006	82,946
2001	32,349	2007	49,768
2002	58,062	2008	21,851
2003	74,651	2009	2,912
2004	33,915	2010	12,963

Source: ID4 2009 ROWC
Note:
(a) Years 2008-2010 Updated deliveries from DWR's SWP Analysis Office, February 18, 2011 Water Delivery Analysis and Documentation Branch

In an effort to assess the impacts of varying conditions on SWP supply reliability, DWR issued the "State Water Project Delivery Reliability Report 2009" (2009 Reliability Report) in August 2010. The report assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. The 2009 Reliability Report updates DWR's estimate of the current (2009) and future (2029) water delivery reliability of the SWP. The updated analysis shows annual SWP Table A deliveries will be less under current and future conditions, when compared to the preceding reports (State Water Project Delivery Reliability Reports 2005 and 2007). The 2009 Reliability Report discusses the following areas of significant uncertainty to SWP delivery reliability:

- Restrictions on SWP operations due to the State and federal biological opinions to protect endangered fish such as delta smelt and spring-run salmon;
- Climate change and sea level rise, which is altering the hydrologic conditions in the State; and
- The vulnerability of Delta levees to failure due to floods and earthquakes.

In the 2009 Reliability Report, DWR provided a recommended set of analyses for SWP contractors to use in preparing their 2010 UWMPs. Potential deliveries under current conditions are estimated at the 2009 level and assume current methods of conveying water across the Delta and the current operational rules contained in the federal biological opinions. Potential deliveries under future conditions are estimated at the 2029 level and are also based on the assumptions that no changes will be made in either the way water is conveyed across the Delta or in the operational rules.

The updated analysis in the 2009 Reliability Report shows greater reductions in water deliveries on average when compared to the 2007 report. The 2007 report shows current SWP annual Table A deliveries averaging 63 percent of the maximum contract amount of 4,133 thousand af (taf) per year (or 2,595 taf), on a long-term average basis. The 2009 Reliability Report shows a corresponding value of 60 percent (2,485 taf). The 2007 report projects an annual average of 66 percent to 69 percent (2,725 - 2,850 taf) for the future condition, whereas the 2009 Reliability Report projects an annual average of 60 percent. Based on the estimates of updated SWP deliveries under current (2009) conditions, the four-year drought of 1931 – 1934 is estimated to provide 34 percent of maximum SWP Table A during dry periods. The 2009 Reliability Report

also projects that during wet periods, 67 to 71 percent of full Table A amounts would be available.

The variability of SWP deliveries is expected to increase in the future as contractors request larger amounts of their maximum Table A quantities. System constraints such as Delta export restrictions and competition for the available water supply will increase management challenges (DWR 2009). Even if ID4 chooses to purchase its current full Table A amount of 82,946 af annually, its full Table A amount will not be available every year.

In this Plan, SWP supplies projected to be available for delivery to ID4 were determined based on the total SWP delivery percentages identified by DWR in the 2009 Reliability Report. ID4 can expect to receive a long-term average of 60 percent of its Table A amount. Table 3-3 provides the projected SWP water supply to ID4 over the next 25 years; based on the 60 percent of Table A maximum allocation on a long-term average basis using a repeat of 82 years of historical hydrologic conditions from 1922 to 2003.

Table 3-4 summarizes estimated SWP supply availability to ID4 in a single dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple dry year period (based on a repeat of the worst-case historic four-year drought of 1931 – 1934). During a dry or critical year as defined by the Sacramento River Index, the SWP will be able to supply an average of 5,806 af (year 2009) to 9,124 af (year 2029) to ID4. During a multiple dry year period (1931 – 1934), ID4's SWP supply is estimated to be about 28,202 afy (current year) to 29,031 afy (year 2029).

The values shown in Tables 3-4 and 3-5 cover the period 2009 – 2029 based on the DWR estimates at the 2009 level for the current conditions and at the 2029 level for future conditions. They are the best estimates available for use in developing this Plan.

TABLE 3-4
ID4 SUPPLY RELIABILITY

	Average/Normal Water Year[a] (af)	Single Dry Water Year[b]	Multiple Dry Years[c]			
			Year 1	Year 2	Year 3	Year 4
SWP Table A Amount						
	49,768	5,806	28,202	28,202	28,202	28,202
% of Normal[d]	60%	7%	34%	34%	34%	34%
Banking Projects[e]	86,066	86,066	86,066	65,410	56,804	51,640
% Delivery	100%	100%	100%	76%	66%	60%
Supply Summary	135,834	91,872	114,268	93,612	85,006	79,842

Notes:

(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 historic single dry year of 1977.

(c) Percentages shown are annual averages over four consecutive dry years based on the historic 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 water banking assets as required by District essential water demand. Groundwater recovery made to supplement SWP Table A 82,946 AFY.

TABLE 3-5
NORMWD SUPPLY RELIABILITY

	Average/Normal Water Year (af)	Single Dry Water Year	Multiple Dry Years			
			Year 1	Year 2	Year 3	Year 4
ID4 Treated Water						
	15,000	15,000	15,000	15,000	15,000	15,000
% of Normal[a]	100%	100%	100%	100%	100%	100%
Supply Summary	15,000	15,000	15,000	15,000	15,000	15,000

Note: (a) NORMWD has a 'take or pay' contract with ID4. ID4 delivers SWP allocation to NORMWD and makes up any difference in short fall with banked water. Because the recovery estimate shown in Table 3-4 for Dry Year 4, 79,841 af, is greater than demand at full build out, 53,000 AF ID4 will be able to provide 100% to NORMWD.

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water have, until recently, been periodically available, including "Article 21" water, Turnback Pool water, and DWR dry-year purchases. Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. However, the recent regulatory decisions mentioned above will have significant impacts on the future availability of Article 21 water, since excess flows that normally make up the bulk of this supply will now be used to meet new flow requirements for Delta fish species. ID4 has historically requested and acquired as much Article 21 water as possible to bring into ID4 for direct recharge or to capture and bank in its banking projects.

The Turnback Pool is a program where contractors with allocated Table A supplies in excess of their service area needs in a given year may turn back that excess supply for purchase by other contractors who need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic years, although generally less excess water is turned back in dry years. As urban contractor demands have increased through time, the amount of water turned back and available for purchase has diminished. ID4 has historically requested and purchased its share of the Turnback pool to augment its supplies.

In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies. Because the availability of these supplies is somewhat uncertain, they are not included as supplies in this UWMP. However, ID4's access to these supplies when they are available may enable augmentation of SWP supplies beyond the values used throughout this plan.

3.2.2 Litigation Effects on Availability of Imported Water

3.2.2.1 Recent Factors Affecting SWP Supplies

Since the last round of UWMPs were prepared in 2005, DWR has twice updated its SWP Delivery Reliability Report. In each of its updates, DWR has projected further reductions in average SWP water deliveries than were projected in 2005. The 2009 Reliability Report identifies several emerging factors that have the potential to affect the availability and reliability of SWP supplies. Although the 2009 Reliability Report presents an extremely conservative projection of SWP delivery reliability, particularly in light of events occurring since its release, it remains the best available information concerning the SWP. Following is information and a brief summary of several factors identified in the 2009 Reliability Report having the potential to affect the availability and reliability of SWP supplies. A more detailed analysis of the factors discussed below is attached as Appendix D.

A. FWS and NMFS Biological Opinions

In December 2008 and June 2009, respectively, the United States Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) issued biological opinions (BOs) setting forth each agency's conclusions regarding the effects that the proposed long-term coordinated operations of the SWP and CVP Projects (Projects) would have on threatened and endangered fish species in the Delta.[2] Both BOs concluded that the operation of the Projects as proposed by DWR and the Bureau of Reclamation would jeopardize the continued existence of the protected species. Because FWS and NMFS reached "jeopardy" conclusions, Reasonable and Prudent Alternatives (RPAs) were developed for the Projects in accordance with the Endangered Species Act (ESA) and included in the BOs. According to their terms, the RPAs developed and adopted by FWS and NMFS impose many new restrictions and requirements on the operations of the Projects. If the RPA terms are fully implemented, however, the resulting Project operations are deemed to be in compliance with the ESA.

The RPAs included in the new BOs are expected to result in substantially reduced water exports from the Delta. Preliminary estimates prepared by DWR indicate that in comparison to the level of SWP exports from the Delta previously authorized under State Board Decision 1641 (D-1641),[3] the FWS BO could reduce those deliveries by 18 to 29 percent during average and dry conditions, respectively; and the NMFS BO could reduce SWP deliveries by an additional 10 percent (for an aggregate reduction of 28 to 39 percent). These estimates remain preliminary, as the operating restrictions imposed under the FWS and NMFS RPAs are dependent upon highly variable factors such as hydrologic conditions affecting Delta water supplies, flow conditions in the Delta, migratory and reproductive patterns of the protected species, and numerous other non-Project factors that impact the health and abundance of the species and their habitats. Moreover and as further discussed below, legal challenges have been filed against the FWS and NMFS BOs, and should a court conclude the RPA restrictions are invalid, SWP exports could return to higher levels.

1. FWS B.O. Litigation

In early 2009, the State Water Contractors, the San Luis Delta-Mendota Water Authority, and several individual State and Federal contractor water agencies filed legal challenges against the FWS delta smelt BO. (*The Consolidated Delta Smelt Cases*, E.D. Cal. 1:09-CV-00407-OWW-GSA.) In November 2009, the court granted summary judgment on the claim made by several plaintiffs that the federal defendants violated the National Environmental Policy Act (NEPA) by failing to perform NEPA analysis prior to provisionally adopting and implementing the FWS BO. and RPA. Further, in May 2010, the court issued Findings of Fact and Conclusions of Law on a motion for preliminary injunction, which not only confirmed the court's prior NEPA ruling, but also determined that plaintiffs are likely to prevail on their claims that FWS violated the ESA and the Administrative Procedure Act (APA) in adopting the BO's RPA. Thereafter, the parties filed motions for summary judgment to obtain a final ruling in the cases, and those motions were argued in early July 2010. In December 2010, the court issued a memorandum decision that

[2] The December 15, 2008 FWS BO evaluated impacts to the delta smelt. The June 4, 2009 NMFS BO evaluated impacts to winter-run and spring-run Chinook salmon, steelhead, green sturgeon, and resident killer whales.

[3] See Appendix A for a description of SWP exports as authorized under D-1641, and reductions in D-1641 exports as ordered by the "Interim Remedies" decision in *NRDC v. Kempthorne* (E.D. Cal. 05-CV-1207-OWW).

invalidated the BO and RPA in several respects and remanded the matter to FWS. Further proceedings are expected to address interim operations of the SWP and CVP.

2. NMFS B.O. Litigation

After issuance of the NMFS BO in June 2009, the State Water Contractors and other water agencies filed legal challenges against the NMFS salmonid BO (*The Consolidated Salmon Cases*, E.D. Cal. 1:09-CV-1053-OWW-DLB.) In May 2010, the court ruled that the federal defendants violated NEPA by failing to analyze the impact of the BO and RPA on humans and the human environment. The court also ruled that plaintiffs are likely to prevail on their claims that NMFS violated the ESA and the APA in adopting the RPA, and authorized the Projects to operate in accordance with D-1641 during a short period (until the end of June 2010) unless there was a showing of jeopardy to the species or adverse modification of its critical habitat. As with the delta smelt litigation, the parties also filed motions for summary judgment to obtain a final ruling in the cases. Those motions were heard in mid-December 2010 and a decision is expected in 2011.

B. Consistency Determination Litigation

Because the delta smelt and salmon species are also protected under California's ESA (CESA), the SWP and CVP are required to obtain take authorization for Project operations from the California Department of Fish and Game (DFG). In July 2009 and September 2009, respectively, DFG issued "consistency determinations" pursuant to CESA and determined that Project operations do not violate that statute to the extent the operations are in compliance with the RPAs set forth in the FWS and NMFS BOs Because the consistency determinations pose a risk that the SWP could remain bound to the terms of the RPAs even if the BOs are overturned by a federal court, DFG's decisions were challenged in state court by the State Water Contractors and the Kern County Water Agency. The cases are currently stayed pending the outcome of *The Consolidated Delta Smelt Cases* and *The Consolidated Salmon Cases* (above).[4]

C. Longfin Smelt Protections

Regulatory actions related to longfin smelt also have the potential to affect the availability and reliability of SWP supplies. In February 2008, longfin smelt were listed as a "candidate" species under CESA, and DFG imposed certain interim restrictions on the SWP for protection of the longfin smelt and its critical habitat. In February 2009, shortly before longfin smelt were officially listed as a "threatened" species under CESA, DFG issued Incidental Take Permit No. 2081-2009-001-03 (Permit) to DWR, which imposes terms and conditions on the ongoing and long-term operations of SWP facilities in the Delta. The operating restrictions under the Permit are based in large part on the restrictions imposed on the SWP by the new FWS BO for delta smelt (see above). The resulting water supply reductions under the Permit depend on several variable factors, such as Delta hydrology, migratory and reproductive patterns of longfin smelt, and other factors affecting species abundance in the Delta. Notably, DWR has not indicated whether any particular reductions in SWP exports are likely to result from the Permit. In March

[4] *See*, *e.g.*, *State Water Contractors v. Cal. Dept. of Fish and Game*, Sac. Sup. Ct. Case No. 34-2010-80000552; *State Water Contractors v. Cal. Dept. of Fish and Game*, Sac. Sup. Ct. Case No. 34-2010-80000560.

2009, a legal challenge was filed against the Permit.[5] Although that litigation is currently stayed pursuant to a stipulation of the parties, the challenge puts DFG's ability to enforce the Permit into question.

3.2.3 Development of Delta Plan and Delta Flow Criteria Pursuant to New State Laws

In November 2009, the California Legislature enacted SBX7-1 as part of a multi-pronged water package related to water supply reliability, ecosystem health, and the Delta.[6] Among other things, SBX7-1 creates the Delta Stewardship Council (Council) and directs the Council to develop a comprehensive management plan for the Delta by January 1, 2012 (the Delta Plan). In addition, the State Board was directed to develop flow criteria for the Delta to protect public trust resources, including fish, wildlife, recreation and scenic enjoyment, and DFG was required to identify quantifiable biological objectives and flow criteria for species of concern in the Delta.

In August 2010, the State Board adopted Resolution No. 2010-0039 approving its report entitled "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem" (Flow Criteria). The State Board report concludes that substantially higher flows are needed through the Delta than have occurred in previous decades in order to benefit zooplankton and various fish species.[7] Separately, in September 2010, DFG issued a draft report entitled "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (DFG Report). The DFG Report is based on similar biological objectives and recommends Delta flows similar to those set forth in the State Board's Flow Criteria.[8] Notably, both the State Board and DFG recognize that their recommended flow criteria for the Delta do *not* balance the public interest or the need to provide an adequate and reliable water supply.[9] Also of importance, both the State Board and DFG acknowledge that their recommended flow criteria do not have any regulatory or adjudicatory effect; however, they may be used to inform the Council as it prepares the Delta Plan and may be considered as the Bay Delta Conservation Plan (BDCP) process moves forward.[10]

3.2.4 DWR Final 2009 SWP Delivery Reliability Report

DWR continues to evaluate the issues affecting SWP exports from the Delta and how those issues may affect the long-term availability and reliability of SWP deliveries to the SWP Contractors. In 2010, DWR released its 2009 Reliability Report, which forecasts additional reductions in annual SWP deliveries on average in comparison to the 2007 Report. According to DWR, the long-term average delivery of contractual SWP Table A supply is projected to be 60 percent under current and future conditions over the 20-year projection.[11] Within that long-term average, SWP Table A deliveries can range from 7 percent (single dry year) to 68 percent (single wet year) of contractual amounts under current conditions, and from 11 percent (single

[5] *See State Water Contractors v. California Dept. of Fish and Game, et al.*, Sac. Sup. Ct. Case No. 34-2009-80000203.
[6] SBX7-1 became effective February 3, 2010 and adds Division 35 to the California Water Code (commencing with Section 85300). Division 35 is referred to as the Sacramento-San Joaquin Delta Reform Act of 2009.
[7] (Flow Criteria at 5-8.)
[8] (DFG Report at 13.)
[9] (Flow Criteria at 4; DFG Report at 16.)
[10] (Flow Criteria at 3, 10; DFG Report at ES-4.)
[11] (DWR Report at 43, 48, Tables 6.3 and 6.12.)

dry year) to 97 percent (single wet year) under future conditions.[12] Contractual amounts are projected to range from 32 to 38 percent during multiple-dry year periods, and from 79 to 93 percent during multiple wet periods.[13]

To ensure a conservative analysis, the 2009 Reliability Report expressly assumes and accounts for the institutional, environmental, regulatory, and legal factors affecting SWP supplies, including but not limited to: water quality constraints, fishery protections, other D-1641 requirements, and the operational limitations imposed by the FWS and NMFS BOs that are discussed above. The 2009 Reliability Report also considers the potential effects of Delta levee failures and other seismic or flood events.[14] Notably, the 2009 Reliability Report assumes that all of these restrictions and limitations will remain in place over the next 20-year period and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes, and new legal requirements for Delta improvements are currently underway (i.e., BDCP, Delta Vision, Delta Plan, etc.). Finally, DWR's long-term SWP delivery reliability analyses incorporate assumptions intended to account for potential supply shortfalls related to global climate change.[15] These and other factors result in DWR presenting an extremely conservative projection of SWP delivery reliability.

As noted, the projections developed by DWR are predicated on extremely conservative assumptions, which make the projections useful from a long-range urban water supply planning perspective.[16] Indeed, recent rulings in various legal actions and other factors described above and in Appendix D, among others, support higher estimates of average annual SWP deliveries than projected in the2009 Reliability Report. While this may lead DWR to increase its projections in its next scheduled Report, the 2009 Reliability Report remains the best available information concerning the long-term delivery reliability of SWP supplies.

3.3 Kern River

The U.S. Army Corps of Engineers (ACOE) and Kern River Watermaster operate the Isabella Dam and Reservoir which regulates the flow of the Kern River. Approximately 1,300 acres at the eastern end of the reservoir is managed by the US Forest Service for wildlife stewardship.

The Kern River is approximately 164 miles long and is fed by annual snowmelt from the Southern Sierra Nevada, including Mount Whitney. The Kern River originates high in the Sierra Nevada and drains approximately 2,100 square miles of watershed area above Isabella Reservoir, another 300 square miles of the foothills below Isabella Reservoir, and about 600 square miles of alluvial fan in the Kern River Canyon (Kern County 1985). The main branch of the Kern River (also called the North Fork Kern) joins the South Fork Kern River just upstream of Isabella Reservoir. Minor tributaries are Erskine, Bodfish, Clear, and Cottonwood creeks, which join the Kern River downstream from Lake Isabella. With the exception of the small valley in which Isabella Reservoir is located, the Kern River and its principal tributaries flow in steep, narrow canyons from their headwaters to the mouth of Kern Canyon where it debuts onto the

[12] (DWR Report at 43-44, 49, Tables 6.4, 6.5, 6.13 and 6.14.)
[13] (DWR Report at 49, Tables 6.13 and 6.14.)
[14] (*See*, *e.g.*, DWR Report at 19-24, 25-28, 29-35, Appendices A, A-1, A-2, B.)
[15] (*See*, *e.g.*, DWR Report at 19, 29-30, Appendices A-B.)
[16] *See*, *e.g.*, *Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal.App.4th 33; *Watsonville Pilots Association v. City of Watsonville* (2010) 183 Cal.App.4th 1059; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.

Valley floor. Beyond the mouth of the Canyon, the river channel is deeply entrenched in an alluvial fan that extends westward to the main valley trough where the channel is controlled by levees to prevent flood flows from spreading to adjacent lands (City of Bakersfield and County of Kern 2007). The Kern River had an unregulated flow until 1954, when the Isabella Dam and Reservoir were constructed by the ACOE. The primary purpose of the dam is flood control. Isabella Reservoir was designed to store approximately 570,000 af of water; however, since 2006 due to seepage and earthquake concerns, water storage in the lake has been limited to approximately 60 percent of capacity, and 340,860 total af. The ACOE is undertaking studies at Isabella Reservoir with the intent of restoring reservoir capacity (ACOE, 2009).

The Kern River flows through ID4 and is one of the primary sources of drinking water for the metropolitan Bakersfield area. ID4, through agreements with various Kern River water right holders, including COB, is able to purchase and acquire Kern River water in years when the yield of the Kern River is in excess of the demands.

3.4 Central Valley Project

The CVP is a set of federal facilities that extend from north of Redding to south of Bakersfield. The CVP encompasses two of California's largest river systems, the Sacramento River, which flows southward to the Delta and the San Joaquin River, which flows northward to the Delta. Friant Dam stores San Joaquin River flows and diverts this water south through the Friant-Kern Canal. The Friant-Kern Canal is approximately 152 miles long and carries water south from Millerton Lake just north of Fresno to the Kern River intertie. The Canal has a maximum capacity of 5,000 cfs which decreases to 2,000 cfs at its discharge point into the Kern River. Deliveries are dependent upon the monthly percent allocations determined by the Bureau of Reclamation. ID4 is able to purchase CVP water in years when high flow supplies are available.

3.5 Groundwater

3.5.1 San Joaquin Valley Groundwater Basin

ID4 and NORMWD are located within the Tulare Lake Hydrologic Region, San Joaquin Valley Groundwater Basin (see Table 3-6). The region has 12 distinct groundwater basins and 7 sub-basins of the San Joaquin Valley Groundwater Basin; Kings, Westside, Pleasant Valley Kaweah, Tulare Lake, Tule, and Kern County which crosses north into the San Joaquin River Hydrologic Region. According to DWR's California Bulletin 118, the basin is in a water- short condition. It is also a non-adjudicated basin. It receives its recharge from the Kern River, which traverses ID4 from east to west, a distance of about 12 miles, through a wide, flat, bed. In the riverbed are 500 to 2,000 foot thick poorly sorted deposits of silt, sand, rock and clay that originated from the Sierra Nevada, and that provide moderate to high permeability through the riverbed. Historically flood flows that overflowed on lands on both sides of the river contributed further to groundwater recharge. The subbasin receives natural recharge from the Kern River and local streams. The subbasin also receives recharge from the conveyance of irrigation water through unlined canals and from applied irrigation water.

TABLE 3-6
SAN JOAQUIN VALLEY GROUNDWATER BASIN

Groundwater Basin	DWR Groundwater Basin Number	Surface Area (acres)	Groundwater Storage Capacity (1,000 af)
San Joaquin Valley Groundwater Basin	5-22.14	1,945,000	4,000

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

Prior to construction of the CVC and the importation of SWP supplies, the water supply for most uses within ID4 was provided by pumping groundwater. The groundwater basin underlying ID4 received its recharge from the Kern River and after the construction of the CVC, from supplemental supplies imported by ID4. The groundwater basin also is recharged through percolation of irrigation water as it is conveyed through a number of unlined irrigation canals. Much of the runoff generated by rainfall ends up in unlined canals, drainage basins and the Kern River, providing an additional source of recharge to the underlying aquifer.

3.5.2 Groundwater Use

Table 3-7 summarizes the last five years of groundwater extractions from the San Joaquin Valley groundwater basin by ID4. Table 3-8 shows the last five years of groundwater extractions from NORMWD. Note ID4 does not typically produce water within its own service area boundaries (discussed in more detail in Section 3.6). Most of the water recovered by ID4 is from the banking projects located outside of ID4 boundaries; shown in Table 3-7.

TABLE 3-7
GROUNDWATER PUMPED BY ID4 [(a)(b)]

Basin Name(s)	2006	2007	2008	2009	2010
San Joaquin Valley - Kern County (5-22.14)					
Total Pumped by ID4 within ID4 Service Area[(a)]	0	0	0	1,128	0
Total Pumped by ID4 outside ID4 Service Area[(b)]	0	10,095	12,659	13,850	4,303
Total	**0**	**10,095**	**12,659**	**14,978**	**4,303**
Percent of Total Water Supply	0	37%	10%	28%	15%

Notes:
(a) 2005-2009 data provided by ID4, reported water production summary, pumping within ID4
(b) ID4 2010 Groundwater Banking Accounts - Summary Database

TABLE 3-8
GROUNDWATER PUMPED BY NORMWD [(a)(b)]

Basin Name(s)	2006	2007	2008	2009	2010
San Joaquin Valley - Kern County (5-22.14)	416	443	364	434	387

Notes:
(a) NORMWD does not have its own groundwater recharge program; it pays ID4 a groundwater charge to help support the recharge program.
(b) 2006-2010 data provided by ID4, reported water production summary, pumping within ID4

Groundwater within the ID4 and NORMWD service area is used to meet the need of M&I users and agricultural demands. This close relationship between groundwater extraction and land use was demonstrated in Section 2 by Figures 2-1 and 2-2. Table 3-9 summarizes the total amount of groundwater extracted from the San Joaquin Valley within the ID4 service area by all the purveyors. The short dry period during 2007 to 2009 is likely the cause for the large increase in pumping for agricultural use beginning in 2007, as pumping was needed to augment surface supplies and irrigate sufficiently to restore crops.

TABLE 3-9
GROUNDWATER PUMPED BY ALL PURVEYORS WITHIN ID4 SERVICE AREA

Basin Name(s)	2005	2006	2007	2008	2009	2010
San Joaquin Valley - Kern County (5-22.14)						
Agricultural [(a)]	108	194	506	462	627	465
M&I	82,614	88,068	88,016	93,388	90,446	91,100
Total	**82,722**	**88,262**	**88,522**	**93,850**	**91,073**	**91,565**
Percent Ag. Pumping	0.13%	0.22%	0.57%	0.49%	0.69%	0.51%

Notes: (a) ID4 2009 ROWC and ID4 water use records.
(b) Includes pumping by NORMWD

Tables 3-10 and 3-11 present the projected groundwater pumping by ID4 and by NORMWD.

TABLE 3-10
GROUNDWATER PROJECTED BY ID4[(a)]

Basin Name(s)	2015	2020	2025	2030	2035
San Joaquin Valley - Kern County (5-22.14)					
Total Pumped within ID4 Service Area	2,080	6,420	6,020	5,430	4,900
Total Pumped outside ID4 Service Area	7,540	3,670	4,250	5,170	6,090
Total	**9,620**	**10,090**	**10,270**	**10,600**	**10,990**
Percent of Total Water Supply	17%	17%	17%	17%	17%

Note: (a) Water recovery totals for years 2015-2035 are based on ID4 hydrologic model results. Values subject to change based on ID4 water supply.

TABLE 3-11
GROUNDWATER PROJECTED BY NORMWD[(a)(b)]

Basin Name(s)	2015	2020	2025	2030	2035
San Joaquin Valley - Kern County (5-22.14)	200	200	200	200	200

Notes:
(a) NORMWD does not have its own groundwater recharge program; it pays ID4 a groundwater charge to help support the recharge program.
(b) 2010-2030 data provided by ID4, reported water production summary, pumping within ID4

3.5.3 Groundwater Replenishment

ID4's groundwater supply is based on the objective of replacing groundwater use with imported, treated surface water in purveyor service areas subject to quality and quantity deficiencies. The replaced pumping, or in-lieu recharge, combined with imported SWP or exchanged Kern River water recharges the underground aquifer. Absent environmental or drought-induced SWP Table A water amount reductions, the average annual amount available for replenishment is about 23,000 af. Actual amounts spread may vary from about 8,000 AF of unavoidable seepage losses to over 90,000 af, depending on local and SWP water conditions and regulation afforded by exchanges.

Since 1971, ID4 has recharged a total of 1,688,394 af to the underlying aquifer. Over the same 38-year period, the total amount of SWP Table A water available for recharge was 838,758 af. The difference 849,636 af, was obtained from exchanges with Kern River or Friant-Kern Canal interests and deliveries recovered from ID4 banking projects. Table 3-12 shows the last five years of groundwater replenishment by source.

