South Feather Water and Power Agency

2010 URBAN WATER MANAGEMENT PLAN

SUBMITTED BY: **SOUTH FEATHER WATER AND POWER AGENCY**
2310 ORO-QUINCY HIGHWAY
OROVILLE, CALIFORNIA 95966

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ADOPTED: May 22, 2012

Table of Contents

List of Tables, Charts, Maps and Figures

SEQUENTIALLY

List of Tables, Charts, Maps and Figures

NUMERICALLY – BY TYPE

Foreword

South Feather Water and Power Agency's 2010 Urban Water Management Plan (UWMP) is prepared in accordance with the California Department of Water Resources' (DWR) Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan ("Guidebook") for the purpose of complying with requirements of the Urban Water Management Planning Act (UWMP Act) and the Water Conservation Bill of 2009. As recommended by DWR, this UWMP follows the general organization outlined in Part I of the Guidebook. It also includes the specific legislative requirements for each section ("Law").

DWR developed a series of tables to support inclusion of required data in the UWMP (Guidebook Section N). SFWPA's UWMP incorporates these tables where appropriate. The table descriptions assigned by DWR, including their numbers, are maintained herein. Further, they are inserted into the body of the UWMP at the location they are referenced in the Guidebook. Therefore, table numbers will not always be sequential.

In addition to complying with the UWMP Act and the Water Conservation Bill of 2009, this document also provides an evaluation of the proposed Rio 'dOro Specific Plan water-demand impact on the Agency's available water supply in conformance with Senate Bill 610. A description of the Rio 'dOro Specific Plan project is provided in Appendix A.

South Feather Water and Power Agency
2010 Urban Water Management Plan
Contact Sheet

Date plan submitted to the Department of Water Resources: May 23, 2012

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The Water supplier is a Public Agency formed pursuant to Water Code § 20500 et seq. (formerly Oroville-Wyandotte Irrigation District).

The Water supplier is a: Retailer.

Utility services provided by the water supplier include domestic and irrigation water service, and wholesale hydropower generation.

Is This Agency a Bureau of Reclamation Contractor? No

Is This Agency a State Water Project Contractor? No

Plan Preparation

Coordination

Law *#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)).*

South Feather Water and Power Agency ("SFWPA" or "Agency") coordinates with local planning and land development agencies by providing information on the adequacy of its water supply, distribution system, and water rates to meet the area's current and future growth needs, including: cooperation with the Butte Local Agency Formation Commission to assist in the development of Municipal Service Review Studies; cooperation with the respective planning departments of the City of Oroville and the County of Butte in the preparation of CEQA documents and processing applications for subdivisions and commercial developments; participation with other municipal water purveyors and fire departments in Butte County and the City of Oroville to plan for the implementation of new fire safety regulations; and, cooperation on an ongoing basis with North Yuba Water District (NYWD) regarding water supplies and their management (NYWD shares water storage facilities with SFWPA, as well as one of SFWPA's distribution facilities).

Table 1, below, lists the agencies and organizations with which the Agency coordinated the development of this Plan. Each of the entities listed were notified that the Agency was commencing preparation of the Plan and were invited to participate in its development.

Law *#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 1642, notify any city or county 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)).*

Exhibit 1 is the notification that was sent to each of the agencies or organizations listed on Table 1, including the City of Oroville and the County of Butte, notifying them more than 60 days prior to the UWMP public hearing and advising them that the Plan was being reviewed and changes were being considered. The agencies and organizations from which comments were received or with which consultation occurred are indicated on Table 1.

Law *#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(h)).*

South Feather Water and Power Agency affirms that it will provide a written copy of the 2010 UWMP to each city or county within or containing the Agency's boundaries no later than 60 days after the Plan's submission to DWR.

Table 1
Coordination with Appropriate Agencies

Coordinating Agencies	Participated in developing the plan	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	X	X
Butte County Department of Water and Resource Conservation	X				X	X	X
City of Oroville	X				X	X	X
Butte County Administrator's Office	X				X	X	X
Butte County Environmental Health Department	X				X	X	X
Butte County Department of Development Services	X				X	X	X
Lake Oroville Area Public Utility District	X				X	X	X
Feather River Recreation and Park District	X				X	X	X
Oroville Mosquito Abatement District	X				X	X	X
Butte County Mosquito and Vector Control District	X				X	X	X
North Yuba Water District	X				X	X	X
Oroville Economic Development Corporation	X				X	X	X
Butte County Farm Bureau	X				X	X	X
Oroville Area Chamber of Commerce	X				X	X	X
Oroville Board of Realtors	X				X	X	X
Enterprise Rancheria of Maidu Indians	X				X	X	X
Mooretown Rancheria of Maidu Indians	X				X	X	X
Berry Creek Rancheria of Maidu Indians	X				X	X	X

Law *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. 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…After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

South Feather Water and Power Agency has actively encouraged community participation in its urban water management planning efforts since the first plan was developed in 1990. Public meetings were held on the development and adoption of the 1990, 1995, 2000, 2005 and 2010 plans.