TABLE 3-12
HISTORY OF GROUNDWATER REPLENISHMENT WITHIN ID4 (afy)

Source	2006	2007	2008	2009	2010
SWP	89,601	25,901	2,179	0	7,525
SWP by Exchange	38,962	20,411	34,530	38,231	55,873
CVP (Friant-Kern Division)	12,831	1,567	0	0	0
Recovered Banked Water		336	124	0	0
Total	**141,394**	**48,215**	**36,833**	**38,231**	**63,398**

Source: ID4 2009 ROWC

3.6 Groundwater Banking Programs, Transfers, and Exchanges

3.6.1 Groundwater Banking Programs

ID4 participates in water banking projects that were developed to capture and store high-flow waters, such as Article 21 water from the SWP, Section 215 and flood water from the CVP and flood waters from the Kern River. These water banking projects provide both recharge and recovery facilities dedicated for the storage and recovery of water. ID4's participation in these projects is to provide dry-year supplies during periods of reduced allocation or service interruption on the SWP. ID4 has carefully structured its participation in the water banking projects to provide sufficient recharge, storage and recovery capacity to meet its water supply obligations.

Table 3-13 provides a summary of the recharge and recovery capacity of its currently operating groundwater banking programs, which are described in more detail below. The amount of water recharged within each of the projects over the last five years is provided in Table 3-14.

A description of each project is provided in more detail below.

TABLE 3-13
ID4 WATER RECHARGE AND RECOVERY ASSET SUMMARY (afy)

	2800 Acre Recharge Facility[(a)]	Kern Water Bank	Pioneer Project	Allen Road Complex Well Field	ID4/Rosedale Joint Use Recovery Project[(b)]	Total
Total Recharge Capacity	-	450,000	146,000	-	-	596,000
Total Recovery Capacity	12,000	230,000	100,000	36,000	21,000	399,000
ID4 Percent Interest	100 %	9.62 %	10 %	100 %	22 %	-
ID4 Recharge Capacity	-	43,290	14,600	-	-	57,890
ID4 Recovery Capacity	12,000	22,126	10,000	36,000	5,940	86,066
Summary of Water Banked[(c)]	63,040	136,097	53,583	-	1,745	254,465

Source: ID4 2009 ROWC
Notes:
(a) ID4 recovery wells and banked water in COB's 2800 Acre Recharge Facility. Contract expires 2012.
(b) Contract expires 2025.
(c) Current amount stored in each project.

TABLE 3-14
ID4's WATER BANKING PROJECT'S (afy)

Banking Projects/Facilities	2006	2007	2008	2009	2010
City of Bakersfield 2800 Acre Recharge Facility	-	1,682	721	-	-
Kern Water Bank	-	8,413	11,591	9,807	3,029
Pioneer Project	-	-		3,722	1,274
ID4/Rosedale Joint Use Recovery Project	-	-	347	321	
Total	-	10,095	12,659	13,850	4,303

Source: ID4 2010 Groundwater Banking Accounts - Summary Database

- **City of Bakersfield 2800 Acre Recharge Facility:** ID4 currently owns four wells on the COB's 2800 Acre Recharge Facility, located west of Allen Road and south of Stockdale Highway. These wells were drilled and cased in 1999 and remained idle during 2000 and 2001. In 2003, the project was completed with the installation of pumps, motors and pipelines. The overall recovery capacity for this project is 20 cfs or 12,000 af annually. ID4 currently has approximately 63,000 af of previously banked groundwater stored in the COB's 2800 Acre Recharge Facility available to meet its water supply obligations. This contract is set to expire in 2012.

- **Kern Water Bank:** ID4 has a 9.62 percent interest in the recharge and recovery facilities of the Kern Water Bank as a result of the 1996 agreement between Project Participants, the Agency and DWR. As payment for its share of the Kern Water Bank, ID4 returned 4,330 af of its SWP firm agricultural entitlement to DWR. This reduction is reflected in current SWP allocations. The number of recovery wells currently available is

80, yielding a total annual recovery capacity of approximately 230,000 af, of which ID4 has a first priority right to 28,860 af of recovery capacity. The maximum annual recharge capacity of the project is about 450,000 af, of which ID4 has a first priority right to 43,290 af of recharge capacity. ID4 currently has approximately 140,000 af of previously banked groundwater stored in the Kern Water Bank available to meet its water supply obligations.

- **Pioneer Project:** ID4 has a 10 percent interest in the recharge and recovery facilities as a result of the 1998 Pioneer Participation Agreement. The total number of completed wells on the project is 38, which yields a total maximum annual recovery of approximately 100,000 af, of which ID4 has a first priority right to 10,000 af of recovery capacity. The maximum annual recharge capacity of the project is 14,600 af. ID4 currently has approximately 53,000 af of previously banked groundwater stored in the Pioneer Project available to meet its water supply obligations.

- **Allen Road Complex Well Field:** ID4 owns and operates seven wells located along the north side of the Kern River between Allen Road and Calloway Drive. These wells may be used as part of joint program with the COB to recover groundwater for discharge into the river channel during dry years for recreational purposes and for potential exchanges with other districts to enhance the quality of water delivered to the Henry C. Garnett Water Purification Plant. The total recovery capacity is 21,000 afy.

- **ID4 and Rosedale-Rio Bravo Water Storage District Joint Use Recovery Project:** The Rosedale-Rio Bravo Water Storage District (Rosedale) and ID4 Joint Use Groundwater Recovery Project (JURP) includes seven recovery wells with a total capacity of 45 cfs. ID4 operates this well field to recover banked water for two of Rosedale's partners, Kern-Tulare Water District (Kern-Tulare) and Arvin-Edison Water Storage District. The JURP Agreement also provides ID4 with the ability to exchange surface water for an equal amount of banked water in the JURP area. ID4 currently has approximately 1,700 af of previously banked groundwater stored in the JURP area available to meet its water supply obligations. This contract expires in 2025.

3.6.2 Transfers and Exchanges

ID4 has developed and is currently developing water supply exchanges with other local water districts. These exchanges provide ID4 the ability to call on locally available surface and/or groundwater supplies to meet a shortage on the SWP. Existing exchange agreements with local water districts allow ID4 to call upon local supplies such as Kern River water. These exchanges can be unbalanced in that ID4 may call upon a quantity of water in a given year with a return obligation in a future year. ID4 currently has exchanges in place with North Kern Water Storage District (North Kern), Kern-Tulare, Rosedale, and Kern-Delta Water District (Kern-Delta); summarized in Table 3-15. No transfer or exchange opportunities were identified specific to NORMWD.

TABLE 3-15
TRANSFER AND EXCHANGE OPPORTUNITIES (afy)

Transfer Agency	Transfer or Exchange	Short Term Proposed Quantities	Long Term Proposed Quantities
Kern Delta Water District	Exchange	50,000	50,000
Kern-Tulare Water District	Exchange	23,000	0
Rosedale - Rio Bravo Water Storage District	Exchange	21,000	21,000
North Kern Water Storage District	Exchange	0	25,000
Total		**94,000**	**96,000**

Source: ID4 2009 ROWC

ID4 and the Kern Delta may exchange up to 50,000 af on an annual basis. ID4 receives Kern River water from Kern Delta in exchange for a like amount of SWP water. Either district may call on the exchange. ID4 and the Kern-Tulare exchange up to 23,000 af on an annual basis whereby ID4 receives Kern River water from the Kern-Tulare in exchange for a like amount of SWP water. This exchange will expire on December 31, 2011. ID4 and Rosedale may exchange up to 21,000 af on an annual basis. Rosedale initiates the exchange by requesting the return of banked water through the use of the JURP wells. ID4 may return water to Rosedale through use of the wells or through an exchange of surface water supply. ID4 and North Kern executed a Principles of Agreement for a Long-Term Water Management Agreement (Principles) in 2006. One of the provisions of the Principles includes the development of an annual water exchange for up to 25,000 af. ID4 will receive Kern River water from North Kern in exchange for a like amount of SWP water.

3.6.3 Adequacy of Supply

Through its participation in water banking projects and water supply exchanges, ID4 is able to access and deliver 100 percent of its total annual water demands, as defined in Section 1.04 (c), under all single and multiple dry-year scenarios considered in this Plan. As shown on Table 3-4, the total amount of recovery capacity of 51,640 af is available in the final year of the worst-case multiple-dry year scenario. Adding the estimated recovery capacity to the 28,202 af of available surface water results in a total supply of 79,841 af, which is more than 33 percent greater than the projected treated water demand of 53,000 af within ID4 in 2035. ID4's water banking projects allow ID4 to cushion impacts associated with SWP variability and re-regulate high flow waters for recovery during dry years.

3.6.4 Groundwater Management

ID4 currently monitors and records groundwater pumping quantities within its service area boundaries, inclusive of NORMWD's service area. Currently the region does not have an AB 3030 Groundwater Management Plan. ID4 does produce an annual report on water conditions. The report, titled *Report on Water Conditions within Improvement District No. 4*, provides pumping and groundwater operations within ID4's boundaries (ID4 2009 ROWC). The report is published annually and adopted by the Agency Board.

3.7 Planned Water Supply Projects and Programs

No future water supply projects are being contemplated at this time. ID4 and NORMWD have minimized the need to import water from other regions by utilizing maximizing the local water resources and through cooperation and coordination of water management tools.

3.8 Development of Desalination

The Act requires a discussion of potential opportunities for use of desalinated water (Water Code Section 10631[i]). ID4 and NORMWD are not in proximity to any brackish ocean water or brackish groundwater supplies. None of these opportunities are practical or economically feasible for implementation, and therefore they are not viable supply sources for either agency.

3.8.1 Opportunities for Brackish Water, Groundwater, and/or Seawater Desalination

ID4 and NORMWD could team up with other SWP contractors and provide financial assistance in construction of other regional groundwater or seawater desalination facilities in exchange for SWP supplies. The desalination water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to ID4 from the SWP contractor.

In addition, should such an opportunity emerge with a local agency other than a SWP contractor, an exchange of SWP deliveries would most likely involve a third party, such as the Metropolitan Water District of Southern California. Most local desalination facilities would be projects implemented by retailers of SWP contractors and if an exchange program was implemented, would involve coordination and wheeling of water through the contractor's facilities to ID4.

Section 4: Recycled Water

This section of the Plan describes the existing and future recycled water opportunities available to ID4 and the purveyors. The description includes estimates of potential supply and demand for 2010 to 2035 in five year increments.

4.1 Overview

Recycled water programs are important in the County due to the fact that the Tulare Lake hydrologic region mainly consists of a "closed basin," that is, supplies entering the basin have no natural outlet. All effluent must be treated and disposed of within the basin because there is no natural outflow. Agriculture, which accounts for the majority of total water use, does not require source water to be treated to potable water standards. The large amount of agriculture in the County has meant that nearly all wastewater effluent produced by the various treatment facilities in the County can be applied to irrigate salt tolerant, non-food crops or used for environmental habitat restoration. Recycled water is also used to irrigate and flood certain areas of the Kern National Wildlife Refuge.

However, while recycled water has been identified as an important local demand management tool, formal plans to utilize recycled water in specific locations within ID4 have not yet been developed. Increased use of recycled water for irrigated agriculture as well as landscape irrigation in the M&I sector can help lower dependence on higher quality SWP and CVP water and will provide an additional water source during drought or periods of regulatory restrictions when imported water quantities are reduced. In addition, waste discharges will be greatly reduced and the high quality imported water can be applied towards best use. Wastewater effluent is regulated by the California Department of Health Services and standards for recycled water are referred to as "Title 22." These standards are incorporated in Title 22, Chapter 3, Division 4 of the California Code of Regulations, with stipulations applying to various types of reuse and levels of required treatment. The Regional Water Quality Control Board (RWQCB), Central Valley region, is involved with respect to the use and application of recycled water and any associated runoff. Municipal treatment facilities producing effluent for introduction into irrigation canals must disinfect to a minimum of 23 most probable number (MPN) of coliform per 100 ml of discharge.

4.2 Potential Sources of Recycled Wastewater

4.2.1 Existing Wastewater Treatment Facilities

There are four (4) wastewater treatment plants (WTPs) within the ID4 service area: COB's Treatment Plant No. 2, COB's Treatment Plant No. 3, the North of River Sanitary District (NORSD) No. 1 Plant, and the Kern Sanitation Authority water treatment facility regulated by the Kern County Waste Management Department. The NORSD plant services the NORMWD service area. There are a number of small, temporary treatment facilities in the Rosedale area north of the Kern River and west of NORSD's service area boundaries; much of that area is developed using on-site septic tanks, as is a portion of the Rio Bravo area located in the northeast. This section focuses on those that directly service ID4 and NORMWD. The treatment volume in million-gallons-per-day (mgd), treatment levels, and resultant recycled water uses are described in Table 4-1 below.

TABLE 4-1
WASTEWATER TREATMENT AND RECYCLED WATER

Facility	Volume (mgd)	Design Capacity (mgd)	Treatment System	Effluent/ Recycled Use
COB				
Treatment Plant No. 2	15.0	25.0	Secondary	Agriculture
Treatment Plant No. 3	15.8	16.0	Secondary	Agriculture
Kern Sanitation Authority	3.8	5.0	Secondary	Agriculture
NORSD No. 1	5.5	7.5	Secondary	Agriculture
Total	**39.9**	**53.5**		

Source: Agency Datasheet for 2007 Water Supply Report, 2009

COB's Treatment Plant No. 3 provides primary and secondary treatment of incoming wastewater and includes storage ponds, clarifiers, solids processing facilities, trickling filters, digesters, and methane recovery and cogeneration facilities. Treatment Plant No. 3 has a current design capacity of about 16 mgd. COB is currently expanding Treatment Plant No. 3 to an overall capacity of 32 mgd.

COB's Treatment Plant No. 2 provides primary and secondary treatment to a 63.4 square mile service area. Treatment Plant No. 2 has a design capacity of 25 mgd with the average daily flow of about 16.5 mgd. Treatment Plant No. 2 utilizes storage ponds, clarifiers, solids processing facilities, trickling filters, digesters, and methane recovery and cogeneration facilities.

The Kern Sanitation Authority's WTP provides secondary treatment for about 40,000 persons in East Bakersfield. The plant treats approximately 4 mgd; plant effluent is used to irrigate 1,100 acres of adjacent farmland owned by the Kern Sanitation Authority.

The NORSD Plant No. 1 serves the NORMWD, the City of Shafter, and OMWC service areas. The Plant has a current capacity of 7.5 mgd and provides secondary treated wastewater to storage ponds with a combined capacity of 1,488 af, and to farmland.

4.2.2 Planned Improvements and Expansions

COB is currently expanding its Treatment Plant No. 3 from 16 mgd to 32 mgd. This expansion will make approximately another 18,000 afy of recycled water available. Most of this water will be treated to secondary standards, appropriate for irrigation of non-food crops as well as groundwater recharge. However, the treatment plant expansion will also make it possible to treat approximately 2,250 afy to tertiary standards and this recycled water will be appropriate for use on food crops as well as industrial water uses (COB 2006). COB indicates that the plant expansion will gradually increase until full capacity is reached in 2025.

NORSD has the capacity to treat 7.5 mgd at the current facility, it is anticipated that in 2020 the capacity will be surpassed. NORSD is in process of planning the expansion of the plant to 12 mgd, which in 2035 will run at full capacity.

The Kern Sanitation Authority wastewater treatment facility is surrounded by developed communities; therefore, it can no longer be expanded. It is not anticipated for the wastewater collected by the Kern Sanitation Authority to increase over the next 20 years.

For future projections of recycled water flows, 72,000 afy was assumed. This is a conservative number because multiple entities in the region are examining the possibility of increasing production and use of recycled water.

Table 4-2 provides the projected wastewater flow for the ID4 and purveyor service areas.

TABLE 4-2
WASTEWATER COLLECTED AND TREATED

	Capacity (mgd)					
	2010	**2015**	**2020**	**2025**	**2030**	**2035**
COB						
Treatment Plant No. 2[(a)]	16.5	16.5	16.5	16.5	16.5	16.5
Treatment Plant No. 3[(b)]	16	20	26	32	32	32
Kern Sanitation Authority[(c)]	5	5	5	5	5	5
NORSD No. 1[(d)]	5.5	6.5	7.5	8.25	9	11.2
Volume that meets recycled water standard (tertiary)	0	0	0	0	0	0

Notes:
(a) COB 2005 UWMP.
(b) Assumes gradual increase full capacity is reached in 2025 (COB, 2006).
(c) Personal communication, Kern Sanitation Authority, February 17, 2011.
(d) Data Provided by AECOM, February 17, 2011

4.2.3 Other Potential Sources of Recycled Water

The Kern River Oil Field located just north of the COB is the third largest oil field in the State and the fifth largest field in the Country. Water trapped within oil deposits is released as part of the oil extraction and refining process. In the past, the water released during oil extraction was deposited into the Kern River, but following implementation of more stringent environmental protection measures, Shell Oil Company began reusing the water in the form of steam to accelerate oil extraction. Beginning in 1980, North Kern and Cawelo Water District began receiving oil field produced water for recharge and irrigation purposes. Over the 22-year period from 1990 to 2007, oil field produced water deliveries averaged 7,667 af (ID4 2009). This type of water could be made available for various M&I industrial purposes depending on level of treatment.

4.3 Summary of Available Source Water Flows

Annual water supplies for ID4 and NORMWD include SWP Table A water, groundwater, previously banked water, CVP water and Kern River water. ID4 has the potential for additional supplies from short- and long-term exchanges. These multiple sources supply M&I use within ID4 and NORMWD and are potential recycled water sources.

4.4 Current Recycled Water Demand and Use

Within the ID4 service area, recycled water is used for irrigation only. Currently, wastewater plant effluent is utilized on irrigated agricultural land in the southeast area of ID4. Effluent from

both COB and the County sewage treatment plants are used. It is expected that this practice will continue in the future and will improve water levels within the groundwater basin through in-lieu recharge.

NORMWD does not have access to recycled water, or the practical ability to directly participate in transfers or exchanges with recycled water.

The NORSD No. 1 collects and treats all wastewater generated within the NORMWD service area and disposes of treated effluent.

Water treated to secondary standards can be used for:

- Orchards with no contact between edible portion and recycled water
- Vineyards with no contact between edible portion and recycled water
- Non food-bearing trees, including Christmas trees
- Fodder crops (e.g., alfalfa) and fiber crops (e.g., cotton)
- Seed crops not eaten by humans
- Ornamental nursery stock, sod farms

4.4.1 Potential Recycled Future Use

With additional treatment, it is possible to put recycled water to more extensive use. Under California law, tertiary treated water can be used for all of the above uses as well as:

- Food crops
- Parks and playgrounds, including school yards
- Landscaping
- Golf courses
- Pasture for milk animals
- Decorative fountains
- Fish hatcheries
- Groundwater recharge
- Commercial laundry
- Dust control
- Industrial process water (where there is no contact with workers)

4.4.2 Potential Recycled Water Demand

Institutional arrangements between wastewater agencies and potential users of recycled water have not yet been initiated, and total recycled water demand within the Bakersfield metropolitan area has not been quantified. Therefore water suppliers such as ID4 and NORMWD do not currently have the ability to participate in the development of recycled water programs.

Water and wastewater agencies in the County could form arrangements to develop projects through which a portion of agricultural and M&I landscape irrigation demand is met with recycled water. Increased use of recycled water for irrigated agriculture as well as landscape irrigation in the M&I sector could help lower dependence on high quality SWP and CVP water and will provide an additional water source during drought or periods of regulatory restrictions when imported potable water quantities are reduced. In addition, waste discharges will be greatly reduced and the high quality imported water can be applied towards best use. Wastewater effluent is regulated by the California Department of Public Health. Municipal treatment facilities producing effluent for introduction into irrigation canals must disinfect to a minimum of 23 MPN of coliform per 100 ml of discharge.

4.5 Methods to Encourage Recycled Water Use

Incentives to encourage recycled water use may be developed within the ID4 service area as a means to reduce potable demands, particularly for landscape irrigation. Examples of incentives that may be considered for implementation by ID4 and the purveyors are (1) on-site retrofits for recycled water use, (2) monitoring, enforcement and training for recycled water use, and (3) delivery of recycled water at a reduced rate or a rate less than that of potable water. Such incentives would need to be coordinated with the retail purveyors in ID4, who maintain the direct connections to potential recycled water customers.

Section 5: Water Quality

5.1 Overview

This section provides a general description of the quality of the supplies available to ID4 and NORMWD and the retail purveyors within ID4's service area. These supplies include imported water from the SWP and CVP, local surface water from the Kern River, and local groundwater. ID4's Henry C. Garnett Water Purification Plant treats and supplies all of the drinking water to the service area covered by this Plan. Residents do not receive their drinking water directly from the Henry C. Garnett Water Purification Plant, but from the retail purveyors," to which residents pay their water bills. The purveyors are CWSC-BAK, COB, ENCSD, and NORMWD, which wholesales to OMWC.

Table 5-1 provides the current water quality conditions (2009) for each of these sources and compares them to the current federal primary and secondary drinking water standards. **Primary Inorganic Chemicals**

TABLE 5-1
WATER QUALITY BY SOURCE
(in mg/l unless otherwise noted)

			Source			
Constituent	**PHG[(a)]**	**MCL[(a)]**	**CVP**	**Ground -water**	**SWP**	**Kern River**
Primary Inorganic Chemicals						
Aluminum	0.6	1	ND	ND	0.115	0.484
Antimony	0.02	0.006	ND	ND	ND	ND
Arsenic	0.000004	0.01	0.003	0.003	0.003	0.005
Asbestos	7	7	ND	ND	ND	ND
Barium	2	1	ND	ND	ND	ND
Beryllium	0.001	0.004	ND	ND	ND	ND
Cadmium	0.00004	0.005	ND	ND	ND	ND
Chromium	NA	0.05	ND	ND	ND	ND
Cyanide	0.15	0.15	ND	ND	ND	ND
Fluoride	1	2	0.16	0.15	0.14	0.26
Lead[(b)]	0.0002	0.015	ND	ND	ND	ND
Mercury	0.0012	0.002	ND	ND	ND	ND
Nickel	0.012	0.1	ND	ND	ND	ND
Nitrate (as NO3)	45	45	2.96	7.32	4.17	ND
Nitrite (as Nitrogen, N)	1	1	ND	ND	ND	ND
Nitrate + Nitrite (as N)	10	10	0.67	1.66	0.94	
Perchlorate	0.006	0.006	ND	ND	ND	ND
Selenium	NA	0.05	ND	ND	ND	ND
Thallium	0.0001	0.002	ND	ND	ND	ND
Secondary Standards						
Aluminum	NA	0.2	ND	ND	0.115	0.484
Color (Units)	NA	15	5	2.5	40	25
Copper[(b)]	0.3	1	ND	ND	ND	ND
Foaming Agents (MBAS)	NA	0.5	ND	ND	ND	ND

Constituent	PHG[(a)]	MCL[(a)]	Source			
			CVP	Ground -water	SWP	Kern River
Iron	NA	0.3	ND	ND	0.142	0.469
Manganese	NA	0.05	ND	ND	ND	0.052
Methyl tert-butyl ether	NA	0.005	ND	ND	ND	ND
Odor (Units)	NA	3	6	4	8	6
Silver	NA	0.1	ND	ND	ND	ND
Thiobencarb	NA	0.001	ND	ND	ND	ND
Turbidity (Units)	NA	5	0.95	0.68	3.53	7.91
Zinc	NA	5	ND	ND	ND	ND
Total Dissolved Solids (TDS)	NA	1000	133	185	387	106
Specific Conductance (micromhos)	NA	1600	217	292	662	178
Chloride	NA	500	19.3	29.1	111	5.95
Sulfate	NA	500	16.6	24.1	68.6	17.1
General Minerals						
Total Alkalinity (as CaCo3)	NA	NA	62	74	94	62
Bicarbonate	NA	NA	61	90.3	105	75.6
Carbonate	NA	NA	ND	ND	ND	ND
Hydroxide	NA	NA	ND	ND	ND	ND
Total Hardness (as CaCO3)	NA	NA	50.5	76.6	149	45.5
Calcium	NA	NA	17.6	28.1	31.4	13.9
Magnesium	NA	NA	1.58	1.57	17.1	2.61
Sodium	NA	NA	25.4	28.5	80.1	18.4
Potassium	NA	NA	1.39	1.49	3.68	1.75
pH (Units)	NA	NA	8.92	8.23	8.59	7.87
Additional Analyses						
Ammonia	NA	NA	0.09	ND	ND	ND
Boron[(c)]	NA	1	0.14	0.14	0.26	0.14
Bromide	NA	NA	0.05	0.1	0.3	0.02
Phosphate	NA	NA	ND	ND	ND	ND
Silica	NA	NA	14	16.5	13.8	2.37
Total Organic Carbon	NA	NA	1.1	0.7	5.5	2.8
Radioactivity						
Gross Alpha (pCi/L)	NA	15	1.55	5.04	2.71	3.02
Gross Beta (pCi/L)	NA	50	0.6		4.17	3.1
Radium 226 + Radium 228 (pCi/L)	NA	5	0.22	0.59	0.3	0.12
Radium 226 (pCi/L)	0.05	NA	0	0.13	0	0.12
Radium 228 (pCi/L)	0.019	NA	0.22	0.46	0.3	0
Strontium-90 (pCi/L)	0.35	8	0.2		0	0.1
Tritium (pCi/L)	400	20000	0		0	0
Uranium (pCi/L)	0.43	20	1.42	6.7	2.22	3

Source: ID4 2009 ROWC

Notes:

(a) Applicable to treated water only

(b) Values identified as MCLs are action levels under the lead and copper rule

(c) Values identified as MCLs are notification levels for constituents lacking MCLs

5.2 Surface Water Quality

The Kern River is generally considered a high quality supply. Water entering the County via the Friant-Kern Canal of the CVP originates in the central Sierra Nevada as snowpack runoff stored in Millerton Lake and is also generally of good quality. No portions of the Kern River are currently listed on the Central Valley RWQCB's 2006 (currently the most recent) 303(D) list of impaired water bodies. ID4, CWSC-BAK, Kern County Department of Parks, the US Bureau of Land Management, and the US Forest Service, in coordination with the California Department of Public Health, perform regular surveys of the Kern River watershed. These surveys focus on identifying any activities that could affect water quality and water quantity.

5.2.1 Imported Water Quality

Since SWP water originates in rivers and streams in central and northern California and travels through the peat soils of the Delta to the County, it is generally high in TDS, organics and bromide, although levels of these constituents can vary with hydrology in a given year. If imported SWP water is treated for drinking water purposes, the organics and bromide can form disinfection by-products, which at certain levels may raise health concerns.

DWR regulates the water quality of the SWP through the DWR Water Quality Criteria for Acceptance (Acceptance Criteria) of Non-Project Water into the SWP and the Implementation Procedures for the Review of Water Quality from Non-Project Water Introduced into the SWP (Implementation Procedures).

The current water quality criteria for the SWP are compared to current water quality conditions in the California Aqueduct and to the current federal primary and secondary drinking water standards, and provided in Table 5-2. Table 5-2 reports water quality in the California Aqueduct from a point just upstream of the County (data taken from Station KA017226, Check 21 near Kettleman City). It is important to note that not all constituents currently in the draft Acceptance Criteria are sampled for by DWR. It is also important to note that some constituents included in SWP Acceptance Criteria do not have a regulated maximum contaminant level (MCL) standard. There are also some constituents that have a MCL standard but are not included in SWP Acceptance Criteria.

Upon reaching ID4, the imported supply is either delivered directly to recharge areas for direct replenishment of the underlying groundwater aquifer, or to the Henry C. Garnett Water Purification Plant for treatment and delivery to the purveyors.

TABLE 5-2
COMPARISON OF SWP WATER QUALITY CRITERIA (2004) TO SWP ACTUAL 2009 DATA
(All values in mg/L unless otherwise noted)

Constituent	SWP Acceptance Criteria (Max)	SWP Water Quality Data (Sta. KA017226)[a][b] Max.	Min.	Avg.	Current Drinking Water Standards
Arsenic	0.004	0.003	0.001	0.002	0.01
Bromide	0.54	0.4	0.07	0.18	No standard
Chromium	0.11	0.003	0.001	0.0018	0.100
Copper	0.28	0.003	0.001	0.0019	1.300
Fluoride	0.55	0.1	0.1	0.1	4.000
Nitrate as N	9.6	1.5	0.31	0.78	0.010
Selenium	0.002	0.002	0.001	0.0013	0.050
Sulfate	99	72	20	38.2	250[c]
Total Organic Carbon	9.3	6.9	2.6	4.14	No standard
TDS	No criteria	368	124	232.9	500[c]
Chloride	No criteria	124	24	60.1 l	250[c]

Notes:
(a) DWR 2009.
(b) SWP Water Quality data not shown was not sampled by DWR.
(c) Denotes secondary standard.

As shown in Table 5-2, SWP water meets or exceeds applicable drinking water standards. However, there is concern with some constituent concentrations that are approaching SWP Acceptance Criteria, particularly arsenic. As of January 2006 (effective in California November 2008), the Federal arsenic MCL was revised to 0.0010 mg/L (down from 0.0050 mg/L). This revision has had significant impacts on water utilities in California because treatment facilities need to be installed or modified to remove arsenic to meet the standard. The revision impacts both groundwater and surface water supplies with arsenic concentrations above the new standard. Additionally, this lowering of the standard likely will affect what DWR will establish as the appropriate criteria for arsenic in water added to the SWP system, which is currently set at 0.0040 mg/L.

5.3 Groundwater Quality

Groundwater quality throughout the region is typically suitable for most urban and agricultural uses. High TDS (salts) and nitrates are the primary groundwater quality issues due to the closed nature of the Tulare Lake Basin, a characteristic that results in little subsurface or surface outflow, causing prolonged accumulation of salts overtime as applied irrigation water evaporates. Irrigation water that is high in salts can exacerbate the problem. In some cases it is necessary to apply additional water to flush the salts from the root zone, causing them to migrate into groundwater.

Other water quality concerns include storm water runoff from residential and industrial areas that can contribute to water quality degradation since it contains organics, pesticides, oil, grease, and heavy metals. Also of concern is naturally occurring erosion, accelerated by poor drainage and soil stabilization associated with urban and agricultural land uses.

Exceptions are areas that have exceeded MCLs for a variety of compounds. Some of these are due to the long history of oil and gas drilling in the County and others are due to long term agricultural activities. Some contaminants, such as arsenic and radiologic compounds, are naturally occurring in certain areas of the County. Problems associated with shallow groundwater include TDS, sodium chloride and sulfate, which can be problematic for both agricultural and urban uses.

Arsenic is both a groundwater and surface water quality issue. Arsenic is ubiquitous in the environment and is naturally present in soil, water, air, plants and animals. Weathering of arsenic-containing rocks is considered to be the primary natural source of arsenic in the environment. Arsenic is found in groundwater throughout the state resulting from its natural occurrence. It may also be present in localized environments in high concentrations as a result of specific releases, such as from mine tailings and chemical spills. Arsenic treatment tends to be expensive, not just because of the more exotic treatment technologies required, but because of the large volumes of groundwater that must be treated when the source of the arsenic is naturally occurring. As described earlier, if the SWP Acceptance Criteria for arsenic is lowered, it would limit the ability to introduce water into SWP facilities.

5.4 Water Quality Impacts on Projected Supplies

The following tables (Table 5-3 to 5-5) relate the aforementioned water quality of the existing sources available to ID4 and NORMWD. Any potential water quality related impacts on supply reliability are addressed and/or remedied by the water quality protection programs discussed in the following sections.

TABLE 5-3
ID4 – CURRENT AND PROJECTED WATER QUALITY IMPACTS

Water Supply Sources	Description of Condition	2010	2015	2020	2025	2030	2035
SWP	Highly variable and subject to climatic, hydrologic, and physical reliability concerns.	NA	NA	NA	NA	NA	NA
CVP	Good-fair	NA	NA	NA	NA	NA	NA
Kern River	Subject to erosion and arsenic from old mining operations.	NA	NA	NA	NA	NA	NA
Groundwater	Salts, minerals, inorganics, and others (see Section 5.5.1)	NA	NA	NA	NA	NA	NA

TABLE 5-4
NORMWD - CURRENT AND PROJECTED WATER QUALITY IMPACTS

Water Supply Sources	Description of Condition	2010	2015	2020	2025	2030	2035
ID4 supply	See Table 5-3	0%	0%	0%	0%	0%	0%

5.5 Water Quality Protection Programs

ID4 and NORMWD have undertaken, and continue to participate in programs to protect the quality of the water supplies within the region. These programs are summarized below.

5.5.1 Consumer Confidence Reports

Since 1990, community water systems in California have been providing an Annual Water Quality Report to customers under regulations adopted in 1989 by the California Department of Health Services. However, the 1996 amendments to the Federal Safe Drinking Water Act and recently adopted federal regulations now require a "Consumer Confidence Report" (CCR). In addition, California law now requires a similar report to consumers.

The CCR must contain information on the quality of water delivered by the system and characterize any risks from exposure to contaminants detected in the drinking water. In general, and according to the most recent guidance document for suppliers preparing their 2011 CCR updates[17], there are 8 basic items that must be included in all CCRs:

1. Water System Information
2. Sources of Water
3. Definitions (MCL, PHG, etc.)
4. Reported Levels of Detected Contaminants (in one or more tables)
5. Information on Monitoring for *Cryptosporidium*, Radon, and Other Contaminants
6. Compliance with Other Drinking Water Regulations
7. Variances and Exemptions
8. Required Educational Information (Explanation of contaminants and their presence in drinking water, vulnerability, etc.)

In 2009 both ID4 and NORMWD provided CCRs to their customers. ID4's CCR noted that during 2009, the Henry C. Garnett Water Purification Plant produced on average 25 million gallons per day (mgd) using a conventional treatment process. The treated water is wholesaled

[17] Preparing Your California Drinking Water Consumer Confidence Report (CCR), Guidance for Water Suppliers, January 1, 2011 Update, California Department of Public Health, Division of Drinking Water and Environmental Management

to retail purveyors for the distribution of water to homes and businesses. The quality of ID4's source and treated water are listed in the CCR.

Contaminants that may be present in source water include: microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, livestock operations and wildlife; inorganic contaminants, such as salts and metals, that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining for farming; pesticides and herbicides, that may come from a variety of sources such as agricultural, urban storm water runoff and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application and septic systems; and radioactive contaminants that can be naturally occurring or be the result of oil and gas production and mining activities. The potential for these types of contaminants are kept at minimum by ID4's participation in the water quality management programs listed below.

NORMWD's 2009 CCR noted that the District supplied approximately 8,000 af of treated surface water. The sources of NORMWD's water is treated water from ID4 and as such noted similarly the water quality constituents and vulnerabilities that ID4 noted in its 2009 CCR; naturally occurring minerals, substances resulting from the presence of animals or human activity, organic chemical contaminants, and result contaminants from oil and gas production and mining activities.

5.5.2 Municipal Water Quality Investigations Program

In 1982, DWR formed the Interagency Delta Health Aspects Monitoring Program. This was in response to DWR's appointed scientific advisory panel who recommended that the drinking water quality should be monitored and assessed, for human health protection, at the Delta in 1981. The surface water source for ID4's SWP water supply is the Delta. In 1990, the Interagency Delta Health Aspects Monitoring Program was renamed the Municipal Water Quality Investigations (MWQI) Program, and ID4 is a participant in the MWQI Program.

The MWQI Program's mission is to support the effective and efficient use of the SWP as a municipal water supply source through monitoring, forecasting, and reporting; provide early warning of changing conditions in source water quality used for municipal purposes; provide data and knowledge based support for operational decision-making on the SWP; conduct scientific studies of drinking water importance; and provide scientific support to DWR, SWP contractors, and other governmental entities.

The Agency is one of 15 municipal and industrial SWP contractors that voluntarily fund the program, which is implemented by a long-term discrete monitoring program, real-time monitoring (modeling/forecasting), science support studies, emergency response, and technical support.

5.5.3 Sanitary Survey

Title 22, section 64665 of the California Code of Regulations requires completion of a sanitary survey for all public water supply systems that use a surface water source. These surveys are necessary in order to ensure watershed management compliance and also to provide

continuous monitoring and surveillance in order to reduce or eliminate real or potential water quality risks. As such, these surveys of the watershed should be updated every five years. ID4 participated in the initial SWP sanitary survey in 1991, 2001, and 2007, and has completed sanitary surveys for all three of its surface water supplies. The 2010 Sanitary Survey is currently getting underway.

Similarly, ID4 participated in the sanitary survey of the Friant-Kern Canal and upper San Joaquin River watersheds. This survey was completed in 1998 and updated in 2009.

ID4 began its own survey of the Kern River watershed in 1992 and submitted the final draft to CDPH in 1997. Updated surveys of the Kern River watershed were completed in 2000 and in 2005. The next survey will be finished in 2011. This continually evolving study monitors the Kern River for activities that can affect water quality and quantity. Of particular interest for ID4 are those items or practices that can degrade water quality. ID4 has been successful in coordinating its efforts with those of the CWSC-BAK, COB, Kern County Department of Parks and Recreation, U.S. Bureau of Land Management, U.S. Forest Service and numerous other entities regarding the Kern River.

5.5.4 Source Water Assessment

In April 2003, the California Department of Public Health completed Source Water Assessments of the Kern River supply. This included source assessment for ID4 owned wells, Kern River water, Friant-Kern canal water, and SWP water within the California Aqueduct reaches downstream of San Luis Reservoir to the turnout to the CVC. SWP water is transported to the Henry C. Garnett Water Purification Plant through the CVC which extends from the California Aqueduct on the West side of the County to ID4. Influencing the quality of water pumped from the Delta is the impact of the estuarial nature of the Delta and the naturally occurring seawater intrusion, which is dependent to a large extent on inflow from the contributing rivers. The Kern River supply is considered to be most vulnerable to accidental spills of oilfield wastes, urban/storm water runoff, agricultural drainage and recreational use.

5.6 Water Quality Impacts on Reliability

The annual surface water supply for ID4 is contracted through the SWP for municipal and industrial needs. Additionally, ID4 has access to water from the CVP and the Kern River through exchanges. These exchanges provide ID4 the ability to mitigate short-term water quality impacts that may be caused by natural or man-made events. By changing sources, water quality is improved and provides an economic and public health benefit.

ID4's water management strategies include routine water quality sampling on each potential available source. A review of the sample results from each source has indicated seasonal variations and short-term variability due to human influences. ID4 has developed a management strategy to prevent source water quality problems using the collected data. The strategy includes development of water exchanges that provide the ability to shift sources to preserve water quality. ID4 is also able to recover banked water that has been stored underground in banking projects. Unlike the surface water supplies, groundwater is not impacted by short term events. Groundwater; however, can be impacted by activities related to land use above and adjacent to the groundwater storage facilities. Activities such as wastewater and sludge disposal, oil production and other activities may, over time, have an

impact upon the groundwater quality in the area immediately adjacent to those activities. Each of the groundwater banking project is actively involved in the preservation of groundwater quality and limiting activities on or near these facilities which may create adverse impacts to the groundwater quality. Additionally, groundwater contains relatively low levels of natural organic matter making it a preferred alternative source during periods of high organic loading from the surface water supplies.

Protection of source water quality is preferred to the treatment of a contaminant. ID4 actively participates in a number of regional as well as local programs geared towards monitoring and protection of source waters.

Section 6: Reliability Planning

6.1 Overview

The Act requires urban water suppliers to assess water supply reliability that compares total projected water use with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. This section presents the reliability assessment for the ID4 and NORMWD service areas.

ID4 is committed to supplying high quality drinking water to consumers served by its Henry C. Garnett Water Purification Plan. The Agency strives to achieve the highest standard of customer satisfaction. NORMWD is also committed to its consumers and dedicated to their needs over the long-term. This Plan helps both ID4 and NORMWD to achieve these goals even during dry periods based on conservative water supply and demand assumptions over the next 25 years, as discussed in the following sections.

6.2 Reliability of Water Supplies

Each water supply source has its own reliability characteristics. One of the reasons ID4 participates in a number of existing groundwater banking projects is to augment surface supply from the SWP. These projects provide protection against supply variability resulting from climactic conditions as well as other conditions which may limit or reduce the availability or quality of the SWP supply. Imported SWP supply can fluctuate from year to year depending on precipitation, regulatory restrictions, and operational conditions. Recent court rulings have also impacted reliability (as described in Section 3.3.2).

As discussed in Section 3.1, each SWP contractor's Water Supply Contract contains a Table A Amount that identifies the maximum amount of water that a contractor may request. However, the amount of SWP water actually allocated to contractors each year is dependent on a number of factors that can vary significantly from year to year. The availability of SWP supplies to ID4 (and the other SWP contractors) is generally less than their full Table A amounts in many years and can be significantly less in very dry years.

The 2009 Reliability Report updates DWR's estimate of the current (2009) and future (2029) water delivery reliability of the SWP. The updated analysis shows that the primary component of the annual SWP deliveries (referred to as Table A deliveries) will be less under current and future conditions, when compared to the preceding report (Reliability Report 2007).

In order to adequately assess the reliability of its water supplies, ID4 has developed a hydrologic model that includes historical hydrologic data on local as well as SWP water systems. By looking at historic hydrologic information, ID4 staff can estimate future hydrologic conditions and plan accordingly. This model provides the basis for ID4 planning with respect to its participation in exchanges, groundwater banking programs and other water supply decisions. In addition, this model recognizes the availability of Article 21 water from the SWP system and considers this as one of the supply components available to ID4.

Water supplies from other sources (CVP and Kern River high-flow waters) mentioned in Chapter 2 are typically unregulated with no predictable pattern of yield and therefore are not

considered to be part of the ID4 supplies for planning purposes. While ID4 receives supply benefits from these sources when they are available, ID4 does not make long-term planning decisions on the basis of these supplies continued availability. Table 6-1 identifies the basis for the water year data used in this report.

TABLE 6-1
BASIS OF WATER YEAR DATA

Water Year Type	Base Year	Historical Sequence
Normal Water Year	Average	1922 - 2003
Single-Dry Year	1977	
Multiple-Dry Water Years	1931-1934	

Source: 2009 Reliability Report (August 2010)

6.3 Normal, Single-Dry, and Multiple-Dry Year Planning

ID4 has three sources of water that it wholesales to retail purveyors for eventual potable use: (1) SWP water purchased from the Agency, (2) CVP Section 215 surplus water and Kern River water, and (3) previously banked water. NORMWD has two sources of water for potable use: (1) Water purchased from ID4, and (2) local groundwater.

These supplies are available to meet demands during average, single-dry, and multiple-dry years. The following sections elaborate on the different supplies available to ID4 and NORMWD during each of the various dry year conditions. Each subsection explains the criteria for estimating the single-dry and multiple dry supplies that are then used in the comparison tables in Section 6.4.

6.3.1 State Water Project Supply

For this Plan, the availability of SWP supplies to ID4 was estimated by multiplying ID4's 82,946 AFY of Table A Amount by the delivery percentages from the 2009 Reliability Report. For the three hydrologic conditions evaluated, the delivery percentages used were taken from the 2009 Reliability Report based on the 82-year average, 1977, and the 1931-34 average, for the normal year, single-dry year, and multiple-dry year conditions, respectively. Thus the estimates of SWP dry-year supply availability used in this assessment were based on the worst case hydrologic conditions.

In the event of a short-term deficiency, ID4 can rely upon water previously banked in the banking projects as a backup supply. In years when ID4 has access to surface water in excess to ID4 demands within the district, ID4 may recharge surplus surface water in its banking projects to provide a dry-year supply. ID4 maintains an account of between 200,000 and 300,000 af of previously banked water to augment short and long term reductions in SWP water. After reaching the targeted banking project account balances, remaining water is recharged within ID4 to replenish the underlying groundwater aquifer.

ID4's management of its water resources anticipates dry year increases in groundwater production. During above-normal water years, water is recharged to replenish the aquifer beneath ID4. ID4's participation in the banking projects will improve its ability to manage its water supplies by providing additional recharge capacity during above-normal years, additional

extraction capacity during dry years and additional opportunities for water exchanges at all times.

For NORMWD, reliability is dependent on delivery of SWP water from ID4. As shown in Table 3-5 in Chapter 3, ID4 will be able to provide 100 percent reliability to NORMWD and the other purveyors because the estimate of the total available water supply for the last year in the multiple dry-year period, which is the most conservative and worst case scenario, is 79,841 af and is greater than ID4 demand at full build out, 53,000 AF.

6.3.2 Groundwater

Supplies available to ID4 from previously banked water in the San Joaquin Valley Groundwater Basin are projected to be 86,066 afy in average years as shown in Table 3-4. This amount is the total amount that can be recovered through ID4's participation in banking programs. Deliveries made from ID4's banking assets meet essential water demand and supplement the annual SWP Table A allocation as needed. Also shown in Table 3-4 is that for a single-dry year, 86,066 afy is available, and for the multiple-dry year case, the supply is estimated at 86,066 afy, 65,410 afy, 56,805 afy, and 51,640 afy, respectively, calculated based on observations from 2007 to 2010.

6.4 Supply and Demand Comparisons

The available supplies and water demands for ID4 and NORMWD were analyzed to assess their ability to satisfy demands during three scenarios: a normal water year, single-dry year, and multiple-dry years. The tables in this section present the supplies and demands for the various drought scenarios for the projected planning period of 2010-2035 in five year increments. Tables 6-2, 6-3, and 6-4 summarize, respectively, Normal Water Year, Single-Dry Water Year, and Multiple-Dry Year supplies.

6.4.1 Average Water Year

Tables 6-2 and 6-3 summarize ID4 and NORMWD's, respectively, water supplies available to meet demands over the 25-year planning period during an average/normal year.

TABLE 6-2
PROJECTED NORMAL YEAR SUPPLIES AND DEMAND FOR ID4 (afy)

Water Supply Source	2010	2015	2020	2025	2030	2035
Wholesale(Imported) SWP[(a)]	82,946	82,946	82,946	82,946	82,946	82,946
Banked Water[(b) (d)]	86,066	74,066	74,066	68,126	68,126	68,126
Total Water Supply	**169,012**	**157,012**	**157,012**	**151,072**	**151,072**	**151,072**
Total Demand[(c)]	**25,000**	**48,000**	**49,500**	**50,500**	**51,750**	**53,000**

Notes:
(a) Taken from Chapter 3 Water Resources, Table 3-1.
(b) Deliveries made from ID4 groundwater banking assets as required by District essential water demand. Groundwater recovery to supplement SWP Table A 82,946 afy.
(c) Taken from Chapter 2 Water Use, Table 2-3.
(d) In 2012 and 2025, the contracts for the COB 2800 Acre Recharge Facility and the ID4/Rosedale Joint Use Recovery Project are set to expire, respectively. A 12,000 and 5,940 afy reduction in overall banking capacity is shown.

TABLE 6-3
PROJECTED NORMAL YEAR SUPPLIES AND DEMAND FOR NORMWD (afy)

Water Supply Source	2010	2015	2020	2025	2030	2035
ID4[(a)]	10,500	11,000	11,500	12,500	13,750	15,000
Total Water Supply	**10,500**	**11,000**	**11,500**	**12,500**	**13,750**	**15,000**
Total Demand[(b)]	**8,400**	**8,800**	**9,200**	**10,000**	**11,000**	**11,000**

Notes:
(a) Taken from Chapter 3 Water Resources, Table 3-2.
(b) Taken from Chapter 2 Water Use, Table 2-4.

6.4.2 Single-Dry Year

Tables 6-4 and 6-5 summarize ID4 and NORMWD's, respectively, water supplies available to meet demands over the 25-year planning period during a single-dry year. This year is based upon the worst case historic single dry year of 1977, under a single dry year condition where ID4 may only receive 7 percent of its Table A amount. In a single dry year, ID4 would be able to call upon its previously banked supplies to meet all ID4 demands.

Demand during dry years generally increases, especially groundwater demand as imported supplies are typically less reliant and users draw on their banked groundwater supplies. As seen in Table 2-2 in Section 2, groundwater production during most recent dry period between 2007-2010 increased by about 4 percent. Therefore, demand during dry years was assumed to increase by 5 percent.

TABLE 6-4
PROJECTED SINGLE-DRY YEAR SUPPLIES AND DEMAND FOR ID4 (afy)

Water Supply Source	2010	2015	2020	2025	2030	2035
Wholesale(Imported) SWP[(a)]	5,806	5,806	5,806	5,806	9,124	9,124
Banked Water[(b)(d)]	86,066	74,066	74,066	68,126	68,126	68,126
Total Water Supply	**91,872**	**157,012**	**157,012**	**151,072**	**151,072**	**151,072**
Total Demand [(c)]	**26,250**	**50,400**	**51,975**	**53,025**	**54,338**	**55,650**

Notes:
(a) SWP supplies are calculated by multiplying ID4's Table A Amount of 82,946 AF by the percentages of single-dry year deliveries projected to be available for the worst case single-dry year of 1977 (7 percent in 2010 and 11 percent in 2029/2030), taken from Table 6.19 of DWR's 2009 Reliability Report (2010).
(b) Deliveries from ID4 groundwater banking assets as required by District essential water demand. Groundwater recovery of previously banked supplies to supplement SWP Table A 82,946 afy.
(c) Taken from Chapter 2 Water Use, Table 2-3. Assumes increase in total demand of 5 percent in dry years.
(d) In 2012 and 2025, the contracts for the COB 2800 Acre Recharge Facility and the ID4/Rosedale Joint Use Recovery Project are set to expire, respectively. A 12,000 and 5,940 afy reduction in overall banking capacity is shown.

TABLE 6-5
PROJECTED SINGLE-DRY YEAR SUPPLIES AND DEMAND FOR NORMWD (afy)

Water Supply Source	2010	2015	2020	2025	2030	2035
ID4[(a)]	10,500	11,000	11,500	12,500	13,750	15,000
Total Water Supply	**10,500**	**11,000**	**11,500**	**12,500**	**13,750**	**15,000**
Total Demand [(b)]	**8,820**	**9,240**	**9,660**	**10,500**	**11,550**	**11,550**

Notes:
(a) Taken from Chapter 3 Water Resources, Table 3-2. Assumed 100% available during single-dry year.
(b) Taken from Chapter 2 Water Use, Table 2-4. Assumes increase in total demand of 5 percent in dry years.

6.4.3 Multiple-Dry Year

Tables 6-6 and 6-7 summarize ID4 and NORMWD's, respectively, water supplies available to meet demands over the 25-year planning period during a multiple-dry year scenario, under conditions similar to the drought that occurred during 1931-1934. Demand during dry years generally increases, especially groundwater demand as imported supplies are typically less reliant and users draw on their banked groundwater supplies. As seen in Table 2-2 in Section 2, groundwater production during most recent dry period between 2007-2010 increased by about 4 percent. Therefore, demand during dry years was assumed to increase by 5 percent.

TABLE 6-6
PROJECTED MULTIPLE-DRY YEAR SUPPLIES AND DEMAND FOR ID4 (afy)

Water Supply Source	2010	2015	2020	2025	2030	2035
Wholesale (Imported) SWP[(a)]	28,202	28,202	28,202	28,202	28,202	28,202
Banked Water[(b)(d)]	86,066	43,940	43,940	40,130	40,130	40,130
Total Water Supply	**114,268**	**72,142**	**72,142**	**68,332**	**68,332**	**68,332**
Total Demand [(c)]	**26,250**	**50,400**	**51,975**	**53,025**	**54,338**	**55,650**

Notes:
(a) SWP supplies are calculated by multiplying ID4's Table A Amount of 82,946 AF by the percentages projected to be available for the worst case four- year drought of 1931-1934 (34%), taken from Table 6.20 of DWR's 2009 Reliability Report (2010).
(b) Taken from Chapter 3 Water Resources, Table 3-4. Hydrology modeled based on observations from 2007-10, in Year 1 100%, Year 2, 76%, Year 3 66%, and Year 4 60%.
(c) Taken from Chapter 2 Water Use, Table 2-3. Assumes increase in total demand of 5 percent in dry years.
(d) In 2012 and 2025, the contracts for the COB 2800 Acre Recharge Facility and the ID4/Rosedale Joint Use Recovery Project are set to expire, respectively. A 12,000 afy and 5,940 afy reduction in overall banking capacity is shown.

TABLE 6-7
PROJECTED MULTIPLE-DRY YEAR SUPPLIES AND DEMAND FOR NORMWD (afy)

Water Supply Source	2010	2015	2020	2025	2030	2035
ID4[(a)]	10,500	11,000	11,500	12,500	13,750	15,000
Total Water Supply	**10,500**	**11,000**	**11,500**	**12,500**	**13,750**	**15,000**
Total Demand[(b)]	**8,820**	**9,240**	**9,660**	**10,500**	**11,550**	**11,550**

Notes:
(a) Taken from Chapter 3 Water Resources, Table 3-2. Assumed 100% available during single-dry year.
(b) Taken from Chapter 2 Water Use, Table 2-4. Assumes increase in total demand of 5 percent in dry years.

6.4.4 Summary of Comparisons

Tables 6-2 through 6-7 show that ID4 and NORMWD have adequate supplies to meet demands during normal, single-dry, and multiple-dry years throughout the 25-year planning period.

6.4.5 Potential Future SWP Supplies

An ongoing planning effort to increase long-term supply reliability for both the SWP and CVP is taking place through the BDCP. The co-equal goals of the BDCP are to improve water supply and restore habitat in the Delta. The BDCP is being prepared through a collaboration of state, federal, and local water agencies, state and federal fish agencies, environmental organizations, and other interested parties. Several "isolated conveyance system" alternatives are being considered in the plan which would divert water from the North Delta to the South Delta where water is pumped into the south-of-Delta stretches of the SWP and CVP. The new conveyance facilities would allow for greater flexibility in balancing the needs of the estuary with reliable water supplies. In December 2010, DWR released a "Highlights of the BDCP" document which summarizes the activities and expected outcomes of the BDCP. The results of preliminary analysis included in the document indicate the proposed conveyance facilities may increase the combined average long-term water supply to the SWP and CVP from 4.7 MAF per year to 5.9 MAF. This would represent an increase in reliability for SWP contractors from 60 to 75 percent. Planned completion of the BDCP and corresponding environmental analysis is early-2013.

Section 7: Water Demand Management Measures

7.1 Water Demand Management Measures and Best Management Practices

In 1991, ID4 became a signatory to the Memorandum of Understanding (MOU) of the California Urban Water Conservation Council (CUWCC) as a wholesaler, and is in compliance with all of the BMPs applicable to wholesale water suppliers. The CUWCC is a consensus-based partnership of agencies and organizations concerned with water supply and conservation of natural resources in California. By becoming a signatory, ID4 agreed to implement a series of conservation methods in the ID4 service area, with the cooperation and participation of the purveyors. Later in 2001, NORMWD became a signatory to the MOU.

Those signing the CUWCC MOU have pledged to develop and implement fourteen comprehensive conservation Best Management Practices (BMPs). The MOU was compiled with two primary purposes; to expedite implementation of reasonable water conservation measures in urban areas, and to establish assumptions for use in calculating estimates of reliable future water conservation savings resulting from proven and reasonable conservation measures.

The MOU and BMPs were revised by the CUWCC in 2008. The revised BMPs now contain a category of "Foundational BMPs" that signatories are expected to implement as a matter of their regular course of business. These include Utility Operations (metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs, and water waste ordinances) and Public Education (public outreach and school education programs). These revisions are reflected in the reporting database starting with reporting year 2009. See Table 7-1 for the current BMP designations.

The new category of foundational BMPs is a significant shift in the revised MOU. For wholesalers, these changes do not represent a substantive shift in requirements.

This section discusses how ID4 and NORMWD are implementing BMPs within each of their respective service areas. See Appendix D for ID4 and NORMWD BMP reports.