Before commencing preparation of the 2010 update to the Urban Water Management Plan, an invitation to participate in its development was sent to the following:

BayTEC Alliance	**City of Oroville**	**Lake Oroville Area Public Utility District**
Berry Creek Rancheria of Maidu Indians	**Butte County Administrator's Office**	**Mooretown Rancheria of Maidu Indians**
Butte County Department of Water and Resource Conservation	**Butte County Department of Development Services**	**Oroville Area Chamber of Commerce**
Butte County Farm Bureau	**Butte County Environmental Health Department**	**Oroville Board of Realtors**
Butte County Mosquito and Vector Control District	**Enterprise Rancheria of Maidu Indians**	**Oroville Economic Development Corporation**
California Water Service (Oroville)	**Feather River Recreation and Park District**	**Oroville Mosquito Abatement District**

The letter of invitation explained the legislated requirements of the 2010 UWMP and its purposes (see Exhibit 2).

A formal public hearing was held on May 22, 2012, for review and comment on the draft plan 2010 Urban Water Management Plan before it was approved by the Agency's Board of Directors. In addition to an announcement of the public hearing published in the local newspaper, an agenda of the Board meeting during which the public hearing was conducted was posted on the Agency's website. Said agenda was also posted at the Agency's main office at 2310 Oro-Quincy Highway, Oroville. Copies of the draft plan were available at the Agency's main office and on the Agency's website: http://www.southfeather.com/.

Plan Adoption, Submittal, and Implementation

Law *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)).*

If changes to the UWMP are made after adoption of the Plan by the Agency's Board of Directors, the Agency will hold another public hearing and have the Board readopt the Plan.

Law *After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642).*

A copy of the Plan's adoption resolution is attached, hereto, as Exhibit 3.

Law *An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan (10643).*

It is the position of South Feather Water and Power Agency and this Urban Water Management Plan (see below) that it will not be necessary to impose water-shortage contingencies such as mandatory rationing, consumption reduction methods, or penalties/charges for violating water shortage restrictions or prohibitions. Therefore, a schedule for plan implementation is not required.

Law *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)).*

The Agency prepared this update of its Urban Water Management Plan (UWMP) during the Winter and Spring of 2012. The updated plan was adopted by the Board of Directors on May 22, 2012, and submitted to the California Department of Water Resources, to the California State Library, the County of Butte and the City of Oroville, within 30 days after Board approval.

Law *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).*

Two days after the Plan was adopted by the Agency's Board of Directors, a copy of the adopted Plan was posted on the Agency's web site (www.southfeather.com) for public review, and hard copies were available for public review at the Agency's main office (2310 Oro-Quincy Highway, Oroville, California).

System Description

Service Area Physical Description

Law Describe the service area of the supplier (10631(a)).

The Agency service area is located 70 miles north of Sacramento on the east side of California's Sacramento Valley in the Sierra foothills of southeast Butte County. The 31,000-acre service area includes an elevation range from a low point of approximately 200 feet above sea level at the western boundary, to a high point of approximately 1,200 feet above sea level at the northeasterly boundary. Predominant vegetative types include a mixture of blue oak woodland, montane hardwood forest and chaparral, grassland, and riparian vegetation.

The Oroville Area Land Use Plan of the Butte County General Plan designates much of the service area of SFWPA as Agricultural-Residential. The purpose of the Agricultural-Residential designation is to provide areas for agricultural uses and single-family dwellings at rural densities.

Although the primary water supplier for the City of Oroville is California Water Company, SFWPA provides treated water to approximately 2,000 residences in the northeast quadrant of the city.

SFWPA's service area is wholly within Butte County's First Supervisorial District. In addition to the County of Butte, other public agencies with territory within SFWPA's boundaries are:

City of Oroville;
Oroville Union High School District;
Oroville City Elementary School District;
Palermo Elementary School District;
Bangor Elementary School District;
Oroville Mosquito Abatement District;
Butte County Mosquito and Vector Control District;
Lake Oroville Area Public Utility District; and,
Feather River Recreation and Park District.

South Feather Water and Power Agency – originally named Oroville-Wyandotte Irrigation District ("OWID" or "District") – has roots extending back to the California gold rush. The ditch system utilized by the Agency today to distribute its irrigation water is a modification and expansion of the ditch network constructed by early miners who diverted water from tributaries of the Feather River to their mining claims.

In 1852, a small ditch company was organized to construct a ditch from the South Fork of the Feather River to the mining sites at Forbestown, Wyandotte, Honcut, Ophir, and Bangor. The Palermo Ditch, completed in 1856 by the Feather River and Ophir Water Company, was a major impetus to the growth of

gold mining within the area occupied by the present City of Oroville where rich gold deposits were discovered in 1849.

OWID was organized on November 17, 1919, and included 16,800 acres of land. The District was formed by assuming the old water rights from the South Feather Land and Water Company and the Palermo Land and Water Company. In July 1944, OWID initiated plans to sell water for domestic use, and between 1944 and 1967, approximately 80 miles of coal-tar lined and tar paper wrapped steel pipe was installed.