TABLE 7-1
CURRENT BMP DESIGNATIONS

New Designation	Former BMP
P: Residential	1. Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers
P: Residential	2. Residential Plumbing Retrofit
F: Utility Operations - Water Loss Control	3. System Water Audits, Leak Detection and Repair
F: Utility Operations - Metering	4. Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections
P: Landscape	5. Large Landscape Conservation Programs and Incentives
P: Residential	6. High-Efficiency Clothes Washing Machine Financial Incentive Programs
F: Education – Public Information Programs	7. Public Information Programs
F: Education – School Education Programs	8. School Education Programs
P: Commercial, Industrial, and Institutional	9. Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts
F: Utility Operations – Operations	10. Wholesale Agency Assistance Programs
F: Utility Operations – Pricing	11. Retail Conservation Pricing
F: Utility Operations – Operations	12. Conservation Coordinator
F: Utility Operations – Operations	13. Water Waste Prohibition
P: Residential	14. Residential ULFT Replacement Programs

"F" = Foundational, "P" = Programmatic

7.2 ID4's Implementation Levels of DMMs/BMPs

ID4 is a wholesale water agency serving four purveyors; NORMWD, ENCSD, COB and CWSD-BAK. Agencies supplying more than 3,000 connections or 3,000 AFY are subject to AB1420 and SBX7-7 requirements. ID4 is therefore subject to regulatory requirements in addition to its commitment to compliance with the BMPs as a signatory to the MOU.

Table 7-2 provides a summary and description of ID4's status in implementing the requirements of the revised MOU. ID4 is in compliance with all of the BMPs.

TABLE 7-2
ID4'S IMPLEMENTATION LEVELS OF DMMs/BMPs

BMP 3	Water Loss Control	✓
BMP 7	Public Information	✓
BMP 8	School Education	✓
BMP 10	Wholesale Agency Programs	*
BMP 12	Conservation Coordinator	✓

✓ = Implementing
* CUWCC does not provide coverage report

7.2.1 Foundational BMPs

The new category of foundational BMPs is a significant shift in the revised MOU, and which signatories are expected to implement as a matter of their regular course of business. The foundational BMPs have two categories: 1) Utility Operations, which covers metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs, and

water waste ordinances, and 2) Public Education, which addresses public outreach and school education programs. For wholesalers these changes do not represent a substantial shift in requirements.

7.2.1.1 Utility Operations

Operations Practices

- Conservation Coordinator: ID4 has a Conservation Coordinator on staff at part-time and employs consulting services to staff the program the Public Information programs.
- Wholesale agency assistance programs: ID4 is exploring opportunities for providing financial and/or technical support to its purveyors, with a focus on regional programs as described in the Tulare Lake Basin Portion of Kern County Integrated Regional Water Management Plan.
- Water Loss Control: ID4 reports completing the pre-screening system audit and full-scale audit, maintaining records and implementing a system leak detection program.

7.2.1.2 Education

Public Information Programs

ID4 has a robust Public Information program. Activities include paid advertising, public service announcements, bill inserts/newsletters/brochures, water usage comparisons on customer bills, demonstration gardens, special/media events, speaker's bureau, and programs to coordinate with other government agencies.

School Education Programs

The ID4 Education program is implemented by KCWA on behalf of its entire wholesale service area. KCWA has been implementing conservation programs for over 20 years and educating local students about Kern County's (local and state) water supplies and the importance of water and its conservation. Each year, thousands of students in kindergarten through twelfth grade learn about water treatment, water supply, groundwater and how water is used to grow food and fiber. KCWA is involved in education in a variety of ways: as a Project WET facilitator, programs for levels K through 12 and that include assembly programs, video lessons, poster contests and more, as well as a scholarship program. For more information see: http://www.kcwa.com/water_education/index.shtml

7.3 NORMWD's Implementation Levels of DMMs/BMPs

NORMWD is both a retail and wholesale water agency. NORMWD is subject to the regulatory requirements of AB1420 and SBX7-7 only in its role as a wholesaler. As a signatory to the MOU, NORMWD is also committed to compliance with the BMPs as retailer.

Table 7-3 provides a summary and description of NORMWD's retail and wholesale service area status in implementing the requirements of the revised MOU. The assessment is based on the 2008 CUWCC reports, which reflect the most recent filings, combined with a description of current programs.

TABLE 7-3
NORMWD'S IMPLEMENTATION LEVELS OF DMMs/BMPs

BMP 1	Residential Water Surveys	✓
BMP 2	Low Flow Fixtures	✓
BMP 3	Unaccounted Water	E
BMP 4	Metering	E
BMP 5	Large Landscape Surveys	E
BMP 6	HECW	E
BMP 7	Public Information	✓
BMP 8	School Education	✓
BMP 9	CII Water Use Surveys	✓
BMP 10	Wholesale Agency Programs	
BMP 11	Rate Structure	E
BMP 12	Conservation Coordinator	✓
BMP 13	Water Waste Prohibition	✓
BMP 14	Residential ULFT	E

✓ = Implementing, E=Exemption on file

7.3.1 Foundational BMPs

The new category of foundational BMPs is a significant shift in the revised MOU, and which signatories are expected to implement as a matter of their regular course of business. The foundational BMPs have two categories: Utility Operations, which covers metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs, and water waste ordinances, and Public Education, which addresses public outreach and school education programs.

7.3.1.1 Utility Operations

Operations Practices

Conservation Coordinator

NORMWD – has a Conservation coordinator at 0.6 full time equivalent.

Water Waste Prevention

NORMWD has a water shortage contingency plan that identifies the level of shortage, prohibitions and associated consumption reduction, penalties and charges. For example, a 10 percent shortage triggers a Stage 1 status and related mandatory restrictions on street washing, runoff, and more.

In addition, NORMWD participates with OMWC's "water patrol," which prohibits water waste. During summer months staff patrols the entire service area looking for gutter flooding or other waste offenses and leave warnings. NORMWD also responds to water waste complaints and publishes articles on the subject in a joint newsletter with OMWC.

Wholesale Agency Assistance Programs

NORMWD is a wholesaler to a single retailer - OMWC, which is not a signatory to the MOU. NORMWD has offered to provide support services to OMWC but to date OMWC has opted to manage and operate its own programs. Some collaboration on programs such as water waste prevention and public information does occur.

Water Loss Control

NORMWD is on track to implement the Water Loss requirement but it is not currently being implemented because the distribution system is not yet fully metered and without metering it is not possible to assign uses and losses. NORMWD is currently in the process of metering its connections and will implement this BMP as that data becomes available (See Metering with Commodity Rates for more information).

Metering with commodity rates for all new connections and retrofit of existing connections

NORMWD is on track to compliance. About 37 percent of NORMWD's retail customers are metered. NORMWD has a meter installation plan that tracks with the AB2572 which requires the installation of meters for all customers by 2025. Those customers that are metered are being billed volumetrically.

Retail Conservation Pricing

NORMWD is on track to compliance. About 37 percent of NORMWD's customers are metered. Those customers that are metered are being billed volumetrically. NORMWD is also developing a plan to examine various billing options that provide customers with incentives to reduce use and identify best fit for NORMWD, within the parameters of BMP compliance.

7.3.1.2 Education

Public Information Programs

NORMWD has a variety of Public Information programs. NORMWD maintains a web site with conservation information, provides conservation messages with its bill inserts and participates in programs sponsored by its wholesaler, the Kern County Water Agency (KCWA). Its materials include: "How to Read your Meter", "Summer Watering Tips", a CII "Water Use Survey Kit" and a general brochure called "Water Conservation: Do Your Part, Be Water Smart".

School Education Programs

NORMWD's School Education Program is implemented by KCWA on behalf of its entire wholesale service area. KCWA has been implementing conservation programs for over 20 years and educating local students about Kern County's (local and state) water supplies and the importance of water and its conservation. Each year, thousands of students in kindergarten through twelfth grade learn about water treatment, water supply, groundwater and how water is used to grow food and fiber. KCWA is involved in education in a variety of ways: as a Project WET facilitator, programs for levels K through 12 and that include assembly programs, video lessons, poster contests and more, as well as a scholarship program. For more information see: http://www.kcwa.com/water_education/index.shtml

7.3.2 Programmatic BMPs

7.3.2.1 Residential BMPs

Residential Assistance Program

NORMWD has been providing free indoor and outdoor water surveys to residential accounts since 2002. An estimated 26 single-family (SF) and 3 multi-family (MF) accounts must be surveyed annually in order to be on track. The MF program is on track but only 3 SF customers were surveyed in 2008.

According to the conservation manager, the challenge has been in eliciting the necessary response from SF customers to participate in the audit process. NORMWD has offered over 5,000 free home audits to its customers since 2003. To date almost all residential accounts have been offered surveys which have included incentives, but the response rate has been very low, particularly for SF customers at 2 percent; for MF response has been higher at 7 percent. Included in the home water surveys are a variety of plumbing devices including showerheads, aerators, toilet flappers, plumbing handbooks and more.

NORMWD will review the SF customer outreach program, including the materials and process for contacting the customer. The response rate for SF customers has been lower than expected and the materials could benefit from a "communications" type of perspective. NORMWD will also consider opportunities to collaborate regionally with KCWA and other purveyors.

Landscape Water Surveys

NORMWD has been providing free landscape surveys to single-family accounts since 2002 through its residential survey program. NORMWD needs to complete 26 audits per year to be on track with the annual requirement 1.5 percent per year; in addition NORMWD needs to make up about 55 audits due to low numbers in previous years.

Similar to the Residential Assistance program described above, the challenge to the landscape water survey program has been in eliciting the necessary response from SF customers to participate in the audit process. NORMWD will review both that and the Landscape Water Survey program to evaluate if and how it could be better designed to elicit the response required for compliance.

High-efficiency Clothes Washers (HECWs)

NORMWD is filing for an exemption from the requirements of this activity based on the cost/benefit determined in the 2001 Cost-Benefit Analysis of the BMPs. NORMWD does not offer incentives on HECWs or have any other related program.

WaterSense Specification (WSS) Toilets

NORMWD is filing for an exemption from the requirements of this activity based on cost/benefit as determined in the 2001 Cost-Effectiveness Analysis of the BMPs. NORMWD does not offer incentives on ULFTs, HETs or have any other related program.

WSS for New Residential Development

This is a new requirement. NORMWD does not currently have any WSS development ordinance nor does it offer development incentives to promote WSS fixtures for new development.

7.3.3 Commercial, Industrial, and Institutional BMPs

NORMWD has 84 CII accounts, accounting for about one-quarter of total water deliveries. As of the FY 08 reporting period, 82 percent of these accounts were metered.

In 2008 CII use was about 518 AFY, which makes the reduction target 52 AFY. NORMWD ranks its CII customers and offers free water use audits.

Landscape

NORMWD currently has an exemption on file for BMP 5 based on the 2001 Cost-Effectiveness study which estimated of a 0.52 benefit/cost ratio and average water savings of 2,300 gpd (2.5 AFY).

NORMWD has 10 dedicated irrigation meter accounts, none of which have water budgets. NORMWD has one park and two schools and four large apartment complexes with dedicated irrigation systems. All but two of the apartments received audits in 2004; the remaining two declined to participate.

7.4 Summary of Conservation

ID4 will continue to implement the BMPs applicable to a wholesale water agency. NORMWD will continue to implement all foundational and locally cost-effective programmatic BMPs for its service area.

Section 8: Water Shortage Contingency Planning

8.1 Overview

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, earthquake which damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality. This section of the Plan describes how ID4 and NORMWD plan to respond so that emergency needs are met promptly and equitably.

8.2 Stages of Action to Respond to Water Shortages

ID4

ID4 will supply all available SWP surface water, less conveyance and process losses, to its contracting purveyors. If the available surface supply is not enough to maintain minimum health and safety, ID4 will pump previously banked water to meet these demands. ID4 has sufficient recovery capacity and banked water to meet all of its current demands. NORMWD has implemented stages of action or rationing for their respective customers and described them below.

NORMWD

NORMWD's water supply contract with ID4 calls for a payment for treated water in accordance with the entitlement ramp-up schedule in the contract, whether or not the water is available. Therefore, that portion of cost would not be reduced should supply be reduced or interrupted for any prolonged period of time. The contract also states that any water shortage will result in water being split equally among OMWC and NORMWD, according to their allocation, i.e., 80 percent loss to OMWC and 20 percent to NORMWD on its retail supply.

The stages of action prepared by NORMWD are displayed in Table 8-1.

TABLE 8-1
NORMWD'S THREE-STAGE ACTION PLAN

Water Supply Stage No.	Shortage Stages and Conditions Water Supply Conditions	% Shortage
1	Agency Notification of Reduced Supply; Catastrophic Interruption	10%
2	Agency Notification of Reduced Supply; Catastrophic Interruption	25%
3	Agency Notification of Reduced Supply; Catastrophic Interruption	50% or >

8.3 Minimum Water Supply Available During Next Three Years

ID4

ID4's minimum water supply available during the next three years is based on the driest three-year historic sequence on the SWP. The percentages of SWP Table A amount projected to be

available are referenced from the DWR Report. Supplies are calculated by multiplying ID4's SWP Table A amount of 82,946 afy by percentages of total deliveries projected to be available for the three driest years (1931-1934). The average of total SWP deliveries over this three year period was 28 percent of total Table A amounts. See Table 8-2.

In the event of a supply deficiency, ID4 can rely on pumping from its banking projects or existing water supply exchanges to ensure continued deliveries of treated water to the purveyors. ID4 currently has approximately 254,766 af banked in the Kern Water Bank, Pioneer Project, COB's 2800 Acre Recharge Facility and the ID4 and Rosedale's JURP Project. The total recovery capacity from these banking projects is 86,066 afy.

When comparing these supplies to the demand projections provided in Chapters 2 and 3 of this Plan, ID4 has adequate supplies available to meet projected treated water demands should a multiple-dry year period occur during the next three years.

TABLE 8-2
ID4'S THREE-YEAR ESTIMATED MINIMUM WATER SUPPLY (afy)

Source	2011	2012	2013
State Water Project	23,225	23,225	23,225
Banking Programs	86,066	55,560	48,214
Total Supplies	109,015	78,785	71,439

NORMWD

NORMWD's estimate of the minimum surface water supply available during the next three years is based on the information provided by ID4.

The three year estimated minimum water supply for NORMWD is listed in Table 8-3.

TABLE 8-3
NORMWD'S THREE-YEAR ESTIMATED MINIMUM WATER SUPPLY (afy)

Three-Year Estimated Minimum	Water Supply			
Source	Year 1	Year 2	Year 3	Normal
ID4 Treated Water	100%	100%	100%	100%

8.4 Actions to Prepare for Catastrophic Interruption

8.4.1 General

ID4 is located approximately 45 miles east of the San Andreas Fault, which is along the length of the southern San Joaquin Valley. A major earthquake along this portion of the San Andreas Fault would affect the San Joaquin Valley. The California Division of Mines and Geology has stated two of the aqueduct systems that import water to southern California (including the California Aqueduct) could be ruptured by displacement on the San Andreas Fault, and supply may not be restored for a three to six week period. The situation would be further complicated by physical damage to pumping equipment and local loss of electrical power.

DWR has a contingency aqueduct outage plan for restoring the California Aqueduct to service should a major break occur, which it estimates would take approximately four months to repair.

Extended supply shortages of both groundwater and imported water, due to power outages and/or equipment damage, would be severe until the water supply could be restored.

8.4.2 SWP Emergency Outage Scenarios

In addition to earthquakes, the SWP could experience other emergency outage scenarios. Past examples include slippage of aqueduct side panels into the California Aqueduct near Patterson in the mid-1990s, the Arroyo Pasajero flood event in 1995 (which also destroyed part of Interstate 5 near Los Banos), and various subsidence repairs needed along the East Branch of the Aqueduct since the 1980s. All these outages were short-term in nature (on the order of weeks) and DWR's Operations and Maintenance Division worked diligently to devise methods to keep the Aqueduct in operation while repairs were made. Thus, the SWP contractors experienced no interruption in deliveries.

One of the SWP's important design engineering features is the ability to isolate parts of the system. The Aqueduct is divided into "pools." Thus, if one reservoir or portion of the California Aqueduct is damaged in some way, other portions of the system can still remain in operation. The Primary SWP facilities are shown on Figure 8-1.

FIGURE 8-1
PRIMARY SWP FACILITIES

Source: DWR Bulletin 132-05

Other events could result in significant outages and potential interruption of service. Examples of possible nature-caused events include a levee breach in the Delta near the Harvey O. Banks Pumping Plant, a flood or earthquake event that severely damaged the Aqueduct along its San Joaquin Valley traverse, or an earthquake event along either the West or East Branches. Such events could impact some or all SWP contractors south of the Delta.

The response of DWR, the Agency, and other SWP contractors to such events would be highly dependent on the type and location of any such event. In typical SWP operations, water flowing through the Delta is diverted at the SWP's main pumping facility, located in the southern Delta, and is pumped into the California Aqueduct. During the relatively heavier runoff period in the winter and early spring, Delta diversions generally exceed SWP contractor demands, and the excess is stored in San Luis Reservoir. Storage in SWP aqueduct terminal reservoirs, such as Pyramid and Castaic Lakes, is also refilled during this period. During the summer and fall, when diversions from the Delta are generally more limited and less than contractor demands, releases from San Luis Reservoir are used to make up the difference in deliveries to contractors. The SWP share of maximum storage capacity at San Luis Reservoir is 1,062,000 af.

The Agency (and ID4) receives its SWP deliveries through the main stem of the California Aqueduct at Tupman.

In addition to SWP storage south of the Delta in San Luis and the terminal reservoirs, a number of contractors have stored water in groundwater banking programs in the San Joaquin Valley, and many also have surface and groundwater storage within their own service areas.

Three scenarios that could impact the delivery to the Agency of its SWP supply, previously banked supplies, or other supplies delivered to it through the California Aqueduct are described below. For each of these scenarios, it was assumed that an outage of six months could occur. The Agency's ability to meet demands during the worst of these scenarios is presented following the scenario descriptions.

Scenario 1: Levee Breach Near Banks Pumping Plant

As demonstrated by the June 2004 Jones Tract levee breach and previous levee breaks, the Delta's levee system is fragile. The SWP's main pumping facility, Banks Pumping Plant, is located in the southern Delta. Should a major levee in the Delta near these facilities fail catastrophically, salt water from the eastern portions of San Francisco Bay would flow into the Delta, displacing the fresh water runoff that supplies the SWP. All pumping from the Delta would be disrupted until water quality conditions stabilized and returned to pre-breach conditions. The re-freshening of Delta water quality would require large amounts of additional Delta inflows, which might not be immediately available, depending on the timing of the levee breach. The Jones Tract repairs took several weeks to accomplish and months to complete; a more severe breach could take much longer, during which time pumping from the Delta might not be available on a regular basis.

Assuming that the Banks Pumping Plant would be out of service for six months, DWR could continue making at least some SWP deliveries to all southern California contractors from water stored in San Luis Reservoir. The water available for such deliveries would be dependent on the storage in San Luis Reservoir at the time the outage occurred and could be minimal if it occurred in the late summer or early Fall when San Luis Reservoir storage is typically low.

Agency water stored in banking programs in the San Joaquin Valley may also be available for withdrawal and delivery to ID4.

Scenario 2: Complete Disruption of the California Aqueduct in the San Joaquin Valley

The 1995 flood event at Arroyo Pasajero demonstrated vulnerabilities of the California Aqueduct (the portion that traverses the San Joaquin Valley from San Luis Reservoir to Edmonston Pumping Plant). Should a similar flood event or an earthquake damage this portion of the aqueduct, deliveries from San Luis Reservoir could be interrupted for a period of time. DWR has informed the SWP contractors that a four-month outage could be expected in such an event. The Agency's assumption is a six-month outage.

Arroyo Pasajero is located downstream of San Luis Reservoir and upstream of the primary groundwater banking programs in the San Joaquin Valley. Assuming an outage at a location near Arroyo Pasajero that resulted in the California Aqueduct being out of service for six months, supplies from San Luis Reservoir would not be available to those SWP contractors located downstream of that point. However, Agency water stored in banking programs in the San Joaquin Valley could be withdrawn and delivered to ID4. Assuming an outage at a location on the California Aqueduct south of the banking programs in the San Joaquin Valley, these supplies would still be available to the Agency.

Scenario 3: Complete Disruption of the Cross Valley Canal at Tupman Turnout on the California Aqueduct

If a major earthquake (an event similar to or greater than the 1994 Northridge earthquake) were to damage this portion of the Aqueduct, deliveries could be interrupted. The exact location of such damage along the Aqueduct would be essential in determining emergency operations by DWR and the Agency. For this scenario, it was assumed that the Aqueduct and the CVC turnout at Tupman would suffer a single-location break and deliveries of SWP water from north of the Tupman Turnout would not be available.

In any of these three SWP emergency outage scenarios, DWR and the SWP contractors would coordinate operations to minimize supply disruptions. Depending on the particular outage scenario or outage location, some or all of the SWP contractors south of the Delta might be affected. But even among those contractors, potential impacts would differ given each contractor's specific mix of other supplies and available storage. During past SWP outages, the SWP contractors have worked cooperatively to minimize supply impacts among all contractors. Past examples of such cooperation have included certain SWP contractors agreeing to rely more heavily on alternate supplies, allowing more of the outage-limited SWP supply to be delivered to other contractors; and exchanges among SWP contractors, allowing delivery of one contractor's SWP or other water to another contractor, with that water being returned after the outage was over.

Of these three SWP outage scenarios, the Tupman outage scenario presents the worst-case scenario for the Agency. In this scenario, ID4 would rely on water recovered from banking projects, local supplies and water available from the Kern River. An assessment of the supplies available to meet demands in ID4's service area during a six-month Aqueduct/CVC outage and the additional levels of conservation projected to be needed are presented in Table 8-4 for 2010 through 2035.

During an outage, it may still be possible for the CVC to be used for conveyance if the break occurred at the California Aqueduct because of ID4's eastern location. Banked water would be pumped into the CVC and delivered in forward flow to ID4. It is assumed that local well production would be unimpaired by the outage and adequate recovery capacity exists to pump at increased levels during a temporary period. A more conservative estimate has been made, however, with groundwater production was assumed to be one-half of annual supplies.

Table 8-4 shows that, for a six-month emergency outage, groundwater suppliers are sufficient to meet total demands throughout the planning period. It is likely that potential cooperation among SWP contractors and/or temporarily increased purveyor groundwater production during such an outage could also increase supplies if at all needed.

TABLE 8-4
PROJECTED SUPPLY AND DEMAND DURING A 6-MONTH DISRUPTION OF IMPORTED SUPPLY[a]

	Supply/Demand (af)					
	2010	**2015**	**2020**	**2025**	**2030**	**2035**
Local Supplies						
Groundwater Banking Projects[b]	43,033	37,033	37,033	31,093	31,093	31,093
Demands						
Total Demand[c]	21,650	24,000	24,750	25,250	25,875	26,500

Notes:
(a) Assumes complete disruption of in SWP supplies and in deliveries through the California Aqueduct for six months.
(b) Pumping is assumed to be one-half of average/normal year supplies (86,066 afy) (see Table 3-1).
(c) Total demands are assumes to be one-half of average/normal year demands (see Table 2-3).

8.4.3 Regional Power Outage Scenarios

For a major emergency such as an earthquake, Pacific Gas and Electric (PG&E) has declared that in the event of an outage, power would be restored within a 24 hour period. For example, following the Northridge earthquake, Southern California Edison was able to restore power within 19 hours. Edison experienced extensive damage to several key power stations, yet was still able to recover within a 24 hour timeframe.

ID4

In the event the SWP or CVC conveyance systems are damaged and are unable to deliver the raw water supply, ID4 has the ability to access an alternative water supply through delivery of Kern River water.

During 1999, ID4 purchased and installed a 1.75 megawatt emergency standby generator capable of providing up to 30 percent of treated water deliveries to the purveyors in the event there was a regional power outage (ID4 2005 UWMP). ID4 also installed two 2.0 megawatt generators and a 1.0 megawatt solar photovoltaic facility in 2009. Total standby power now equals 6.75 megawatts and will be able to meet up to 80 percent of ID4's demand at full build-out.

In the event of an earthquake, ID4 will assess the areas affected and the amount of damage sustained to ID4's infrastructure and respond to make emergency repairs. In the event the

Henry C. Garnett Water Purification Plant is damaged for the treatment of water supplies, ID4 has short-term treated water storage it can utilize while repairs are being made. In the event the treated water transmission pipeline is damaged, ID4 has procedures in place to execute emergency contracts with prequalified contractors to make repairs. All purveyors contracting with ID4 for a delivery of wholesale treated water supplies have access to their own groundwater wells which would be used to supplement deliveries from ID4 during a reduction caused by a catastrophic event.

NORMWD

NORMWD has improved its wholesale distribution facilities with alternative fuel sources and on-site generated power such that the booster-pump stations located at the 600 and 750 elevation sites, as well as their telemetry and control systems, can fully operate independent of public utility electric and/or natural gas supplies.

NORMWD also has a well (Well No. 3) equipped with two prime movers: an electric turbine that can be supplied power through its transfer switch via a portable generator, as well as through the public utility grid; and a natural gas fired dual fuel engine, that has propane back-up located on site.

8.5 Mandatory Prohibitions during Shortages

ID4

ID4 provides wholesale water only. The purveyors are responsible for implementing mandatory prohibitions against specific water use practices during water shortages.

NORMWD

NORMWD provides wholesale water to OMWC, a retail purveyor that has responsibility for implementing mandatory prohibitions against specific water use practices during water shortages.

8.6 Consumptive Reduction Methods during Restrictions

ID4

ID4 provides wholesale water only. The purveyors are responsible for implementing consumptive reductions restrictions.

NORMWD

NORMWD provides wholesale water to OMWC, a retail purveyor that has responsibility for implementing consumptive reductions restrictions.

8.7 Penalties for Excessive Use

ID4

ID4 provides wholesale water only. The purveyors are responsible for implementing mandatory prohibitions against specific water use practices during water shortages.

NORMWD

NORMWD provides wholesale water to OMWC, a retail purveyor that has responsibility for implementing mandatory prohibitions against specific water use practices during water shortages.

8.8 Mechanism for Determining Reductions in Water Use

ID4

ID4 provides wholesale water only. The purveyors are responsible for mechanisms for determining reductions in water use during water shortages.

NORMWD

NORMWD provides wholesale water to OMWC, a retail purveyor that has responsibility for mechanisms for determining reductions in water use during water shortages.

8.9 Financial Impacts of Actions during Shortages

ID4

The agreement between ID4 and its purveyors for a water supply provide for the collection of revenues based upon the amount of water scheduled for delivery to the purveyor, regardless of ID4's ability to deliver the water as a result of water supply shortages. As a result, ID4 revenue resulting from its agreement for a water supply is not subject to reductions corresponding to water supply shortages or allocations. Additionally, as surface water supplies available from ID4 are reduced, a subsequent increase in the ID4 groundwater revenues will be realized as a result of the corresponding increase in groundwater production.

Annual income from treated water sales in 2009-10 is $4.5 million for contract entitlement and will increase as the schedule for water deliveries increases. This represents approximately 40 percent of the ID4 budgeted revenues.

NORMWD

NORMWD's contract with ID4 calls for a payment for treated water in accordance with the entitlement ramp-up schedule in the contract, whether or not the water is available. Therefore, that portion of cost would not be reduced should supply be reduced or interrupted for any prolonged period of time.

8.10 Water Shortage Contingency Resolution

ID4

Water shortage is addressed in Article 12 of the Agreement for a Water Supply with the purveyors that describes the actions ID4 can take in the event of a water shortage. ID4 has a drafted a resolution that prescribes the actions it may take to address a 50 percent reduction in supply, the resolution is provided in Appendix F.

NORMWD

NORMWD's Water Shortage Contingency Resolution from the 2005 UWMP can be found in Appendix F. Monitoring for District water use will occur as often as necessary depending upon the severity of the shortage.

Section 9: References

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Appendix A

DWR Checklist

No.	UWMP Requirement [a]	Calif. Water Code Reference	UWMP Location by Water Supplier	
			Kern/ID4	North of the River Municipal Water District
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)	NA, ID4 is a wholesale agency	NA, NORMWD is a wholesale district
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	2.6, pg. 2-8	2.6, pg. 2-8
3	Report progress in meeting urban water use targets using the standardized form.	10608.4	NA, ID4 is a wholesale agency	NA, NORMWD is a wholesale district
4	Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)	1.3, 1.3.1. pg. 1-2, 1-3	1.3, 1.3.1. pg. 1-2, 1-3
5	An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.	10620(f)	1.3, pg. 1-2	1.3, pg. 1-2
6	Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city orcounty within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.	10621(b)	1.3.2, Table 1-2, pg. 1-5	1.3.2, Table 1-2, pg. 1-5
7	The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).	10621(c)	1.3, pg. 1-2	1.3, pg. 1-2
8	Describe the service area of the supplier	10631(a)	1.4.1, pg.1-6	1.4.2, pg. 1-6
9	(Describe the service area) climate	10631(a)	1.5, pg. 1-10	1.5, pg. 1-10
10	(Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . .	10631(a)	2.2, pg. 2-1	2.2, pg. 2-1
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	10631(a)	Table 2-1, pg. 2-1	Table 2-1, pg. 2-1
12	Describe . . . other demographic factors affecting the supplier's water management planning	10631(a)	2.3, pg. 2-2	2.3, pg. 2-2
13	Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).	10631(b)	3.1, Table 3-2, pg. 3-1	3.1, Table 3-2, pg. 3-1
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	10631(b)	3.5, pg. 3-11	3.5, pg. 3-11
15	(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management. Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)	N/A	N/A
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	10631(b)(2)	3.5.1, pg. 3-11	3.5.1, pg. 3-11
17	For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board	10631(b)(2)	N/A	N/A

No.	UWMP Requirement [a]	Calif. Water Code Reference	UWMP Location by Water Supplier	
			Kern/ID4	North of the River Municipal Water District
18	(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.	10631(b)(2)	N/A	N/A
19	For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.	10631(b)(2)	3.5, pg. 3-11	3.5, pg. 3-11
20	(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(3)	3.5.1,3.5.2, Table 3-7, pg. 3-11	3.5.1,3.5.2, Table 3-8, pg. 3-11
21	(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	10631(b)(4)	Table 3-10, pg. 3-13	Table 3-11, pg. 3-14
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) An average water year, (B) A single dry water year, (C) Multiple dry water years.	10631(c)(1)	Table 3-4, pg. 3-5	Table 3-5, pg. 3-5
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)	N/A	N/A
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)	3.6.2, pg. 3-16	3.6.2, pg. 3-16
25	Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof;(I) Agricultural.	10631(e)(1)	NA, ID4 is a wholesale agency	NA, NORMWD is a wholesale district
26	(Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) Water survey programs for single-family residential and multifamily residential customers; (B) Residential plumbing retrofit; (C) System water audits, leak detection, and repair; (D) Metering with commodity rates for all new connections and retrofit of existing connections; (E) Large landscape conservation programs and incentives; (F) High-efficiency washing machine rebate programs; (G) Public information programs; (H) School education programs; (I) Conservation programs for commercial, industrial, and institutional accounts; (J) Wholesale agency programs; (K) Conservation pricing; (L) Water conservation coordinator; (M) Water waste prohibition;(N) Residential ultra-low-flush toilet replacement programs.	10631(f)(1)	7.2, Table 7-2, pg. 7-2	7.3, Table 7-3, pg. 7-3
27	A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.	10631(f)(3)	BMP appendix E	7.3, pg. 7-3
28	An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.	10631(f)(4)	BMP appendix E	7.3.1, 7.3.2, pg. 7-4
29	An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.	10631(g)	BMP appendix E	7.3.1.1, pg. 7-4

No.	UWMP Requirement [a]	Calif. Water Code Reference	UWMP Location by Water Supplier	
			Kern/ID4	North of the River Municipal Water District
30	(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.	10631(h)	3.7, pg. 3-18	3.7, pg. 3-18
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	10631(i)	3.8, pg. 3-18	3.8, pg. 3-18
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	appendix E	
33	Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).	10631(k)	NA, ID4 is a wholesale agency	NA, NORMWD is a wholesale district
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)	2.5, Table 2-3, pg. 2-4	2.5, Table 2-4, pg. 2-4
35	Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.	10632(a)	8.2, pg. 8-1	8.2, Table 8-1, pg. 8-1
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)	8.3, Table 8-2, pg. 8-1	8.3, Table 8-2, pg. 8-1
37	(Identify) actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of wate supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)	8.4, 8.4.1, 8.4.2, 8.4.3, pg. 8-2	8.4, 8.4.1, 8.4.2, 8.4.3, pg. 8-2
38	(Identify) additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)	8.5, pg. 8-8	8.5, pg. 8-8
39	(Specify) consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)	8.6, pg. 8-8	8.6, pg. 8-8
40	(Indicated) penalties or charges for excessive use, where applicable.	10632(f)	8.7, pg. 8-9	8.7, pg. 8-9
41	An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)	7.4, pg. 7-7	7.4, pg. 7-7
42	(Provide) a draft water shortage contingency resolution or ordinance.	10632(h)	8.9, pg. 8-9	8.9, pg. 8-9
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)	8.8, pg. 8-9	8.8, pg. 8-9
44	Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area	10633	4.2, pg. 4-1	4.2, pg. 4-1
45	(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)	4.2.1, Table 4-1, pg. 4-1	4.2.2, Table 4-1, pg. 4-1
46	(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)	4.3, pg. 4-3	4.3, pg. 4-3

No.	UWMP Requirement [a]	Calif. Water Code Reference	UWMP Location by Water Supplier	
			Kern/ID4	North of the River Municipal Water District
47	(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)	4.4, pg. 4-3	4.4, pg. 4-3
48	(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)	4.4.1, pg. 4-4	4.4.1, pg. 4-4
49	(Describe) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.	10633(e)	4.4.2, pg. 4-4	4.4.2, pg. 4-4
50	(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)	4.5, pg. 4-5	4.5, pg. 4-5
51	(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)	4.4.1, pg.4-4	4.4.1, pg.4-4
52	The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.	10634	5.1, 5.2,5.3,5.4, Table 5-1, 5-2, 5-3, pg. 5-1	5.1, 5.2,5.3,5.4,5.5,5.6 Table 5-1, 5-2, 5-3, pg. 5-1
53	Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)	6.4, 6.4.1, 6.4.2, 6.4.4, Table 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, pg. 6-3	6.4, 6.4.1, 6.4.2, 6.4.4, Table 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, pg. 6-3
54	The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.	10635(b)	1.3, Table 1-2, pg. 1-2, appndx B	1.3, Table 1-2, pg. 1-2, appndx B
55	Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642	1.3, Table 1-2, pg. 1-2, appndx B	1.3, Table 1-2, pg. 1-2, appndx B
56	Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned wate supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.	10642	1.3, Table 1-2, pg. 1-2, appndx B	1.3, Table 1-2, pg. 1-2, appndx B
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	10642	1.3, Table 1-2, pg. 1-2, appndx B	1.3, Table 1-2, pg. 1-2, appndx B
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	10643	1.3, pg. 1-2	1.3, pg. 1-2
59	An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.	10644(a)	1.3.2, pg. 1-5	1.3.2, pg. 1-5
60	Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.	10645	1.3.2, Table 1-2, pg. 1-5	1.3.2, Table 1-2, pg. 1-5

Appendix B

Signed Adoption Resolutions

BEFORE THE BOARD OF DIRECTORS

OF THE

KERN COUNTY WATER AGENCY

In the matter of:

ADOPTION OF URBAN *
WATER MANAGEMENT PLAN *

I, Lucinda J. Infante, Secretary of the Board of Directors of the Kern County Water Agency, of the County of Kern, State of California, do hereby certify that the following resolution proposed by Director Mathews, and seconded by Director Lundquist, was duly passed and adopted by said Board of Directors at an official meeting hereof this 25th day of May, 2011 by the following vote to-wit:

Ayes: Lundquist, Van Skike, Mathews, Page, Parker and Rogers

Noes: None

Absent: Radon

Lucinda J. Infante

Secretary of the Board of Directors
of the Kern County Water Agency

RESOLUTION No. 28-11

WHEREAS, Kennedy/Jenks Consultants was directed to prepare the Urban Water Management Plan update, on behalf of Improvement District No. 4 and North of the River Municipal Water District, and has advertised for and held a public hearing thereon, as prescribed by the Urban Water Management Planning Act (Water Code section 10610, *et seq.*); and

WHEREAS, Kennedy/Jenks Consultants has prepared an Urban Water Management Plan update for Improvement District No. 4 and North of the River Municipal Water District, a copy of which is on file with the Secretary; and

WHEREAS, a public hearing on the Agency's proposed Urban Water Management Plan was held at the Agency headquarters on May 25, 2011 at 12:00 p.m., at which time no objections were made or modifications suggested to the proposed plan; and

WHEREAS, the Board desires, after consideration of the plan and hearing thereon, to adopt staff's proposed Urban Water Management Plan update, without modifications, as the current plan of the Kern County Water Agency; and

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Kern County Water Agency that:

1. The proposed Urban Water Management Plan update prepared by Kennedy/Jenks Consultants is adopted as the Urban Water Management Plan for the Kern County Water Agency Improvement District No. 4 and North of the River Municipal Water District; and

2. The General Manager is directed to file the Agency's Urban Water Management Plan with the California Department of Water Resources within thirty (30) days of the date hereof.

RESOLUTION 2011-1

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE NORTH OF THE RIVER MUNICIPAL WATER DISTRICT ADOPTING AN URBAN WATER MANAGEMENT PLAN

The Board of Directors of the North of the River Municipal Water District hereby resolve as follows:

WHEREAS, The California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, The District is an urban supplier of water subject to this Act; and

WHEREAS, The Plan shall be periodically reviewed at least once every five years, and that the District shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, The Plan must be adopted by July 1, 2011, after public review and public hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, The District has therefore, prepared and circulated for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the District on June 15, 2011; and

WHEREAS, The District did prepare and shall file said Plan with the California Department of Water Resources within 30 days of adoption.

NOW, THEREFORE, BE IT RESOLVED by the **BOARD OF DIRECTORS** of the **NORTH OF THE RIVER MUNICIPAL WATER DISTRICT** as follows:

1. The 2010 Urban Water Management Plan is hereby adopted and ordered filed with the District Secretary. The General Manager is hereby authorized and directed to file the 2010 Urban Water Management Plan with the California Department of Water Resources within 30 days after this date.

2. The General Manager is hereby authorized and directed to implement the Water Conservation Programs as set forth in the 2010 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the District Board regarding necessary procedures, rules, and regulations to carry out effective and equitable water conservation programs.

3. In a water shortage, the District Board will, if warranted, declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implement necessary elements of the Plan.

4. The General Manager shall recommend to the Board as necessary, additional regulations and procedures to carry out effective and equitable allocation of water resources.

This Resolution was duly **PASSED** and **ADOPTED** by the **BOARD OF DIRECTORS** of the **NORTH OF THE RIVER MUNICIPAL WATER DISTRICT**, 4000 Rio Del Norte Street, Bakersfield, California at a regular meeting thereof held on the **15th** day of **June, 2011,** by the following vote, to wit:

AYES:	**DIRECTORS:**	**McClure, Esselman, Townsend, Wesson & Scoles**
NOES:	**None**	
ABSENT:	**None**	
ABSTAIN:	**None**	

REBECCA MCCLURE, PRESIDENT/BOARD OF DIRECTORS
NORTH OF THE RIVER MUNICIPAL WATER DISTRICT

I HEREBY CERTIFY that the above and foregoing resolution was passed and adopted by the **BOARD OF DIRECTORS** of the **NORTH OF THE RIVER MUNICIPAL WATER DISTRICT,** Kern County, California on the date and by the vote above stated.

DAVID ARANDA, SECRETARY/BOARD OF DIRECTORS
NORTH OF THE RIVER MUNICIPAL WATER DISTRICT

Appendix C

Public Outreach Materials

-ID4 Public Outreach Documents

-NORMWD Public Outreach Documents

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

September 22, 2009

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   August 25, 2009 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Photovoltaic Project
   b. Update on the Development of an Urban Water Management Plan

6. Recommendation to File the California Environmental Quality Act Notice of Intent to Adopt a Negative Declaration for the Improvement District No. 4 and Tehachapi-Cummings County Water District Water Management Program

7. Water Supply Report
   a. 2009 Year-to-Date Water Supply Report and Management Plan
   b. Report on Improvement District No. 4 Groundwater Levels

8. Henry C. Garnett Water Purification Plant Report

9. Update on the Treated Water Capacity Expansion Project

10. Recommendation to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

11. Recommendation to Increase the Expenditure Limit for the Engineering Design Consultant Contract for the North and East Treated Water Pump Station Project

12. Update on Kern Water Bank Activities

13. Update on Cross Valley Canal Activities

14. Recommendation for Closed Session Regarding:
    a. Conference with Real Property Negotiator (Government Code section 54956.8):
        i. Negotiator: Jim Beck
        Property: Nadine Lane and Airport Drive, Bakersfield, CA 93308; APN 116-110-01
        Parties: Richard S. Burton; Burton Revocable Living Trust
        Under Negotiation: Terms & Conditions

    b. Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. State of California Department of Water Resources; Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. Metropolitan Water District of Southern California, *et al.*

    c. Fully Appropriated Stream Status of the Kern River

15. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Kern County Water Agency in advance of the meeting to ensure availability of the requested service or accommodation.

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

October 20, 2009

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   August 25, 2009 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Photovoltaic Project
   b. Update on the Development of an Urban Water Management Plan

6. Water Supply Report
   a. 2009 Year-to-Date Water Supply Report and Management Plan
   b. 2010 Water Supply Management Plan

7. Henry C. Garnett Water Purification Plant Report

8. Update on the Treated Water Capacity Expansion Project

9. Recommendation to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

10. Henry C. Garnett Water Purification Plant Service Entrance Upgrade Project – Contract No. KCWA 2007-08

11. North and East Pump Station Project – Contract No. KCWA 2009-02

12. Update on Kern Water Bank Activities

13. Update on Cross Valley Canal Activities

14. Recommendation for Closed Session Regarding:
    a. Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. State of California Department of Water Resources; Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. Metropolitan Water District of Southern California, *et al.*

b. Fully Appropriated Stream Status of the Kern River

15. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Kern County Water Agency in advance of the meeting to ensure availability of the requested service or accommodation.

KERN COUNTY WATER AGENCY

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

Notice of
BOARD OF DIRECTORS MEETING

October 21, 2009

AGENDA

I. Call to order – 12:00 p.m.

II. Directors' Forum

III. Public Comment

Anyone may comment on any subject within Agency jurisdiction whether or not it is on the agenda. Time for such comment may be limited to five minutes.

IV. Minutes of Board Meetings and Committee Meetings –

Regular Board Meeting September 23, 2009

V. Report of the General Manager

VI. Report of the General Counsel

A. Authorization for Closed Session regarding:

1. Conference with Legal Counsel – Existing Litigation:
(Government Code section 54956.9, subdivision (a)):

a. California Water Impact Network v. Castaic Lake Water Agency, (KCWA *et al.*); Planning and Conservation League v. Castaic Lake Water Agency, (KCWA *et al.*) [Wheeler Ridge-Maricopa Water Storage District]

b. Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. State of California Department of Water Resources; Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. Metropolitan Water District of Southern California, *et al.*

c. Don Laub, *et al.* v. Joseph Graham (Gray) Davis, *et al.*; Regional Council of Rural Counties, *et al.* v. State of California, *et al.*, Department of Water Resources, *et al.* (KCWA *et al.*), San Joaquin River Group Authority, *et al.*

d. City of Los Angeles, *et al.* v. County of Kern, *et al.*

e. Fully Appropriated Stream Status of the Kern River

f. Contra Costa Water District, *et al.* v. Sacramento Regional County Sanitation District, *et al.*

g. Planning and Conservation League, *et al.* v. California Department of Water Resources

h. California Sportfishing Protection Alliance v. Central Valley Regional Water Quality Control Board

i. State Water Resources Control Board Protest to Application No. 29657 on the Sacramento River

j. County of Butte v. Department of Water Resources, *et al.*; Plumas County v. California Department of Water Resources, *et al.*

k. Kern County Water Agency v. California Fish and Game Commission, *et al.*; State Water Contractors v. California Fish and Game Commission, *et al.*

l. Solano County Water Agency, *et al.* v. State of California Department of Water Resources

m. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Fish & Wildlife Service, *et al.*

n. Central Delta Water Agency, *et al.* v. United States Fish & Wildlife Service, *et al.*; Central Delta Water Agency, *et al.* v. Department of Water Resources, *et al.*

o. Butte Environmental Council, *et al.* v. California Department of Water Resources, *et al.*

p. Kern County Water Agency v. California Department of Fish & Game, *et al.*

r. JCF Bridge & Concrete, Inc. v. Don Kelly Construction, Inc.; Kern County Water Agency

VII. Advisory Committee Reports

A. Cross Valley Canal Advisory Committee

B. Improvement District No. 3 Advisory Committee

C. Urban Bakersfield Advisory Committee

VIII. Board Committee Reports

The following items will be discussed in detail at the meeting and may result in appropriate action being taken relating to the subject matter (such action may or may not conform to any staff recommended action):

A. **ADMINISTRATIVE COMMITTEE** – Director Rogers, Chairman

1. Payment of the Bills
2. Financial Report
3. Treasury Report
4. Stuart T. Pyle Water Resources Center Facility Improvement Project
   a. Update on the Stuart T. Pyle Water Resources Center Facility Improvement Project
   b. Authorization to Increase the Expenditure Limit for the Hazardous Materials Consultant for the Stuart T. Pyle Water Resources Center Facilities Improvement Project
   c. Authorization to Purchase Appliances for the Stuart T. Pyle Water Resources Center Facilities Improvement Project
5. Authorization to Pay the Kern County Water Agency's Share of the Local Agency Formation Commission's Operating Expenses
6. Authorization to Participate in the Proposition 1A Securitization Program
7. Authorization to Cast a Ballot for the National Water Resources Association Board of Directors for the 2010-2011 Term
8. Appointment of an Acting Board Secretary

B. **WATER MANAGEMENT COMMITTEE** – Director Radon, Chairman

1. 2009 Water Operations
2. Review of the Emergency Action Regarding the Repair and Rehabilitation of Existing Wells on the Pioneer Project and Berrenda Mesa Project
3. Update on the Pioneer Facilities Construction Projects
4. Authorization to Execute Amendment No. 1 for the Engineering Design Services Consultant for the Improvement District No. 1 Levee Certification
5. Authorization to Issue the Notice to Invite Bids for the Section 4 Recharge Facility Earthwork Project – Contract No. KCWA 2009-09

6. Report on Kern Water Bank Activities

C. **CROSS VALLEY CANAL COMMITTEE** – Director Lundquist, Chairman

1. Report of the Cross Valley Canal Staff

   a Authorization to Purchase a Gradall Excavator for the Cross Valley Canal

   b. Authorization to Adopt the Refill/Dewater Assignment Policy for the Cross Valley Canal Reaches 1-3

2. Report on Operations and Deliveries

3. Cross Valley Canal Expansion Project

   a. Update on the Cross Valley Canal Expansion Project

   b. Authorization to Execute Change Orders for the Pumping Plants, Canal Liner Raising in Pools 2-6, Siphons, and Turnouts Project – Contract No. KCWA 2006-17

   c. Authorization to Increase the Expenditure Limit for the Concrete Consultant for the Cross Valley Canal Expansion Project

4. Friant-Kern Canal/Cross Valley Canal Intertie Project

   a. Update on the Friant-Kern Canal/Cross Valley Canal Intertie Project – Contract No. KCWA 2007-16

D. **URBAN BAKERSFIELD COMMITTEE** – Director Van Skike, Chairman

1. Improvement District No. 4 Accounting & Finance

   a. Payment of Bills

   b. Financial Report

2. Report of the Improvement District No. 4 Manager

   a. Update on the Improvement District No. 4 Solar Photovoltaic Project

   b. Update on the Development of an Urban Water Management Plan

3. Authorization to Execute the Notice of Award and Contract for the Repair and Rehabilitation of Improvement District No. 4 Recovery Wells in the 2800 Acre Recharge Facility – Contract No. KCWA 2009-07

4. Water Supply Report

   a. 2009 Year-to-Date Water Supply Report and Management Plan

   b. 2010 Water Supply Management Plan

5. Henry C. Garnett Water Purification Plant Report

6. Update on the Treated Water Capacity Expansion Project

7. Henry C. Garnett Water Purification Plant Expansion Project

   a. Authorization to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

8. Henry C. Garnett Water Purification Plant Electrical Service Entrance Upgrade Project

   a. Authorization to Execute the Amendment to the Agreement for the Engineering Design Services Consultant

   b. Authorization to Increase the Expenditure Limit for the Construction Administration Consultant

9. North and East Pump Station Project

   a. Authorization to Execute the Notice of Award and Contract for the North and East Pump Station Project – Contract No. KCWA 2009-02

   b. Authorization to Increase the Expenditure Limit for the Engineering Design Consultant Contract for the North and East Pump Station Project

IX. Correspondence

X. Brief Report on Potential New Business

XI. Adjournment

DECLARATION OF POSTING: I declare under penalty of perjury, that I am employed by the Kern County Water Agency and I posted the foregoing Agenda at the Agency Office on October 16, 2009.

Sarah E. Brogren, Acting Board Secretary

b. Financial Report

2. Report of the Improvement District No. 4 Manager

   a. Update on the Improvement District No. 4 Solar Photovoltaic Project

   b. Authorization to Approve 2010 Water Transfers, Exchanges and Purchases for Improvement District No. 4

   c. Review of the Kern Water Bank Authority Statement of Principles on Storage, Recovery and Recharge by Participants

3. Authorization to Retain a Consultant for the Preparation of an Urban Water Management Plan

4. Water Supply Report

   a. December 2009 Water Supply Report and Management Plan

   b. 2010 Water Supply Management Plan

5. Henry C. Garnett Water Purification Plant Report

6. Update on the Treated Water Capacity Expansion Project

7. Authorization to Issue the Notice to Invite Bids for the Removal of Precipitated Solids at the Henry C. Garnett Water Purification Plant

8. Authorization to Execute Change Orders for the Repair and Rehabilitation of Improvement District No. 4 Recovery Wells in the 2800 Acre Recharge Facility – Contract No. KCWA 2009-07

9. Henry C. Garnett Water Purification Plant Expansion Project

   a. Authorization to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. 2007-09

10. Authorization to Execute Change Orders for the North and East Pump Station Project – Contract No. KCWA 2009-02

X. Correspondence

XI. Brief Report on Potential New Business

XII. Adjournment

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

November 17, 2009

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   October 20, 2009 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Photovoltaic Project
   b. Update on the Development of an Urban Water Management Plan

6. Water Supply Report
   a. 2009 Year-to-Date Water Supply Report and Management Plan

7. Henry C. Garnett Water Purification Plant Report

8. Update on the Treated Water Capacity Expansion Project

9. Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09
   a. Recommendation to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project
   b. Recommendation to Increase the Expenditure Limit for the Supervisory Control and Data Acquisition Consultant for the Henry C. Garnett Water Purification Plant Expansion Project

10. Update on Kern Water Bank Activities
    a. Agenda and Staff Report
    b. Review of the Proposed Recovery Principles

11. Update on Cross Valley Canal Activities

12. Recommendation for Closed Session Regarding:
    a. Fully Appropriated Stream Status of the Kern River

13. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Kern County Water Agency in advance of the meeting to ensure availability of the requested service or accommodation.

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

SPECIAL MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

November 30, 2009

1. Call to Order – 1:30 p.m.
2. Purveyor Reports
3. Public Comment
4. Report of the Improvement District No. 4 Manager
5. Update on the Development of an Urban Water Management Plan for 2010
6. Adjourn

NOTICE: This meeting will be conducted partially by telephone conference. Telephone conference locations are as follows:

Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308

Brighthouse Networks
3701 North Sillect Avenue
Bakersfield, CA 93308

East Niles Community Services District
1417 Vale Street
Bakersfield, CA 93386

California Water Service Company
3725 South H Street
Bakersfield, CA 93304

Vaughn Water Company
10014 Glenn Street
Bakersfield, CA 93312

North of the River Municipal Water District
4000 Rio Del Norte Street
Bakersfield, CA 93308

Oildale Mutual Water Company
2836 McCray Street
Bakersfield, CA 93308

City of Bakersfield, Water Resources Department
1000 Buena Vista Road
Bakersfield, CA 93311

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Kern County Water Agency in advance of the meeting to ensure availability of the requested service or accommodation.

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

January 26, 2010

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   December 15, 2009 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Photovoltaic Project
   b. Consideration of an Increase to the Authority of the General Manager to Incur Obligations for Services and Supplies Related to Operations, Maintenance and Repairs Without Prior Approval from the Board of Directors
   c. Recommendation to Approve 2010 Water Transfers, Exchanges and Purchases for Improvement District No. 4

6. Recommendation to Retain a Consultant for the Preparation of an Urban Water Management Plan

7. Water Supply Report
   a. December 2009 Water Supply Report and Management Plan
   b. 2010 Water Supply Management Plan

8. Henry C. Garnett Water Purification Plant Report

9. Update on the Treated Water Capacity Expansion Project

10. Recommendation to Issue the Notice to Invite Bids for the Removal of Precipitated Solids at the Henry C. Garnett Water Purification Plant

11. Recommendation to Execute Change Orders for the Repair and Rehabilitation of Improvement District No. 4 Wells in the 2800 Acre Recharge Facility Project – Contract No. KCWA 2009-07

12. Recommendation to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

13. Recommendation to Execute Change Orders for the North and East Pump Station Project – Contract No. KCWA 2009-02

14. Update on Kern Water Bank Activities
    a. January 2010 Agenda and Status Report
    b. Review of the Kern Water Bank Authority Statement of Principles on Storage, Recovery and Recharge by Participants

15. Update on Cross Valley Canal Activities
    a. Recommendation to Execute a License Agreement with Pacific Pipeline Systems, LLC for Pipeline Relocation Crossings of the Cross Valley Canal Extension

16. Recommendation for Closed Session Regarding:
    a. Conference with Real Property Negotiator (Government Code section 54956.8):
        i. Negotiator: Jim Beck
        Property: Nadine Lane and Airport Drive, Bakersfield, CA 93308; APN 116-110-01
        Parties: Richard S. Burton
        Under Negotiation: Terms & Conditions

    b. Fully Appropriated Stream Status of the Kern River

17. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Urban Bakersfield Advisory Committee Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

September 21, 2010

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   August 18, 2010 – Special Meeting Minutes
   August 24, 2010 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Project
   b. Update on the Development of an Urban Water Management Plan
   c. Recommendation to Execute the Second Amendment to the Contract for Delta Habitat Conservation and Conveyance Program Costs

6. Recommendation to Purchase Property Adjacent to the Henry C. Garnett Water Purification Plant – APN 116-110-01

7. Water Supply Report
   a. Improvement District No. 4 2010 Year-to-Date Water Supply Report and Management Plan

8. Henry C. Garnett Water Purification Plant Report

9. Update on the Treated Water Capacity Expansion Project

10. Recommendation to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

11. Update on Kern Water Bank Activities

12. Update on Cross Valley Canal Activities

13. Recommendation for Closed Session Regarding:
    a. Conference with Real Property Negotiator (Government Code section 54956.8):
       i. Negotiator: Jim Beck
          Property: Nadine Lane and Airport Drive, Bakersfield, CA 93308; APN 116-110-01
          Parties: Richard S. Burton; Burton Revocable Living Trust
          Under Negotiation: Terms & Conditions

14. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Urban Bakersfield Advisory Committee Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

KERN COUNTY WATER AGENCY

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

Notice of
BOARD OF DIRECTORS MEETING

September 22, 2010

AGENDA

I. Call to order – 12:00 p.m.

II. Directors' Forum

III. Public Comment

Anyone may comment on any subject within the Agency's jurisdiction whether or not it is on the agenda. Time for such comment may be limited to five minutes.

IV. Minutes of Board Meetings and Committee Meetings –

Regular Board Meeting August 25, 2010

V. Report of the General Manager

VI. Report of the General Counsel

A. Authorization for Closed Session regarding:

1. Conference with Legal Counsel – Existing Litigation:
(Government Code section 54956.9, subdivision (a)):

a. Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. State of California Department of Water Resources; Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. Metropolitan Water District of Southern California, *et al.*

b. Don Laub, *et al.* v. Joseph Graham (Gray) Davis, *et al.*; Regional Council of Rural Counties, *et al.* v. State of California, *et al.*, Department of Water Resources, *et al.* (KCWA *et al.*), San Joaquin River Group Authority, *et al.*

c. City of Los Angeles, *et al.* v. County of Kern, *et al.*

d. Fully Appropriated Stream Status of the Kern River

e. Contra Costa Water District, *et al.* v. Sacramento Regional County Sanitation District, *et al.*

f. Planning and Conservation League, *et al.* v. California Department of Water Resources

g. California Sportfishing Protection Alliance v. Central Valley Regional Water Quality Control Board

h. State Water Resources Control Board Protest to Application No. 29657 on the Sacramento River

i. County of Butte v. Department of Water Resources, *et al.*; Plumas County v. California Department of Water Resources, *et al.*

j. Solano County Water Agency, *et al.* v. State of California Department of Water Resources

k. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Fish & Wildlife Service, *et al.*

l. Coalition for a Sustainable Delta & Kern County Water Agency v. Federal Emergency Management Agency, *et al.*

m. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Environmental Protection Agency, *et al.*

n. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Department of Transportation, *et al.*

o. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Maritime Administration, *et al.*

p. Butte Environmental Council, *et al.* v. California Department of Water Resources, *et al.*

q. Kern County Water Agency v. California Department of Fish & Game, *et al.*

r. Watershed Enforcers v. California Department of Water Resources, *et al.*; Watershed Enforcers v. California Department of Fish & Game, *et al.*

s. Rosedale-Rio Bravo Water Storage District v. Kern County Water Agency, *et al.*

t. Central Delta Water Agency, *et al.* v. California Department of Water Resources, *et al.*

u. Rosedale-Rio Bravo Water Storage District & Buena Vista Water Storage District v. California Department of Water Resources, *et al.*

v. North Kern Water Storage District, *et al.* v. State Water Resources Control Board, *et al.*

w. Center for Biological Diversity, *et al.* v. Kern County Water Agency, *et al.*

2. Conference with Legal Counsel – Anticipated Litigation: Significant exposure to litigation pursuant to subdivision (b) of section 54956.9:

a. Three potential suits

3. Conference with Real Property Negotiator (Government Code section 54956.8):

a. Negotiator: Jim Beck
Property: Nadine Lane and Airport Drive, Bakersfield, CA 93308; APN 116-110-01
Parties: Richard S. Burton; Burton Revocable Living Trust
Under Negotiation: Terms & Conditions

VII. Advisory Committee Reports

A. Cross Valley Canal Advisory Committee

B. Improvement District No. 3 Advisory Committee

C. Urban Bakersfield Advisory Committee

VIII. Board Committee Reports

The following items will be discussed in detail at the meeting and may result in appropriate action being taken relating to the subject matter (such action may or may not conform to any staff recommended action):

A. **<u>ADMINISTRATIVE COMMITTEE</u>** – <u>Director Parker, Chair</u>

1. Payment of the Bills

2. Financial Report

3. Treasury Report

4. Stuart T. Pyle Water Resources Center Facility Improvement Project

a. Update on the Stuart T. Pyle Water Resources Center Facility Improvement Project

5. Authorization to Execute the Second Addendum to the Lease Agreement for Storage Space

B. **WATER MANAGEMENT COMMITTEE** – Director Rogers, Chair

1. Report of the Engineering and Groundwater Services Manager
2. Update on the Pioneer Facilities Construction Projects
3. Update on the Section 4 Recharge Facility Project
4. Report on Kern Water Bank Activities

C. **CROSS VALLEY CANAL COMMITTEE** – Director Radon, Chair

1. Report of the Assistant Water Resources Manager
2. Report on Cross Valley Canal Operations and Deliveries
3. Update on the Cross Valley Canal Expansion Project

D. **URBAN BAKERSFIELD COMMITTEE** – Director Mathews, Chair

1. Improvement District No. 4 Accounting & Finance
   a. Payment of Bills
   b. Financial Report
2. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Project
   b. Update on the Development of the 2010 Urban Water Management Plan
   c. Authorization to Appoint a Representative to the Urban Bakersfield Advisory Committee
3. Authorization to Purchase Property Adjacent to the Henry C. Garnett Water Purification Plant – APN 116-110-01
4. Water Supply Report
   a. Improvement District No. 4 2010 Year-to-Date Water Supply Report and Management Plan
5. Henry C. Garnett Water Purification Plant Report
6. Update on the Treated Water Capacity Expansion Project
7. Authorization to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

IX. Correspondence

X. Brief Report on Potential New Business

XI. Adjournment

DECLARATION OF POSTING: I declare under penalty of perjury, that I am employed by the Kern County Water Agency and that I posted the foregoing Agenda at the Agency Office on September 17, 2010.

Sarah E. Brogren, Board Secretary

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

October 26, 2010

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   September 21, 2010 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Update on the Improvement District No. 4 Solar Project
   b. Update on the Revised Improvement District No. 4 Financial Plan
   c. Update on the Development of the 2010 Urban Water Management Plan

6. Recommendation to Execute the State Water Project Contractors Authority Municipal Water Quality Investigations Agreement

7. Water Supply Report
   a. Improvement District No. 4 2010 Year-to-Date Water Supply Report and Management Plan

8. Henry C. Garnett Water Purification Plant Report

9. Update on the Treated Water Capacity Expansion Project

10. Recommendation to Execute Change Orders for the Henry C. Garnett Water Purification Plant Expansion Project – Contract No. KCWA 2007-09

11. Recommendation to Execute Change Orders for the North and East Pump Station Project – Contract No. KCWA 2009-02

12. 23 Corner Tank Pump Station Project
    a. Recommendation to Issue the Notice of Award for the 23 Corner Tank Pump Station Project – Contract No. KCWA 2010-02
    b. Recommendation to Retain a Construction Administration Consultant for the 23 Corner Tank Pump Station Project – Contract No. KCWA 2010-02

13. Update on Kern Water Bank Activities

14. Update on Cross Valley Canal Activities

15. Recommendation for Closed Session Regarding:
    a. Conference with Legal Counsel – Existing Litigation:
    (Government Code section 54956.9, subdivision (a)):

        a. Rosedale-Rio Bravo Water Storage District, *et al.* v. Kern Water Bank Authority

    b. Conference with Real Property Negotiator (Government Code section 54956.8):
        i. Negotiator: Jim Beck
        Property: Nadine Lane and Airport Drive, Bakersfield, CA 93308; APN 116-110-01
        Parties: Richard S. Burton; Burton Revocable Living Trust
        Under Negotiation: Terms & Conditions

15. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Urban Bakersfield Advisory Committee Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

Kern County Water Agency
Urban Bakersfield Advisory Committee
P. O. Box 58, Bakersfield, CA 93302-0058
661.634.1400

MEETING NOTICE & AGENDA

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

March 22, 2011

1. Call to Order – 1:30 p.m.

2. Purveyor Reports

3. Public Comment

4. Approval of Urban Bakersfield Advisory Committee Meeting Minutes
   February 22, 2011 – Regular Meeting Minutes

5. Report of the Improvement District No. 4 Manager
   a. Improvement District No. 4 Financial Report
   b. Update on the Improvement District No. 4 Solar Project
   c. Recommendation to Execute a Contract for a Polyurethane Roofing System at the Henry C. Garnett Water Purification Plant
   d. Recommendation to Ratify a Water Exchange with Semitropic Water Storage District

6. Recommendation to Publish the Notice of Public Hearing for the 2010 Urban Water Management Plan

7. Recommendation to Set Groundwater Charges Within Improvement District No. 4 for Fiscal Year 2011-12

8. 2011 Water Supply Report and Management Plan

9. Henry C. Garnett Water Purification Plant Report
   a. Recommendation to Request Bids for Chemicals Used in Water Treatment Process

10. Treated Water Capacity Expansion Project
    a. Update on the Treated Water Capacity Expansion Project
    b. Review of the Treated Water Capacity Expansion Project Costs

11. Update on Kern Water Bank Activities

12. Update on Cross Valley Canal Activities

13. Recommendation for Closed Session Regarding:
    a. Conference with Legal Counsel – Anticipated Litigation: Significant exposure to litigation pursuant to subdivision (b) of section 54956.9:

        a. One potential suit

14. Adjourn

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Urban Bakersfield Advisory Committee Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

KERN COUNTY WATER AGENCY

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California

Notice of
BOARD OF DIRECTORS MEETING

March 23, 2011

AGENDA

I. Call to order – 12:00 p.m.

II. Directors' Forum

III. Public Comment

Anyone may comment on any subject within Agency jurisdiction whether or not it is on the agenda. Time for such comment may be limited to five minutes.

IV. Minutes of Board Meetings and Committee Meetings –

Special Board Meeting February 11, 2011

V. Report of the General Manager

VI. Report of the General Counsel

A. Authorization for Closed Session regarding:

1. Conference with Legal Counsel – Existing Litigation:
(Government Code section 54956.9, subdivision (a)):

a. Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. State of California Department of Water Resources; Alameda County Flood Control & Water Conservation District Zone 7, *et al.* v. Metropolitan Water District of Southern California, *et al.*

b. Fully Appropriated Stream Status of the Kern River

c. Contra Costa Water District, *et al.* v. Sacramento Regional County Sanitation District, *et al.*

d. County of Butte v. Department of Water Resources, *et al.*; Plumas County v. California Department of Water Resources, *et al.*

e. Solano County Water Agency, *et al.* v. State of California Department of Water Resources

f. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Fish & Wildlife Service, *et al.*

g. Coalition for a Sustainable Delta & Kern County Water Agency v. Federal Emergency Management Agency, *et al.*

h. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Environmental Protection Agency, *et al.*

i. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Department of Transportation, *et al.*

j. Coalition for a Sustainable Delta & Kern County Water Agency v. United States Maritime Administration, *et al.*

k. Butte Environmental Council, *et al.* v. California Department of Water Resources, *et al.*

l. Rosedale-Rio Bravo Water Storage District v. Kern County Water Agency, *et al.*

m. Central Delta Water Agency, *et al.* v. California Department of Water Resources, *et al.*

n. Rosedale-Rio Bravo Water Storage District & Buena Vista Water Storage District v. California Department of Water Resources, *et al.*

o. North Kern Water Storage District, *et al.* v. State Water Resources Control Board, *et al.*

p. Center for Biological Diversity, *et al.* v. Kern County Water Agency, *et al.*

q. Rosedale-Rio Bravo Water Storage District, *et al.* v. Kern Water Bank Authority

r. Kern County Water Agency v. California Fish and Game Commission, *et al.*; State Water Contractors v. California Fish and Game Commission, *et al.*

s. Watershed Enforcers v. California Department of Water Resources, *et al.*; Watershed Enforcers v. California Department of Fish & Game, *et al.*

2. Conference with Legal Counsel – Anticipated Litigation: Significant exposure to litigation pursuant to subdivision (b) of section 54956.9:

a. 14 potential suits

VII. Advisory Committee Reports

A. Cross Valley Canal Advisory Committee

B. Improvement District No. 3 Advisory Committee

C. Urban Bakersfield Advisory Committee

VIII. Board Committee Reports

The following items will be discussed in detail at the meeting and may result in appropriate action being taken relating to the subject matter (such action may or may not conform to any staff recommended action):

A. **ADMINISTRATIVE COMMITTEE** – Director Parker, Chair

1. Payment of the Bills

2. Financial Report

3. Treasury Report

4. Authorization to Publish a Notice of Public Hearing for the Fiscal Year 2011-12 Budget

5. Consideration of Concurring Nominations for the Association of California Water Agencies Joint Powers Insurance Authority Executive Committee

6. Authorization to Cast a Ballot for a California Farm Water Coalition Board of Directors Representative

B. **WATER MANAGEMENT COMMITTEE** – Director Rogers, Chair

1. Report of the Engineering and Groundwater Services Manager

2. 2011 Water Operations

3. Improvement District No. 1 Update

   a. Authorization to Execute the Notice of Award for the Improvement District No. 1 Levee Restoration Project – Contract No. KCWA 2011-01

   b. Authorization to Retain a Geotechnical Services Consultant for the Improvement District No. 1 Levee Restoration Project – Contract No. KCWA 2011-01

   c. Authorization to Retain an Archaeological Services Consultant for the Improvement District No. 1 Levee Restoration Project – Contract No. KCWA 2011-01

4. Report on Kern Water Bank Activities

C. **CROSS VALLEY CANAL COMMITTEE** – Director Lundquist, Chair

1. Report of the Assistant Water Resources Manager

   a. Authorization to Execute the Buena Vista Water Storage District Encroachment Permit

2. Report on Cross Valley Canal Operations and Deliveries

D. **URBAN BAKERSFIELD COMMITTEE** – Director Mathews, Chair

1. Improvement District No. 4 Accounting & Finance

   a. Payment of Bills

   b. Financial Report

2. Report of the Improvement District No. 4 Manager

   a. Update on the Improvement District No. 4 Solar Photovoltaic Project

   b. Authorization to Execute a Contract for a Polyurethane Roofing System at the Henry C. Garnett Water Purification Plant

3. Authorization to Publish the Notice of Public Hearing for the 2010 Urban Water Management Plan

4. Authorization to Set Groundwater Charges Within Improvement District No. 4 for Fiscal Year 2011-12

5. Improvement District No. 4 Water Supply Report and Management Plan

6. Henry C. Garnett Water Purification Plant Report

   a. Authorization to Request Bids for Chemicals Used in the Water Treatment Process

7. Update on the Treated Water Capacity Expansion Project

IX. Correspondence

X. Brief Report on Potential New Business

XI. Adjournment

DECLARATION OF POSTING: I declare under penalty of perjury, that I am employed by the Kern County Water Agency and that I posted the foregoing Agenda at the Agency Office on March 18, 2011.

Lucinda J. Infante

Lucinda J. Infante, Board Secretary

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

Directors:

Ted R. Page
Division 1

Terry Rogers
Vice President
Division 2

Randell Parker
Division 3

Michael Radon
President
Division 4

Adrienne J. Mathews
Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Jim Eggert, Planning Director
City of Bakersfield
1600 Truxtun Avenue
Bakersfield, CA 93301

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Eggert:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Directors:

Ted R. Page
Division 1

Terry Rogers
Vice President
Division 2

Randell Parker
Division 3

Michael Radon
President
Division 4

Adrienne J. Mathews
Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Lorelei H. Oviatt, Director
Public Service Building
2700 M Street, Suite 100
Bakersfield, CA 93301

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Ms. Oviatt:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Directors:

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Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Lou Patterson
Brighthouse Networks
3701 North Sillect Avenue
Bakersfield, CA 93308

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Ms. Patterson:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Directors:

Ted R. Page
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William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Jason Meadors
City of Bakersfield, Water Resources Department
1000 Buena Vista Road
Bakersfield, CA 93311

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Meadors:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

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3200 Rio Mirada Dr.
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Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Maurice Randall
City of Bakersfield, Water Resources Department
1000 Buena Vista Road
Bakersfield, CA 93311

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Randall:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
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Directors:

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William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Tim Treloar
California Water Service Company
3725 South H Street
Bakersfield, CA 93304

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Treloar:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
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Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Tim Ruiz
East Niles Community Services District
1417 Vale Street
Bakersfield, CA 93306

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Ruiz:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

David Beard
Improvement District No. 4 Manager
Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308
Phone: (661) 634-1400
Fax: (661) 634-1428
Email: dbeard@kcwa.com

Sincerely,

David R. Beard
Improvement District No. 4 Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Directors:

Ted R. Page
Division 1

Terry Rogers
Vice President
Division 2

Randell Parker
Division 3

Michael Radon
President
Division 4

Adrienne J. Mathews
Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

David Aranda
North of the River Municipal Water District
4000 Rio Del Norte
Bakersfield, CA 93308

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Aranda:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

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Sincerely,

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James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Doug Nunneley
Oildale Mutual Water Company
2836 McCray Street
Bakersfield, CA 93308

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Nunneley:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

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James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

April 26, 2011

Van Grayer
Vaughn Water Company
10014 Glenn Street
Bakersfield, CA 93312

RE: 2010 Urban Water Management Plan Draft Document Availability

Dear Mr. Grayer:

Improvement District No. 4 of the Kern County Water Agency (Agency) and North of the River Municipal Water District have prepared a cooperative 2010 Urban Water Management Plan (UWMP). A copy of the draft 2010 UWMP is enclosed for review. The deadline for the public to submit comments on the UWMP draft document is 5:00 p.m. on May 18, 2011. Comments may be submitted by hand delivery, U.S. mail, email or fax using the contact information listed below.

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20.1.1-Agency-Actions-Proof of Public.

PROOF OF PUBLICATION

The BAKERSFIELD CALIFORNIAN
P. O. BOX 440
BAKERSFIELD, CA 93302

KERN COUNTY WATER AGENCY
3200 RIO MIRADA DR
BAKERSFIELD, CA 93308

Ad Number:	12349086	**PO #:**	34277
Edition:	TBC	**Run Times**	2
Class Code	Legal Notices		
Start Date	5/4/2011	**Stop Date**	5/11/2011
Billing Lines	25	**Inches**	150.95
Total Cost	$ 271.50	**Account**	1KCO85
Billing Address	KERN COUNTY WATER AGENCY 3200 RIO MIRADA DR BAKERSFIELD,CA 93308		

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STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER
AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT: 5/4/11
5/11/11

ALL IN YEAR 2011

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Jessi Brice

DATED AT BAKERSFIELD CALIFORNIA

5/11/11

Solicitor I.D.: 0

First Text
NOTICE OF PUBLIC HEARINGURBAN WATER MA

Ad Number 12349086

NOTICE OF PUBLIC HEARING
URBAN WATER MANAGEMENT PLANNING ACT
CALIFORNIA WATER CODE SECTION 10610, et seq.

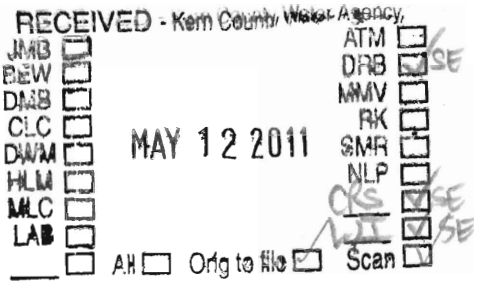
All California water suppliers having at least 3,000 urban service connections or providing at least 3,000 acre-feet of urban water supply per year are required to file an Urban Water Management Plan every five years, in years ending in a "5" or a "0". Pursuant to the terms of the Urban Water Management Planning Act, a public hearing will be held to hear issues regarding urban water supply planning within Improvement District No. 4 of the Kern County Water Agency. Please note that the Urban Water Management Planning Act does not pertain to water quality issues and this hearing will not address such issues. The Kern County Water Agency will present its 2010 Urban Water Management Plan on behalf of Improvement District No. 4 and North of the River Municipal Water District at the time and place listed below.

The hearing will be held Wednesday, May 25, 2011 at 12:00 p.m. at the following location:

Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308

/s/Lucinda J. Infante
Secretary of the Board of Directors
of the Kern County Water Agency

May 4, 11, 2011 (12349086)



PROOF OF PUBLICATION

The BAKERSFIELD CALIFORNIAN
P. O. BOX 440
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KERN COUNTY WATER AGENCY
3200 RIO MIRADA DR
BAKERSFIELD, CA 93308

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5/11/11

ALL IN YEAR 2011

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Terri Brice

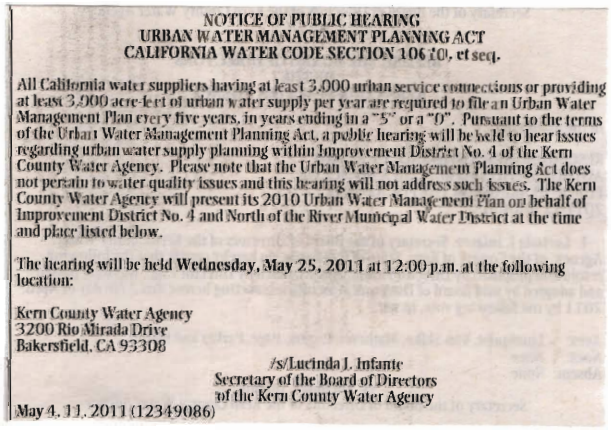
DATED AT BAKERSFIELD, CALIFORNIA

5/11/11

Solicitor I.D.: 0

First Text
NOTICE OF PUBLIC HEARINGURBAN WATER MA

Ad Number 12349086



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URBAN WATER MANAGEMENT PLANNING ACT
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/s/Lucinda J. Infante
Secretary of the Board of Directors
of the Kern County Water Agency

May 4, 11, 2011 (12349086)

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Division 1

Terry Rogers
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Randell Parker
Division 3

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Vice President
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Division 5

William W. Van Skike
Division 6

Gene A. Lundquist
President
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

January 18, 2011

Mr. Tim Treloar, District Manager
California Water Service Company
3725 South H Street
Bakersfield, CA 93304-6538

Re: 2010 Urban Water Management Plan Update

Dear Mr. Treloar:

Allocation of Improvement District No. 4 (ID4) recharge was discussed at an Urban Bakersfield Advisory Committee special meeting on October 19, 2010. Kern County Water Agency (Agency) staff discussed a methodology by which water supplies controlled and spread for groundwater aquifer recharge by ID4 would be allocated among drinking water retailers with service areas within ID4 boundaries. Enclosed is a table showing allocated recharge totals for each retailer in five year increments from 2010 through 2035. Districts who count ID4 recharge as a water supply should incorporate their respective total into their 2010 Urban Water Management Plan (UWMP) update. Districts claiming a different total of ID4 recharge than what is provided here will receive a comment from the Agency on that portion of their UWMP update.

An analysis of ID4 Demand Management Measures (DMM) is included in its 2010 UWMP update. Assembly Bill (AB) 1420 requires this analysis in order to be eligible for grant funding from the State of California. Please note that any future ID4 grant application for State funding will be reviewed to confirm that all potential beneficiaries have completed a similar DMM analysis pursuant to AB 1420. Districts that forego this analysis as part of their 2010 UWMP update will be at risk of not receiving any benefits from successful ID4 grant applications.

Please contact David Beard of my staff at (661) 634-1493 if you have any questions.

Sincerely,

James M. Beck
General Manager

Enclosure

(661) 634-1400

Mailing Address
P.O. Box 58
Bakersfield, CA 93302-0058

Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Allocation of Improvement District No. 4 Recharge

Retailer	Recharge Allocation Percentage	2010	2015	2020	2025	2030	2035
California Water Service Co.	50.9%	17,570	4,856	5,034	5,128	5,255	5,395
Casa Loma WC	0.2%	77	21	22	22	23	24
City of Bakersfield	31.6%	10,921	3,018	3,129	3,187	3,267	3,354
East Niles CSD	3.5%	1,206	333	345	352	361	370
North of the River MWD (retail service area)	1.0%	355	98	102	104	106	109
North of the River MWD (wholesale service area)	3.9%	1,338	370	383	390	400	411
Oildale MWC	0.7%	238	66	68	69	71	73
Stockdale Annex MWC	0.2%	70	19	20	20	21	21
Stockdale MWC	0.2%	74	20	21	22	22	23
Vaughn WC	5.0%	1,709	472	490	499	511	525
Non Service Area	2.8%	963	266	276	281	288	296
Total	100.0%	34,520	9,540	9,890	10,075	10,325	10,600

*Units are acre-feet of water spread for groundwater aquifer recharge

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Vice Presidenr
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William W. Van Skike
Division 6

Gene A. Lundquist
Presidenr
Division 7

James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

January 18, 2011

Mr. Art Chianello, Water Resources Manager
City of Bakersfield
Water Resources Department
1000 Buena Vista Road
Bakersfield, CA 93311

Re: 2010 Urban Water Management Plan Update

Dear Mr. Chianello:

Allocation of Improvement District No. 4 (ID4) recharge was discussed at an Urban Bakersfield Advisory Committee special meeting on October 19, 2010. Kern County Water Agency (Agency) staff discussed a methodology by which water supplies controlled and spread for groundwater aquifer recharge by ID4 would be allocated among drinking water retailers with service areas within ID4 boundaries. Enclosed is a table showing allocated recharge totals for each retailer in five year increments from 2010 through 2035. Districts who count ID4 recharge as a water supply should incorporate their respective total into their 2010 Urban Water Management Plan (UWMP) update. Districts claiming a different total of ID4 recharge than what is provided here will receive a comment from the Agency on that portion of their UWMP update.

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Please contact David Beard of my staff at (661) 634-1493 if you have any questions.

Sincerely,

James M. Beck
General Manager

Enclosure

(661) 634-1400

Mailing Address
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Street Address
3200 Rio Mirada Dr.
Bakersfield, CA 93308

Allocation of Improvement District No. 4 Recharge

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Oildale MWC	0.7%	238	66	68	69	71	73
Stockdale Annex MWC	0.2%	70	19	20	20	21	21
Stockdale MWC	0.2%	74	20	21	22	22	23
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James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

January 18, 2011

Mr. Tim Ruiz, General Manager
East Niles Community Services District
P.O. Box 6038
Bakersfield, CA 93386

Re: 2010 Urban Water Management Plan Update

Dear Mr. Ruiz:

Allocation of Improvement District No. 4 (ID4) recharge was discussed at an Urban Bakersfield Advisory Committee special meeting on October 19, 2010. Kern County Water Agency (Agency) staff discussed a methodology by which water supplies controlled and spread for groundwater aquifer recharge by ID4 would be allocated among drinking water retailers with service areas within ID4 boundaries. Enclosed is a table showing allocated recharge totals for each retailer in five year increments from 2010 through 2035. Districts who count ID4 recharge as a water supply should incorporate their respective total into their 2010 Urban Water Management Plan (UWMP) update. Districts claiming a different total of ID4 recharge than what is provided here will receive a comment from the Agency on that portion of their UWMP update.

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Gene A. Lundquist
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James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

January 18, 2011

Mr. David Aranda, General Manager
North of the River Municipal Water District
4000 Rio Del Norte Street
Bakersfield, CA 93308

Re: 2010 Urban Water Management Plan Update

Dear Mr. Aranda:

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James M. Beck
General Manager

Amelia T. Minaberrigarai
General Counsel

February 14, 2011

Van Grayer
Vaughn Water Company
10014 Glenn Street
Bakersfield, CA 93312

Re: 2010 Urban Water Management Plan Update

Dear Mr. Grayer:

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Bakersfield, CA 93308

Notice of Public Hearing

The North of the River Municipal Water District (District) will be holding a public hearing for the consideration of public testimony regarding the District's draft of the 2010 Urban Water Management Plan. Copies of this draft plan may be obtained from the District upon request. Any persons desiring to make comments upon said draft plan are encouraged to come to the hearing and testify. Written comments may also be sent to the District's address at 4000 Rio del Norte Street, Oildale, CA, 93308. In order to be properly considered, all written comments should be received by the date and time of the hearing. The hearing will take place at the office of the District at 4:30 pm, Wednesday, June 15, 2011. Signed: David Aranda, Secretary/Board of Directors for North of the River Municipal Water District.

Published: 5/23 & 5/30 2011

PROOF OF PUBLICATION

REC'D JUN - 2 2011

The BAKERSFIELD CALIFORNIAN
P. O. BOX 440
BAKERSFIELD, CA 93302

NOF Municipal Water District
4000 Rio del Norte Street
BAKERSFIELD, CA 93308

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STATE OF CALIFORNIA
COUNTY OF KERN

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY TO OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER
AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT: 5/23/11
5/30/11

ALL IN YEAR 2011

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Terri Brice

DATED AT BAKERSFIELD CALIFORNIA
5/30/11

Solicitor I.D.: 0

First Text
NOTICE OF PUBLIC HEARINGThe North of the

Ad Number 12351497

NOTICE OF PUBLIC HEARING

The North of the River Municipal Water District (District) will be holding a public hearing for the consideration of public testimony regarding the District's draft of the 2010 Urban Water Management Plan. Copies of this draft plan may be obtained from the District upon request. Any persons desiring to make comments upon said draft plan are encouraged to come to the hearing and testify. Written comments may also be sent to the District's address at 4000 Rio del Norte Street, Oildale, CA, 93308. In order to be properly considered, all written comments should be received by the date and time of the hearing. The hearing will take place at the office of the District at 4:30 pm, Wednesday, June 15, 2011. Signed: David Aranda, Secretary/Board of Directors for North of the River Municipal Water District. May 23, 30, 2011 (12351497)

North of the River Municipal Water District

4000 Rio Del Norte Street • Oildale, CA 93308 • Office (661) 393-5411 • FAX (661) 399-8911

March 25, 2011

COPY

Lorelei H. Oviatt, Director
County of Kern Planning & Community Development Department
Public Service Building
2700 "M" St. #100
Bakersfield, CA 93301

Dear Ms. Oviatt:

I hope you are doing well. I am now at North of the River Municipal Water District. I know you received a letter from the Kern County Water Agency in regard to the adoption of the 2010 Urban Water Management Plan but I wanted to send you notice in regard to this plan and what the North of the River Municipal Water District will be doing.

Based on the fact that the adoption of the 2010 UWMP is required under the Urban Water Management Planning Act (Act) by July 1, 2011, the North of the River Municipal Water District will be holding a public hearing on Wednesday June 15, 2011 at 4:30 p.m. at the address noted above. The plan should be adopted immediately following the public hearing.

The North of the River Municipal Water District is providing you with this notice on our behalf, pursuant to California Water Code Section 1062(b) of the Act, which requires an Urban Water Supplier to notify any city or county within which it provides water that it is reviewing the plan and considering changes to the plan. Since KCWA will be sending you a draft of the plan for public review, NORMWD will not be sending you a copy, unless you specifically would like a copy of the plan from NORMWD.

Should you have any questions, you are welcome to call me at the number listed above.

Sincerely,

David Aranda, SDA
General Manager

North of the River Municipal Water District

4000 Rio Del Norte Street • Oildale, CA 93308 • Office (661) 393-5411 • FAX (661) 399-8911

March 25, 2011

COPY

Doug Nunneley, General Manager
Oildale Mutual Water Company
P.O. Box 5638
Oildale, CA 93388

RE: 2010 Urban Water Management Plan: Notice of Public Hearing

Dear Doug:

As you are aware, the District along with ID#4 is in the process of preparing and adopting the 2010 Urban Water Management Plan as required under the Urban Water Management Planning Act (Act). The plan must be adopted by July 1, 2011.

The North of the River Municipal Water District is providing you with this notice on NORMWD's behalf, pursuant to California Water Code section 10621 (b) of the Act, which required an Urban Water Supplier to notify any agency within which it provides water that it is reviewing its plan and considering changes to the plan. I will provide you with a draft of the plan in the near future.

The Act also requires that an Urban Water Supplier hold one public hearing before adopting a plan to ensure sufficient opportunity for public feedback and input concerning the UWMP. NORMWD will hold a public hearing on Wednesday June 15, 2011 at 4:30 p.m. at the address listed above.

If you have any questions, please contact me.

Sincerely,

David Aranda, SDA
General Manager

North of the River Municipal Water District
4000 Rio Del Norte Street · Oildale, CA 93308-1024 · Office (661) 393-5411 · Fax (661) 399-8911

Quality On Tap

WATER BILL

ACCOUNT NUMBER	SERVICE ADDRESS			BILLING DATE	DUE DATE
03-2770-2	CLEAR FALLS COURT			4/30/11	5/10/11
METER READINGS PRIOR	PRESENT	USAGE THIS MONTH	GAL PER DAY	SERVICE FROM	SERVICE TO
4116	4131	15	416	3/29/11	4/25/11
		USAGE LAST YEAR	GAL PER DAY		
1 UNIT = 748 GALLONS		5	117		

PLEASE MAKE CHECK PAYABLE T
N.O.R.M.W.D.

Pay online at www.normwd.org

WATER CHARGE	36.15

16% OF WATER BILL TAKEN BY STATE

BALANCE DUE: 36.15 ACH 05/16/11

2010 URBAN WATER MANAGE-MENT PLAN IS AVAILABLE FOR PUBLIC REVIEW WITH A PUBLIC HEARING SCHEDULED 6.15.11 @ 4:30pm AT THE NORMWD DISTRICT OFFICE

10 % LATE PENALTY WILL BE CHARGED IF PAYMENT IS NOT RECEIVED BY THE 25TH OF THE MONTH.

Appendix D

Recent Factors Affecting SWP Supply

APPENDIX D
RECENT FACTORS AFFECTING SWP SUPPLIES

Since the last round of Urban Water Management Plans (UWMPs) were prepared in 2005, the California Department of Water Resources (DWR) has twice updated its State Water Project (SWP) Delivery Reliability Report. In each of its updates, DWR has projected further reductions in average SWP water deliveries than were projected in 2005. The 2009 Report is the most recent update, and identifies several emerging factors that have the potential to affect the availability and reliability of SWP supplies. Although the 2009 Report presents an extremely conservative projection of SWP delivery reliability, particularly in light of events occurring since its release, it remains the best available information concerning the SWP. Following is information and a brief summary of several factors identified in the 2009 Report having the potential to affect the availability and reliability of SWP supplies.

New U.S. Fish and Wildlife Service Biological Opinion for Delta Smelt and Related Litigation Matters

SWP operations have been challenged in connection with potential impacts to the Delta smelt, a small fish that resides only in the Delta and is protected under CESA and the ESA. In February 2005, the United States Fish and Wildlife Service (FWS) issued a "no jeopardy" determination and biological opinion (B.O.) analyzing potential impacts to the Delta smelt in connection with the long-term coordinated operations of the California State Water Project (SWP) and the federal Central Valley Project (CVP) through the year 2030. The project/action evaluated in the B.O., formally known as the "Operations Criteria and Plan" (or OCAP), includes existing pumping operations, proposals to increase SWP pumping over the next 30-year period, and other proposed long-term operational changes. In February 2005, several environmental groups filed suit in federal court against FWS and the Secretary of the Interior challenging the validity of the B.O. (*Natural Resources Defense Council v. Kempthorne*, USDC Case No. 05-CV-1207-OWW.)

In May 2007, the Federal District Court for the Eastern District of California determined that the B.O. violated the requirements of the ESA. In order that the SWP and CVP could continue to operate, the court established interim operating requirements for the Projects that would remain in place until a new B.O. was completed (the Interim Remedies)(December 14, 2007). The Interim Remedies were based on various factors occurring in the Delta, such as prevailing hydrologic and flow conditions, and the distribution and spawning status of Delta smelt. For the 2007-2008 water year, the Interim Remedies were reported to have reduced SWP supplies by approximately 500,000 acre-feet.

On December 15, 2008, FWS issued its new B.O. The B.O. concludes that the proposed long-term coordinated CVP and SWP operations will "jeopardize" the Delta smelt and "adversely modify" its critical habitat according to ESA standards. Pursuant to the ESA, because the B.O. is a "jeopardy" opinion, FWS was required to formulate and adopt as part of the B.O. a "Reasonable and Prudent Alternative" (RPA) to the proposed action that FWS believes will not cause jeopardy to the Delta smelt or adversely modify or destroy its critical habitat, and which can be implemented by Reclamation and DWR. (16 U.S.C. § 1536(b)(3)(A).) The RPA adopted as part of the B.O. imposed various new operating restrictions upon the CVP and SWP and has the potential to result in substantial water supply reductions from the Projects.

Soon after the B.O. was issued, DWR published information estimating that in comparison to the level of SWP exports from the Delta previously authorized under State Water

Resources Control Board (State Board) Decision 1641 (D-1641),[1] the FWS B.O. could reduce those deliveries by 18 to 29 percent during average and dry conditions, respectively. As with the Interim Remedies, potential water supply restrictions under the new B.O. are dependent on highly variable factors such as hydrologic conditions affecting Delta water supplies, flow conditions in the Delta, migratory and reproductive patterns of Delta smelt, and numerous other non-Project factors that impact the health and abundance of Delta smelt and its critical habitat.

Due to a number of alleged scientific and other deficiencies in the new FWS B.O., in early 2009 the State Water Contractors, the San Luis and Delta-Mendota Water Authority and several individual State and Federal contractor water agencies filed legal challenges against the B.O., which were consolidated in the Federal District Court for the Eastern District of California. (*The Consolidated Delta Smelt Cases*, Lead Case No. 1:09-CV-00407-OWW-GSA.) Early on in the proceedings, several of the plaintiff water agencies and the federal defendants filed cross-motions for summary judgment to determine whether a violation of the National Environmental Policy Act (NEPA) occurred in connection with federal defendants' adoption and implementation of the NMFS B.O. and its RPA. In a Memorandum Decision issued in November 2009, the court ruled that the moving plaintiffs were entitled to summary judgment on their claim that the federal defendants violated NEPA by failing to perform any NEPA analysis prior to adopting and implementing the new FWS B.O. and its RPA. (*The Consolidated Delta Smelt Cases*, Doc. No. 399 at 46-47.)

Separately, several of the plaintiffs filed a motion for preliminary injunction against the implementation of Component 2 (Action 3) of the RPA that proposed to restrict Delta exports during a particular timeframe in spring and summer months, depending on certain biological and environmental parameters. In May 2010, the court issued its Findings of Fact and Conclusions of Law Regarding Plaintiffs' Request for Preliminary Injunction Against Implementation of RPA Component 2 (a/k/a Action 3). In that decision, the court reconfirmed its earlier ruling that the federal defendants failed to examine the potential environmental and human consequences of the RPA actions adopted under the B.O. in violation of NEPA. (*Consolidated Delta Smelt Cases*, Doc. No. 704 at 120-122.) The court also ruled that the plaintiffs were likely to prevail on their claims that FWS violated the ESA and the federal Administrative Procedure Act (APA) in formulating and adopting RPA Component 2 without support of the best available science and without adequate explanation regarding its biological benefit to Delta smelt. (*Id.* at 123-125.)

In the meantime, the parties also filed cross motions for summary judgment to obtain a final ruling in the cases. Those motions were argued in early July 2010. In December 2010, the court issued a memorandum decision that invalidated the B.O. and RPA in several respects and remanded the matter to FWS. Further proceedings are expected to address interim operations of the SWP and CVP.

Because Delta smelt are also protected under the California ESA, the SWP and CVP are required to obtain take authorization from the California Department of Fish and Game (DFG). In July 2009, DFG issued a "consistency determination" pursuant to Fish and Game Code section 2080.1. That determination provides that operations of the SWP and CVP are in compliance with CESA so long as those operations occur in accordance with the FWS Delta smelt B.O. and RPA. Because the consistency determination posed a risk that the SWP could remain bound to the terms of the RPA even if the FWS B.O. was eventually overturned by a

[1] See additional discussion below regarding SWP exports as authorized under D-1641.

federal court, DFG's decision was challenged in state court by the State Water Contractors and the Kern County Water Agency. (*State Water Contractors v. California Department of Fish and Game, et al.*, Kern County Superior Court Case No. S-1500-CV-268074[2]; *Kern County Water Agency v. Department of Fish and Game, et al.*, Sacramento County Superior Court Case No. 34-2010-80000450.) The challenges assert, among other things, that DFG's consistency determination is invalid because it relies upon and seeks to enforce restrictions established under the new FWS B.O. that are alleged under *The Consolidated Delta Smelt Cases* to be invalid and unenforceable. The case is currently stayed by stipulation of the parties, pending the outcome of *The Consolidated Delta Smelt Cases*.

These litigation matters challenging the validity of the FWS B.O. and the DFG consistency determination give rise to the possibility that the restrictions on SWP exports could be relaxed and that SWP exports may return to the levels allowed by the Interim Remedies (above) or State Board Decision D-1641[3] pending issuance of a new B.O. and/or the implementation of the Bay-Delta Conservation Plan (BDCP). As an additional factor, by letter dated May 3, 2010, the federal Secretaries of the Department of Interior and the Department of Commerce have announced a joint initiative to develop a single integrated B.O. for the Delta and related water operations of the CVP and SWP.[4] The timing, nature and extent of the regulatory measures to be contained in any such B.O., and whether those measures would be legally challenged or upheld, cannot be predicted with any degree of certainty at this time.

New National Marine Fisheries Service Biological Opinion Salmon/Anadromous Species and Related Litigation Matters

SWP operations have also been challenged in connection with potential impacts to anadromous species in the San Francisco Bay-Delta estuary. In October 2004, the National Marine Fisheries Service (NMFS) issued a "no jeopardy" determination and B.O. analyzing potential impacts to federally listed winter-run and spring-run salmon and steelhead trout related to the long-term coordinated operations of the CVP and SWP through the year 2030. As with the 2005 FWS B.O. and *Kempthorne* case discussed above, OCAP was the project/action evaluated in the 2004 NMFS B.O., which included the Projects' existing Delta pumping operations, proposals to increase SWP pumping by 20 percent over the long term, and other operational changes. In August 2005, several environmental groups filed suit in federal court against NMFS and the Secretary of Commerce challenging the validity of the B.O. (*Pacific Coast Federation of Fishermen's Associations, et al. v. Gutierrez, et al*., Case No. 1:06-CV-00245-OWW-GSA.)

In April 2008, the United States District Court for the Eastern District of California issued

[2] In June 2010, the case was transferred to Sacramento, California, where it is now referenced as *State Water Contractors v. California Department of Fish and Game, et al.,* Sacramento County Superior Court Case No. 34-2010-80000552.

[3] D-1641 implements the objectives of the 1995 Bay-Delta Plan and imposes flow and water quality objectives to assure protection of beneficial uses in the Delta. The requirements of D-1641 address, among other things, standards for fish and wildlife protection, municipal and industrial water quality, agricultural water quality, and salinity. D-1641 imposed a new operating regime for the Delta, including measures such as X2, an export/inflow ratio, and the Vernalis Adaptive Management Program (VAMP). The standards under D-1641 are accomplished through requirements and conditions imposed on the water right permits for the SWP, the CVP and others. (*See,* California Water Plan Update 2009, Regional Reports Volume 3, Sacramento-San Joaquin River Delta at DB-6.)

[4] http://www.doi.gov/news/pressreleases/upload/Roy.pdf

its decision invalidating the NMFS B.O. for failing to comply with the requirements of the federal ESA. As with the *Kempthorne* case (above), the court did not vacate the B.O., meaning that SWP and CVP operations were authorized to continue pending the preparation of a new B.O. and any interim remedies imposed by the court. Remedy proceedings were held similar to those conduced in the *Kempthorne* case discussed above and, in separate Findings of Fact and Conclusions of Law issued in July and October 2008, Judge Wanger determined that additional water supply restrictions beyond those required in *Kempthorne* (i.e., the Interim Remedies for Delta smelt) were not required at that time for the anadromous species.

On June 4, 2009, NMFS issued a new B.O. regarding the effects of SWP and CVP operations on listed winter and spring-run salmon, steelhead trout, green sturgeon, and southern resident killer whales. Like the new FWS B.O. discussed above, the NMFS B.O. concludes that the proposed long-term coordinated operations of the CVP and SWP will jeopardize the species and adversely modify the critical habitats of most of those species. Pursuant to the ESA, because the B.O. is a "jeopardy" opinion, NMFS was required to formulate and adopt a Reasonable and Prudent Alternative (RPA) to the proposed action that NMFS believed would not cause jeopardy to the species or adversely modify or destroy their critical habitats, and which can be implemented by Reclamation and DWR. (16 U.S.C. § 1536(b)(3)(A).) The RPA adopted by NMFS imposed various new operating restrictions upon the CVP and SWP which have the potential to result in substantial reductions in water supply from the Projects.

NMFS calculated that its new B.O. has the potential to reduce SWP deliveries from the Delta by 7 percent in addition to the potential reductions under the new FWS B.O. for Delta smelt (above). DWR has estimated that average annual reductions to SWP deliveries could be closer to 10 percent beyond the restrictions imposed under the FWS B.O. (thus, a total of 28 to 39 percent during average and dry conditions, respectively, in comparison to SWP exports authorized under D-1641). As with the FWS B.O., potential water supply restrictions under the NMFS B.O. are dependent on several variable factors, such as hydrologic conditions in the Delta region, migratory and reproductive patterns of protected salmonid species, and other non-Project factors that impact the health and abundance of the species and their habitats.

In June 2009, numerous legal challenges were filed against the new NMFS B.O. and consolidated in the United States District Court for the Eastern District of California alleging, among other things, that the operating restrictions set forth in the B.O. are in violation of the federal ESA, the federal APA, and other laws. (*The Consolidated Salmonid Cases*, Lead Case No. 1:09-CV-1053-OWW-DLB.) Early in the proceedings, several of the plaintiff water agencies and the federal defendants filed cross-motions for summary judgment to determine whether a NEPA violation occurred in connection with federal defendants' adoption and implementation of the NMFS B.O. and its RPA. The court heard oral argument on the motions in February 2010, and took the matter under submission.

Separately, in January 2010, several of the plaintiff water agencies filed applications for a temporary restraining order and motions for preliminary injunction regarding the implementation of RPA Actions IV.2.1 and IV.2.3, which are designed to restrict Delta exports during a particular timeframe in spring and summer months, depending on certain biological and environmental parameters. In February 2010, the court issued its Memorandum Decision and Order Re Plaintiffs' Motion for Temporary Restraining Order. The decision found that federal defendants violated NEPA by failing to consider the potential human and environmental impacts

caused by implementation of the RPA Actions, and that a temporary injunction against RPA Action IV.2.3 would not cause jeopardy to the species, whereas a failure to enjoin the Action would cause irreparable water supply impacts to the plaintiffs. (*The Consolidated Salmonid Cases*, Doc. No. 202 at 20-22.) In subsequent rulings issued in March 2010, the court ordered that plaintiffs were entitled to summary judgment on their claims that federal defendants violated NEPA by failing to prepare any NEPA documentation in the adoption and implementation of the NMFS B.O. and its RPA. (*The Consolidated Salmonid Cases*, Doc. Nos. 266 and 288 at 3.)

Plaintiffs' motions for a preliminary injunction were heard in April and May 2010, and in May 2010 the court issued Findings of Fact and Conclusions of Law Re Plaintiffs' Request for Preliminary Injunction. In that decision, the court reconfirmed its previous ruling that federal defendants violated NEPA by failing to undertake an analysis of whether the RPA Actions adopted by NMFS under its new B.O. would adversely impact humans and the human environment. (*The Consolidated Salmonid Cases*, Doc. No. 347 at 129-130, 138.) Further, the court ruled that the plaintiff water agencies had a substantial likelihood of being able to show that the federal defendants violated the ESA and the APA by failing to adequately justify, through generally recognized scientific principles, the precise flow prescriptions imposed by RPA Actions IV.2.1 and IV.2.3. (*Id.* at 130, 133-134.)[5]

Following its May 18th ruling, the court conducted further proceedings and accepted additional evidence to address the proposed injunction and whether the relief requested by the plaintiffs would adversely affect the species (namely, Central Valley spring-run Chinook salmon and Central Valley steelhead). Based on those proceedings, in June 2010, the court issued Supplemental Findings of Fact and Conclusions of Law Re Plaintiffs' Request for Preliminary Injunction. (*The Consolidated Salmonid Cases*, Doc. No. 380.) The Supplemental Findings noted that if RPA Actions IV.2.1 and IV.2.3 were enjoined through June 15, 2010, the FWS B.O. for Delta smelt (above) would control Project operations between May 26th and June 15th, unless those restrictions were also enjoined, in which case Project operations would be controlled by D-1641.[6] (Doc. No. 380 at 12.) Accordingly, the court granted an injunction against RPA Actions IV.2.1 and IV.2.3 and authorized Project operations in accordance with D-1641, provided that export pumping could be reduced on shortened notice upon a showing of jeopardy to the species or adverse modification of its critical habitat. (*Id.* at 17-18.)

In August and November 2010, the parties also filed motions for summary judgment to obtain a final ruling in the cases. Those motions were argued on December 16 and 17, 2010, and the court is expected to issue a memorandum decision on the motions.

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[5] RPA Action IV.2.1 limits combined water exports by the CVP and SWP based on San Joaquin River flows as measured at Vernalis. (NMFS B.O. at 642.) When flows at Vernalis range from 0 to 6,000 cfs, Action IV.2.1 limits combined CVP and SWP exports to 1,500 cfs. (NMFS B.O. at 642.) When flows at Vernalis range from 6,000 to 21,750 cfs, Action IV.2.1 imposes an inflow to combined CVP and SWP exports ratio of 4:1. (NMFS B.O. at 642.) The pumping restrictions associated with Action IV.2.1 terminate May 31st. (NMFS B.O. at 641-642.) RPA Action IV.2.3 limits Old and Middle River (OMR) flows to no more negative than -2,500 cfs between January 1 and June 15, or until the average daily water temperature at Mossdale is greater than 72 degrees Fahrenheit for seven consecutive days, whichever occurs first. (NMFS B.O. at 648-650.)

[6] Among other things, D-1641 limits Project exports to a combined total of not more than 35 percent of total Delta inflow and further limits Project operations to ensure that certain water quality standards are met as measured by the location of the isohaline condition referred to as spring X2. (See *The Consolidated Salmonid Cases*, Doc. No. 380 at 12-14.)

APPENDIX D
RECENT FACTORS AFFECTING SWP SUPPLIES

Because the salmon species covered by the new NMFS B.O. are also protected under CESA, the SWP and CVP are required to obtain take authorization from DFG. In September 2009, DFG issued a "consistency determination" pursuant to Fish and Game Code section 2080.1. That determination provides that operations of the SWP and CVP are in compliance with CESA so long as those operations occur in accordance with the RPA set forth in the NMFS B.O. Because the consistency determination posed a risk that the SWP could remain bound to the terms of the RPA even if the NMFS B.O. was eventually overturned by a federal court, DFG's decision was challenged in state court by the State Water Contractors and the Kern County Water Agency. (*State Water Contractors v. California Department of Fish and Game, et al.*, Kern County Superior Court Case No. S-1500-CV-268497.)[7] The challenge asserts, among other things, that DFG's consistency determination is invalid because it relies upon and seeks to enforce restrictions established under the NMFS B.O. that are alleged under *The Consolidated Salmon Cases* to be invalid and unenforceable. As described above, the Federal District Court for the Eastern District of California has ruled that plaintiffs have a strong likelihood of being able to show that portions of the NMFS B.O. fail to comply with the ESA and the APA, and has enjoined implementation of several RPA Actions. Because the court's ruling effectively modified aspects of the NMFS B.O. for 2010, DWR requested that DFG make a determination that the NMFS B.O., as modified by the court, remained consistent with the provisions of CESA. In May 2010, DFG issued a new consistency determination, finding the court-modified NMFS B.O. consistent with CESA. In June 2010, an amended complaint was filed against the May 24th consistency determination. By stipulation of the parties, the case is currently stayed pending the outcome of *The Consolidated Salmonid Cases*.

The current legal challenges regarding the validity of the new NMFS B.O. and the DFG consistency determination give rise to the possibility that the restrictions on SWP exports could be relaxed and that SWP exports may return to the higher levels allowed by the Interim Remedies decision in *Kempthorne* (above) or D-1641 pending the issuance of a new B.O. and/or implementation of the BDCP. Furthermore, as noted above, in May 2010 the Department of Interior and the Department of Commerce announced a joint initiative to develop a single, integrated B.O. for the coordinated operations of the CVP and SWP in the Delta.[8] The timing, nature, and extent of the regulatory measures to be contained that B.O., and whether those measures would be legally challenged or upheld, cannot be predicted with any degree of certainty at this time.

Watershed Enforcers v. California Department of Water Resources

Another litigation matter concerning SWP operations is *Watershed Enforcers v. Cal. Dept. of Water Resources* (2010) 185 Cal. App. 4th 969 (Alameda County Superior Court Case No. RG06292124). In that case, a plaintiffs group filed suit against DWR alleging the SWP was being operated without "take authorization" under CESA. The case was heard by the Alameda County Superior Court in November 2006 and, in April 2007, the court ordered DWR to cease and desist further operations of the Harvey O. Banks pumping plant facilities of the SWP unless DWR obtained proper authorization from DFG for the take of Delta smelt and salmon species listed under CESA. The trial court decision was appealed by DWR and several water agency

[7] In June 2010, the case was transferred to Sacramento, California, where it is now referenced as *State Water Contractors v. California Department of Fish and Game, et al.,* Sacramento County Superior Court Case No. 34-2010-80000560.

[8] http://www.doi.gov/news/pressreleases/upload/Roy.pdf

parties and the court's order was stayed pending the appeal, meaning that DWR was not required to cease its operations of the Banks facilities.

As discussed above, the new FWS and NMFS B.O.s were issued while the *Watershed Enforcers* case was pending on appeal. Based on those new B.O.s, DFG issued consistency determinations and take authorization for the SWP under CESA with respect to Delta smelt and the listed anadromous species. (Also discussed above, those consistency determinations have been challenged in state court.) Thereafter, in September 2009, DWR and one of the water agency parties dismissed their appeals in the *Watershed Enforcers* case. The case remained active in 2009-2010, however, for purposes of resolving the discrete legal issue raised by the remaining water agency parties as to whether DWR is the type of entity that is subject to the take prohibitions under CESA. In a June 2010 decision, the First District Court of Appeal affirmed the trial court decision in all respects, including the determination that DWR qualifies as a "person" within the meaning of CESA, which means that DWR is subject to CESA's permitting requirements. (*Watershed Enforcers v. Department of Water Resources* (2010) 185 Cal. App. 4th 969, 973.)

California Department of Fish and Game Incidental Take Permit for Longfin Smelt and Related Litigation Matters

Regulatory actions related to longfin smelt also have the potential to affect the availability and reliability of SWP supplies. In February 2008, the California Fish and Game Commission (Commission) approved a petition to list the longfin smelt as a "candidate" species under CESA. Under CESA, once a species is granted candidate status, it is entitled to protections until the Commission determines whether to list the species as threatened or endangered. To afford such interim protection, in February 2008, the Commission adopted the first in a series of emergency take regulations that authorized the CVP and SWP to take longfin smelt, yet established certain operating restrictions on Project exports from the Delta in an effort to protect the species. The emergency regulations were proposed to remain in effect until February 2009, at which time the Commission was required to decide whether to list the longfin as a threatened or endangered species. Initially, the Commission's take regulation imposed the same Delta export restrictions that were established in the *Kempthorne* case (i.e., the Interim Remedies discussed above). In November 2008, however, the Commission revised its emergency regulations in a manner that threatened to impose export restrictions beyond those established for Delta smelt. According to information published by DWR, the Commission's 2008-2009 revised emergency take regulations had the potential to reduce SWP supplies in the January to February 2009 period by up to approximately 300,000 acre-feet under a worst-case scenario. Under other scenarios, however, the SWP delivery reductions were expected to be no greater than those imposed under the new FWS B.O. for Delta smelt. In December 2008, several water agency interests filed suit against the Commission's revised take regulation, alleging it violated CESA.

In March 2009, the Commission determined that the listing of longfin smelt as a "threatened" species was warranted under CESA. CESA sets forth a general prohibition against the take of a threatened species except as otherwise authorized by statute. One such authorization is provided by California Fish and Game Code section 2081, wherein DFG may authorize the incidental taking of a threatened species in connection with an otherwise lawful activity through the issuance of a permit. In February 2009, in advance of an official listing of the species as threatened, DFG issued Incidental Take Permit No. 2081-2009-001-03 (Permit)

to DWR which imposes terms and conditions on the ongoing and long-term operation of SWP facilities in the Delta for the protection of longfin smelt. The operating restrictions under the Permit are based in large part on the restrictions imposed on the SWP by the new FWS B.O. for Delta smelt (see above).

In June 2009, the Commission officially listed longfin smelt as a threatened species under CESA. As with the FWS B.O., potential water supply restrictions under the Permit are dependent on several variable factors, such as hydrologic conditions in the Delta region, migratory and reproductive patterns of longfin smelt, and other non-Project factors affecting longfin smelt abundance in the Delta. DWR has not indicated whether any particular reductions in SWP exports are likely to result from the Permit. As previously noted, however, DWR has estimated that the restrictions imposed by the FWS B.O. and RPA for Delta smelt could reduce SWP deliveries between 18 and 29 percent in comparison to Project deliveries authorized under D-1641. In March 2009, due to a number of alleged scientific and other deficiencies in the Permit, the State Water Contractors challenged the Permit in Sacramento County Superior Court. (*State Water Contractors v. California Dept. of Fish and Game, et al.*, Sac. Sup. Ct. Case No. 34-2009-80000203.) That case puts DFG's ability to enforce the Permit into question.

California Drought Conditions

On June 4, 2008, the Governor of California proclaimed a statewide drought due to record-low rainfall in Spring 2008 and court-ordered restrictions on Delta exports as discussed above. (Executive Order S-06-08.) Soon thereafter, the Governor proclaimed a state of drought emergency to exist within the Counties of Sacramento, San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and Kern. (Proclamation dated June 12, 2008.) On February 27, 2009, the Governor declared a statewide water supply emergency to combat California's third consecutive year of drought conditions, evidenced by low reservoir storage and estimated snowpack water content at that time. (Proclamation dated February 27, 2009.)

Since then, statewide hydrologic conditions have improved, although the State's water supply emergency declaration has not been lifted. In March 2010, DWR announced that both manual and electronic readings indicate that the water content in California's mountain snowpack was 107 percent of normal and stated that the "readings boost our hope that we will be able to increase the State Water Project allocation by this spring to deliver more water to our cities and farms." Among these readings, DWR reported that electronic sensor readings showed northern Sierra snow water equivalents at 126 percent of normal for that date, central Sierra at 93 percent, and southern Sierra at 109 percent.[9] As of January 2011, DWR reported snow water equivalents for the northern Sierra at 164 percent of normal, 186 percent of normal for the central Sierra, and 260 percent for the southern Sierra.[10] According to DWR's California Data Exchange Center, hydrologic conditions in California as of December 1, 2010 were as follows: statewide precipitation was 155 percent of average; statewide runoff was 115 percent of average; and key historical average statewide reservoir storage was at 105 percent, with two of the state's largest reservoirs, Lake Shasta (CVP) and Lake Oroville (SWP), respectively storing 116 percent and 75 percent of their historical averages.[11]

[9] http://www.water.ca.gov/news/newsreleases/2010/030310snow.pdf
[10] http://cdec.water.ca.gov/cgi-progs/snow/DLYSWEQ
[11] http://cdec.water.ca.gov/cgi-progs/reports/EXECSUM

APPENDIX D
RECENT FACTORS AFFECTING SWP SUPPLIES

Development of Delta Plan and Delta Flow Criteria Pursuant to New State Laws

In November 2009, the California Legislature enacted SBX7-1 as one of several bills passed as part of a comprehensive water package related to water supply reliability, ecosystem health, and the Delta. SBX7-1 became effective on February 3, 2010 and adds Division 35 to the California Water Code (commencing with Section 85300), referred to as the Sacramento-San Joaquin Delta Reform Act of 2009 (Act). Among other things, the Act creates the Delta Stewardship Council (Council) as an independent agency of the state. (Wat. Code § 85200.) SBX7-1 also amends the California Public Resources Code to specify changes to the Delta Protection Commission and to create the Delta Conservancy. (Pub. Res. Code §§ 29702-29780.) The Act directs the Council to develop a comprehensive management plan for the Delta by January 1, 2012 (Delta Plan) and to first develop an Interim Plan that includes recommendations for early actions, projects, and programs for the Delta. (*See generally*, Second Draft Interim Plan, Prepared for Consideration by the Delta Stewardship Council at 1.)

In addition to these and other requirements, SBX7-1 requires the State Board to use the best available scientific information to develop flow criteria for the Delta ecosystem necessary to protect public trust resources, including fish, wildlife, recreation and scenic enjoyment. Similarly, DFG is required to identify quantifiable biological objectives and flow criteria for species of concern in the Delta. In August 2010, the State Board adopted Resolution No. 2010-0039 approving its report entitled "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem" (Flow Criteria). The State Board report concludes that substantially higher flows are needed through the Delta than in have occurred in previous decades in order to benefit zooplankton and various fish species. (Flow Criteria at 5-8.) Separately, in September 2010, DFG issued a draft report entitled "Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta" (DFG Report). The DFG Report is based on similar biological objectives and recommends Delta flows similar to those set forth in the State Board's Flow Criteria. (DFG Report at 13.) Notably, both the State Board and DFG recognize that their recommended flow criteria for the Delta do *not* balance the public interest or the need to provide an adequate and reliable water supply. (Flow Criteria at 4; DFG Report at 16.) Also of importance, both the State Board and DFG acknowledge that their recommended flow criteria do not have any regulatory or adjudicatory effect; however, they may be used to inform the Council as it prepares the Delta Plan, and may be considered as the Bay Delta Conservation Plan (BDCP) process moves forward. (Flow Criteria at 3, 10; DFG Report at ES-4.)

DWR's Final 2009 SWP Delivery Reliability Report

DWR continues to evaluate the issues affecting SWP exports from the Delta and how those issues may affect the long-term availability and reliability of SWP deliveries to the SWP Contractors. In September 2010, DWR released its Final 2009 SWP Delivery Reliability Report (DWR Report), which forecasts additional reductions to SWP supplies in comparison to the 2007 Report. According to DWR, the long-term average delivery of contractual SWP Table A supply is projected to be 60 percent under current and future conditions over the 20-year projection. (DWR Report at 43, 48, Tables 6.3 and 6.12.) Within that long-term average, SWP Table A deliveries can range from 7 percent (single dry year) to 68 percent (single wet year) of contractual amounts under current conditions, and from 11 percent (single dry year) to 97 percent (single wet year) under future conditions. (Id. at 43-44, 49, Tables 6.4, 6.5, 6.13 and 6.14.) Contractual amounts are projected to range from 32 to 38 percent during multiple-dry

year periods, and from 79 to 93 percent during multiple wet periods. (Id. at 49, Tables 6.13 and 6.14.)

To ensure a conservative analysis, the DWR Report expressly assumes and accounts for the institutional, environmental, regulatory, and legal factors affecting SWP supplies, including, but not limited to, water quality constraints, fishery protections, other D-1641 requirements and the operational limitations imposed by the FWS and NMFS B.O.s that are discussed above. The DWR Report also considers the potential effects of Delta levee failures and other seismic or flood events. (*See*, *e.g.*, DWR Report at 19-24, 25-28, 29-35, Appendices A, A-1, A-2, B.) Notably, the DWR Report assumes that all of these restrictions and limitations will remain in place over the next 20-year period and that no actions to improve the Delta will occur, even though numerous legal challenges, various Delta restoration processes, and new legal requirements for Delta improvements are currently underway (i.e., BDCP, Delta Vision, Delta Plan, etc.). Finally, DWR's long-term SWP delivery reliability analyses incorporate assumptions that are intended to account for potential supply shortfalls related to global climate change. (*See*, *e.g.*, DWR Report at 19, 29-30, Appendices A-B.) Based on these and other factors, the DWR Report presents a conservative projection of SWP delivery reliability.

Conclusion

DWR's most recently published SWP Delivery Reliability Report (September 2010) demonstrates that the projected long-term average delivery amounts of contractual SWP Table A supplies have decreased in comparison to previous estimates. However, as noted, the projections developed by DWR are predicated on conservative assumptions, which make the projections useful from a long-range urban water supply planning perspective.[12] Indeed, recent rulings in various legal actions and other factors described above, among others, support higher estimates of average annual SWP deliveries than projected in DWR's 2009 Report. While this may lead DWR to increase its projections in its next scheduled Report, the 2009 Report remains the best available information concerning the long-term delivery reliability of SWP supplies.

[12] *See*, *e.g.*, *Sonoma County Water Coalition v. Sonoma County Water Agency* (2010) 189 Cal.App.4th 33; *Watsonville Pilots Association v. City of Watsonville* (2010) 183 Cal.App.4th 1059; *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.

Appendix E

DMM Appendix

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.1

Back to Instructions

? Click to access definition

Water Audit Report for: Kern County Water Agency
Reporting Year: 2010 (7/2009 - 6/2010)

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	n/a		acre-ft/yr	
Master meter error adjustment (enter positive value):	?	3	3,901.950	under-registered acre-ft/yr	
Water imported:	?	5	26,013.000	acre-ft/yr	
Water exported:	?	n/a	0.000	acre-ft/yr	
WATER SUPPLIED:			29,914.950	acre-ft/yr	

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	7	27,897.000	acre-ft/yr		
Billed unmetered:	?	n/a		acre-ft/yr		
Unbilled metered:	?	10	641.000	acre-ft/yr		
Unbilled unmetered:	?	10	154.000	acre-ft/yr		154.000
AUTHORIZED CONSUMPTION:	?		28,692.000	acre-ft/yr		

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) 1,222.950 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?		74.787	acre-ft/yr	0.25%	
Customer metering inaccuracies:	?	5	882.619	acre-ft/yr	3.00%	
Systematic data handling errors:	?	10	20.000	acre-ft/yr		
Apparent Losses:	?		977.406			

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 245.544 acre-ft/yr

WATER LOSSES: 1,222.950 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 2,017.950 acre-ft/yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	10	13.5	miles	
Number of active AND inactive service connections:	?	10	28		
Connection density:			2	conn./mile main	
Average length of customer service line:	?	10	0.0	ft	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	8	156.8	psi	

COST DATA

Total annual cost of operating water system:	?	10	$5,277,280	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	10	$1.02	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	?	10	$199.00	$/acre-ft/yr

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	6.7%
Non-revenue water as percent by cost of operating system:	10.1%
Annual cost of Apparent Losses:	$323,522
Annual cost of Real Losses:	$48,863

Operational Efficiency Indicators

Apparent Losses per service connection per day:	31163.28	gallons/connection/day
Real Losses per service connection per day*:	N/A	gallons/connection/day
Real Losses per length of main per day*:	16,237.60	gallons/mile/day
Real Losses per service connection per day per psi pressure:		gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	Not Valid	

*** UARL cannot be calculated as either average pressure, number of connecions or length of mains is too small: SEE UARL DEFINITION ***

From Above, Real Losses = Current Annual Real Losses (CARL):	245.54	
? Infrastructure Leakage Index (ILI) [CARL/UARL]:		

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 71 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Master meter error adjustment
3: Customer metering inaccuracies

For more information, click here to see the Grading Matrix worksheet

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the re... w... agency. Click here to open a table to obtain this number.

Submit Form

Base Year Data

Link to FAQs

Reporting Unit Base Year

What is your reporting period? Fiscal

Base Year 2009

BMP 1.3 Metering

Number of unmetered accounts in Base Year 0

BMP 3.1 & BMP 3.2 & BMP 3.3 Residential Programs

Number of Single Family Customers in Base Year

Number of Multi Family Units in Base Year

BMP 3.4 WaterSense Specification (WSS) Toilets

Number of Single Family Housing Units constructed prior to 1992

Number of Multi Family Units prior to 1992

Average number of toilets per single family household

Average number of toilets per multi family household

Five year average resale rate of single family households

Five-year average resale rate of multi family households

Average number of persons per single family household

Average number of persons per multi family household

BMP 4.0 & BMP 5.0 CII & Landscape

Total water use (in Acre Feet) by CII accounts

Number of accounts with dedicated irrigation meters

Number of CII accounts without meters or with Mixed Use Meters

Number of CII accounts

Comments: Kern County Water Agency is a wholesale water provider.

version 1.0

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the reporting unit that we have on record for your agency in order to process a coverage report.
Click here to open a table to obtain this number.

2009 BMP 1.1 Operation Practices for Wholesalers

View MOU

Wholesale agency assistance programs

a. Financial Investments and Building Partnerships

List the total monetary amount of financial incentives and equivalent resources provided to retail members to assist with, or to otherwise support, implementation of BMPs, subtotaled by BMP. List regional partnerships developed to encourage resource conservation and maximize economies of scale benefits.

BMP Section and/or Sub-section Name	Monetary Amount for Financial Incentives	Monetary Amount for Equivalent Resources

b. Technical Support

Supply a summary of types of technical support provided to retail agencies

c. Program Management

If your wholesale agency has assumed reporting responsibility, list the programs managed on behalf of the retail agencies.

Retail Agency Name	Program Name

version 1.0

d. Water Shortage Allocation

If a water shortage allocation plan or policy has been developed, provide the date of adoption and electronic link to the document or hardcopy.

09/21/2005

Date Format: 05/15/2010

Article 12 of the Agreement between Kern County Water Agency and California Water

Enter the file name of the document.
Send it to natalie@cuwcc.org

e. Non-signatory Reporting

Receipt of reports

Enter the file name of the document.
Send it to natalie@cuwcc.org

f. Encourage CUWCC Membership

List of efforts to recruit retailers and amount of dues paid on behalf of retail agencies.

Enter the file name of the document.
Send it to natalie@cuwcc.org

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the repo we h agency. Click here to open a table to obtain this number.

Submit Form

Link to FAQs

View MOU

2009 BMP 1.2 Water Loss Control

Did your agency complete a pre-screening system audit in 2009? Yes ○ No ◉

If yes, answer the following:

Determine metered sales in AF: 26,319.00

Definition: other accountable uses not included in metered sales, such as unbilled water use, fire suppression, etc.

Determine system verifiable uses AF: 1,116.50

Determine total supply into the system in AF: 27,435.50

Does your agency keep necessary data on file to verify the answers above? Yes ◉ No ○

Did your agency complete a full-scale system water audit during 2009? Yes ○ No ◉

Does your agency maintain in-house records of audit results or the completed AWWA worksheet for the completed audit which could be forwarded to CUWCC? Yes ○ No ◉

Did your agency operate a system leak detection program? Yes ◉ No ○

Comments:

The leak detection program consists of weekly visual surveys along the routes of treated water distribution pipelines and daily monitoring of flows and pressures through supervisory control and data acquisition (SCADA) software.

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the reporting unit number

Submit Form

agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? ○ Yes ◉ No

If YES, has your agency completed a meter retrofit plan? ○ Yes ◉ No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? ◉ Yes ○ No

Are all new service connections being billed volumetrically? ◉ Yes ○ No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? ○ Yes ◉ No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Other	4	4	4	Semi-annually	8
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters: 0

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period: 0

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? ○ Yes ◉ No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Email or provide a link to the feasibility study (or description of):

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinance

Web address(s) URL: comma-separated list Enter the URL to your documentation.

General Comments about BMP 1.3: The leak detection program consists of weekly visual surveys along the routes of treated water distribution pipelines and daily monitoring of flows and pressures through supervisory control and data acquisition (SCADA) software.

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the reporting unit that we have on record for your agency in order to process a coverage report.
Click here to open a table to obtain this number.

2010 BMP 1.1 Operation Practices for Wholesalers

View MOU

Wholesale agency assistance programs

a. Financial Investments and Building Partnerships

List the total monetary amount of financial incentives and equivalent resources provided to retail members to assist with, or to otherwise support, implementation of BMPs, subtotaled by BMP. List regional partnerships developed to encourage resource conservation and maximize economies of scale benefits.

BMP Section and/or Sub-section Name	Monetary Amount for Financial Incentives	Monetary Amount for Equivalent Resources

b. Technical Support

Supply a summary of types of technical support provided to retail agencies

c. Program Management

If your wholesale agency has assumed reporting responsibility, list the programs managed on behalf of the retail agencies.

Retail Agency Name	Program Name

version 1.0

d. Water Shortage Allocation

If a water shortage allocation plan or policy has been developed, provide the date of adoption and electronic link to the document or hardcopy.

09/21/2005

Date Format: 05/15/2010

Article 12 of the Agreement between Kern County Water Agency and California Water

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e. Non-signatory Reporting

Receipt of reports

Enter the file name of the document.
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f. Encourage CUWCC Membership

List of efforts to recruit retailers and amount of dues paid on behalf of retail agencies.

Enter the file name of the document.
Send it to natalie@cuwcc.org

The fields in red are required.

Agency name: Kern County Water Agency

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Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the r... agency. Click here to open a table to obtain this number.

Submit Form

Link to FAQs

2010 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software ◉ Yes ○ No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

AWWA Water Audit_Kern County Water Agency

Water Audit Validity Score from AWWA spreadsheet: 71

Agency Completed Training In The AWWA Water Audit Method ○ Yes ◉ No

Agency Completed Training In The Component Analysis Process ○ Yes ◉ No

Completed/Updated the Component Analysis (at least every 4 years)? ○ Yes ◉ No

Component Analysis Completed/Updated Date:

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective ◉ Yes ○ No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective ◉ Yes ○ No

Type of Program Activities Used to Detect Unreported Leaks

The leak detection program consists of weekly visual surveys along the routes of treated water distribution pipelines and daily monitoring of flows and pressures through supervisory control and data acquisition (SCADA) software.

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)

Comments:

version 1.0

2009

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

You must enter the reporting unit number

Submit Form

agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

2010

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? Yes No

If YES, has your agency completed a meter retrofit plan? Yes No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? Yes No

Are all new service connections being billed volumetrically? Yes No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? Yes No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Other	4	4	4	Semi-annually	8
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters: 0

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period: 0

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Describe, upload or provide an electronic link to the Feasibility Study Upload File

File name(s): Email files to natalie@cuwcc.org Enter the file name here e.g. WaterWastePreventionOrdinance

Web address(s) URL: comma-separated list Enter the URL to your documentation.

Comments: The leak detection program consists of weekly visual surveys along the routes of treated water distribution pipelines and daily monitoring of flows and pressures through supervisory control and data acquisition (SCADA) software.

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach

View MOU

Is your agency performing Public Outreach for your Retailers?

Are there one or more retail agencies that count on your agency to help them comply with this BMP? (•) Yes ( ) No

Enter the name(s) of the retail agency (comma delimited): California Water Service Company-Bakersfield District, City of Bakersfield, East Niles Community Services District, North of the River Municipal Water District

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ✔

Number of Public Contacts	Public Information Programs
28	General water conservation information
	Select a public contact
	Select a public contact
	Select a public contact
	Select a public contact

Contact with the Media

Are there one or more retail agencies that count on your agency to help them comply with this BMP? (•) Yes ( ) No

Enter the name(s) of the retail agency (comma delimited): California Water Service Company-Bakersfield District, City of Bakersfield, East Niles Community Services, North of the River Municipal Water District

OR Wholesale Agency (Contacts with the Media)

Media Contacts List

Did at least one contact take place during each quarter of the reporting year? ✔

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types
21		Television contacts
14		Radio contacts
30		Newspaper contacts
16		News releases
		Select a type of media contact
		Select a type of media contact

Is a Wholesale Agency Performing Website Updates?

Did one or more retail agencies rely on your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ◉ Yes ○ No

Enter the name(s) of the retail agency (comma delimited)

California Water Service Company-Bakersfield District, City of Bakersfield, East Niles Community Services, North of the River Municipal Water District

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): www.kcwa.com

Describe a minimum of four water conservation related updates to your agency's website that took place during the year:

Water conservation related press releases were posted on the website during the year: 2009 Kern County Fair "Got Water?" (9/23/09), State Water project Initital Allocation Grim (12/1/09), USBR Announces Increase, but State Water Project Allocation Remains Unchanged (3/16/10), State Water Project Allocation Raised but Water Supply Challenge Remains (6/23/10).

Did at least one Website Update take place during each quarter of the reporting year? ◉ Yes ○ No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
Personnel Costs	$22,731		✔		
Materials Cost	$3,518				

Comments:

The fields in red are required.

Agency name: Kern County Water Agency

Reporting unit name (District name): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

Click here to open a table that displays your agency n reporting unit name an reporting unit number. Please ensure that you enter the correct information.

Submit Form

Link to FAQs

2010

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? (•) Yes ( ) No

Enter Wholesaler Names, separated by commas: Kern County Water Agency

[ ] Materials meet state education framework requirements?

Description of Materials

[ ] Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: Water cycle and conservation education, "Farmers Grow Our Food" coloring books, seed packets to grow radishes, water supply education, canal safety, and a chemistry experiment on the chemical components of water.

Number of students reached: 8,634

[ ] Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students: Groundwater education for secondary students is a comprehensive science unit that comes complete with lesson plans, classroom demonstrations, laboratory exercises, games, assessment activities, and a California groundwater map. Project Water Science comes with 14 lesson plans that are appropriate for physical or earth sciences.

Number of Distribution: 3

Annual budget for school education program: $39,700.00

Description of all other water supplier education programs

School Program Activities

Classroom presentations:

Number of presentations: 0 Number of attendees: 0

Large group assemblies:

Number of presentations: 22 Number of attendees: 3,715

Children's water festivals or other events:

Number of presentations: 1 Number of attendees: 500

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: 3 Number of attendees: 300

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description: Education WebQuests

Number distributed: 3

Staffing children's booths at events & festivals:

Number of booths: 1 | Number of attendees: 3500

Water conservation contests such as poster and photo:

Description: Water conservation poster contest

Number distributed: 393

Offer monetary awards/funding or scholarships to students:

Number Offered: 0 | Total Funding: 0

Teacher training workshops:

Number of presentations: 1 | Number of attendees: 30

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips: 0 | Number of participants: 0

College internships in water conservation offered:

Number of internships: 0 | Total funding: 0

Career fairs/workshops:

Number of presentations: 0 | Number of attendees: 0

Additional program(s) supported by agency but not mentioned above:

Description: Incredible Journey 5th grade classroom presentation, Water Education Video and Lesson Plans

Number of events (if applicable): 1 | Number of participants: 124

Total reporting period budget expenditures for school education programs (include all agency costs): $26,821.23

Comments

The leak detection program consists of weekly visual surveys along the routes of treated water distribution pipelines and daily monitoring of flows and pressures through supervisory control and data acquisition (SCADA) software.

The fields in red are required.

Agency name: Kern County Water Agency

Division name (Reporting unit): Kern County Water Agency

Reporting unit number: 141

Primary contact:

First name: David

Last name: Beard

Email: dbeard@kcwa.com

Submit Form

WATER SOURCES

2010

Service Area Population: 160,000

Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
State Water Project	82,946.00	Surface	Municipal & Industrial and Agricultura
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Exported Water Name	AF/YEAR	Where Exported?

Appendix F

Water Shortage Contingency Ordinances/Resolutions

-ID4 Public Outreach Documents

-NORMWD Public Outreach Documents

BEFORE THE BOARD OF DIRECTORS

OF THE

KERN COUNTY WATER AGENCY

In the matter of:

ESTABLISHING AN IMPROVEMENT	*
DISTRICT NO. 4 WATER SHORTAGE	*
CONTINGENCY PLAN	*

I, Lucinda J. Infante, Secretary of the Board of Directors of the Kern County Water Agency, of the County of Kern, State of California, do hereby certify that the following resolution proposed by Director Mathews, and seconded by Director Van Skike, was duly passed and adopted by said Board of Directors at an official meeting hereof this 27th day of April, 2011 by the following vote, to wit:

Ayes: Lundquist, Van Skike, Mathews, Rogers, Page, Parker and Radon

Noes: None

Absent: None

Lucinda J. Infante

Secretary of the Board of Directors
of the Kern County Water Agency

Resolution No. 27-11

WHEREAS, the Board of Directors of the Kern County Water Agency (Agency) is also empowered as the Board of Directors of the Kern County Water Agency Improvement District No. 4 (ID4); and

WHEREAS, the Urban Water Management Planning Act (Act) (Water Code 10610, et seq.) requires urban water suppliers to update prescribed urban water management plans before July 1, 2011; and

WHEREAS, the Act requires urban water suppliers to develop a water shortage contingency plan in the event of a water supply shortage of 50 percent; and

WHEREAS, the Agency has executed Agreements for a Water Supply with California Water Service, City of Bakersfield, East Niles Community Services District and North of the River Municipal Water District (Purveyor Agreements); and

WHEREAS, Article 12 of the Purveyor Agreements describe the actions the Agency will take in the event of a water shortage; and

WHEREAS, the Agency may diminish a shortage in treated water by temporarily halting or curtailing its spreading of water for recharge in ID4; and

WHEREAS, the Agency may use ID4 groundwater banking projects or in-district wells for reducing shortages subject to separate agreements from the Purveyor Agreements; and

WHEREAS, to eliminate or reduce shortages, the Agency will allow a Purveyor to deliver non-ID4 surface water to the Henry C. Garnett Water Purification Plant for treatment, subject to the provisions in the Purveyor Agreements; and

WHEREAS, the Agency shall apportion available treated water among the Purveyors in proportion to their annual entitlements as set forth in Exhibit D of the Purveyor Agreements in any year the shortage causes the total quantity of water available to the Agency to be less than the total of all quantities contracted; and

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Kern County Water Agency that:

1. The foregoing recitals are true and correct.

2. Agency staff is directed to implement the measures described in Article 12 of the Purveyor Agreements in the event of a water shortage.

RESOLUTION 2011-4

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE NORTH OF THE RIVER MUNICIPAL WATER DISTRICT ESTABLISHING A WATER SHORTAGE CONTINGENCY PLAN

The Board of Directors of the North of the River Municipal Water District hereby resolves as follows:

WHEREAS, North of the River Municipal Water District is an Urban Supplier of water subject to the Urban Water Management Planning Act (Water Code 10610, et seq.) due to its wholesale operations, and;

WHEREAS, North of the River Municipal Water District is a wholesale provider of water to Oildale Mutual Water Company and;

WHEREAS, the Act requires Urban Water Suppliers to develop a Water Shortage Contingency Plan in the event of a water supply shortage of 50 percent and;

WHEREAS, the District has the right through a resolution or ordinance to apportion its available water supply among its retail customers in such a manner as appears most equitable under the circumstance then prevailing, and with due regard, to public health and safety.

NOW THEREFORE BE IT RESOLVED that the Board of Directors of the North of the River Municipal Water District hereby directs the General Manager to determine the appropriate steps and actions required for the District's retail operations to meet a water shortage emergency and bring all necessary information to the District Board for consideration and appropriate action; and

FURTHERMORE, in the event of water shortage emergency, the District would implement the water shortage provisions found with the Water Service Agreement between the District and Oildale Mutual Water Company.

This Resolution was duly **PASSED** and **ADOPTED** by the Board of Directors of the North of the River Municipal Water District, this **15th** of **June, 2011**, by the following vote to wit:

AYES: **DIRECTORS: McClure, Esselman, Townsend, Wesson & Scoles**
NOES: **None**
ABSENT: **None**
ABSTAIN: **None**

Rebecca Rae McClure

Rebecca McClure, President/Board of Directors
North of the River Municipal Water District

I HEREBY CERTIFY that the above and foregoing resolution was passed and adopted by the **BOARD OF DIRECTORS** of the **NORTH OF THE RIVER MUNICIPAL WATER DISTRICT,** Kern County, California on the date and by the vote above stated.

David Aranda, Secretary/Board of Directors
North of the River Municipal Water District