The residential growth rate within the District was greatly accelerated by the housing demands associated with the construction of the Oroville Dam in the early 1960's. The irrigation system in the northern part of the District was slowly abandoned as the domestic pipeline system was expanded to meet the growing residential demand. By 1962, OWID served approximately 4,800 acres of agricultural land, with 8,000 AF of irrigation water delivered by the District. In addition to irrigation service, the district furnished water to approximately 2,500 residences.

As a result of the concern for an adequate water supply and for a revenue source to fund the District's expanding infrastructure, the District's Board of Directors proposed the construction of the South Feather Power Project (originally named South Fork Project). The South Feather Power Project, covering 82 square miles in three counties, consisted of eight dams, 9 tunnels, 21 miles of canals and conduits, three hydroelectric power plants and 21 miles of road. The project was completed in 1963 at a cost of $62 million, and was financed through the sale of revenue bonds secured by the projected revenues from power generation. Those bonds were defeased in 2009.

In 1975, Congress passed the Clean Water Act that enacted sweeping changes in domestic drinking water standards. No longer would unfiltered surface water be acceptable for drinking water. Faced with a building moratorium, OWID voters passed a revenue bond in 1978 that allowed for the construction of Miners Ranch Treatment Plant.

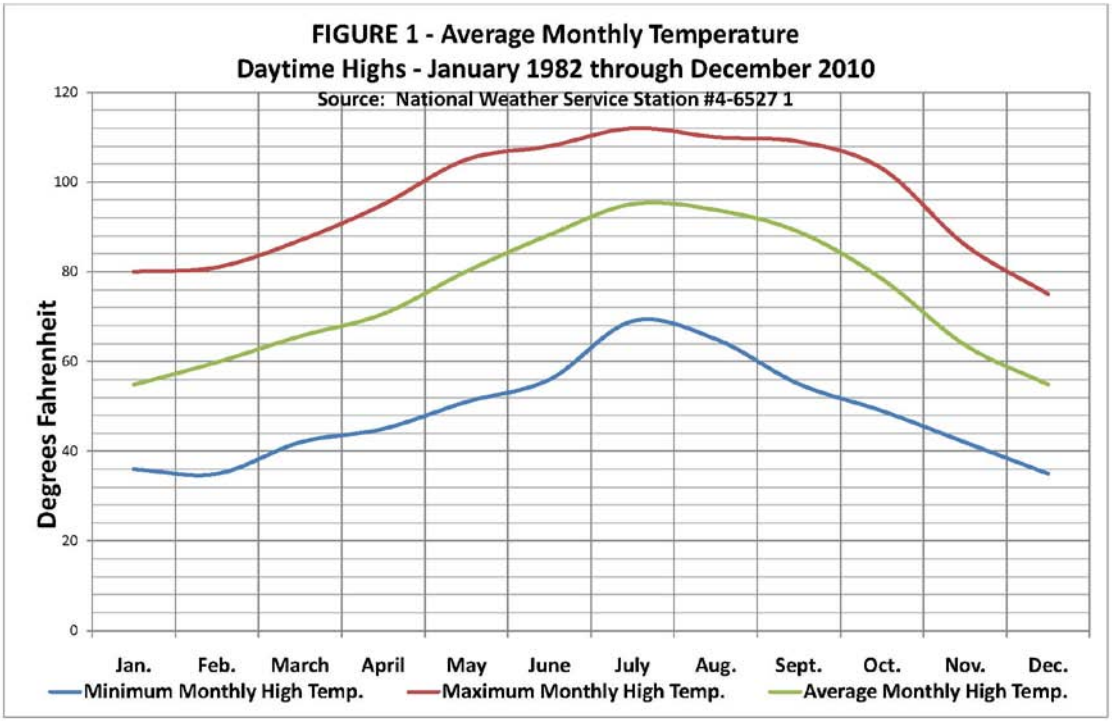
Today, SFWPA has grown to provide water to approximately 6,650 households, maintains a service area of over 31,000 acres supplied by 141 miles of pipeline, and delivers irrigation water seasonally to over 500 customers by way of 110 miles of primarily open earthen canals.

SFWPA's domestic-water facilities are comprised of two treatment plants that use a combination of filtration and chlorination to remove/mitigate contaminants. Following the treatment process, water is distributed through SFWPA's pipelines to one of its four storage facilities, and from there to consumption by SFWPA's customers.

The Agency's operates a hydropower project (South Feather Power Project, FERC License No. 2088) located in Butte, Plumas and Yuba counties on the South Fork of the Feather River and Slate Creek, a tributary to the North Fork Yuba River, and mostly within the Plumas National Forest. The Project includes Little Grass Valley Reservoir, Sly Creek Reservoir, Lost Creek Reservoir, Ponderosa Reservoir, and Miners Ranch Reservoir, with a combined storage of 164,577 acre-feet (af).

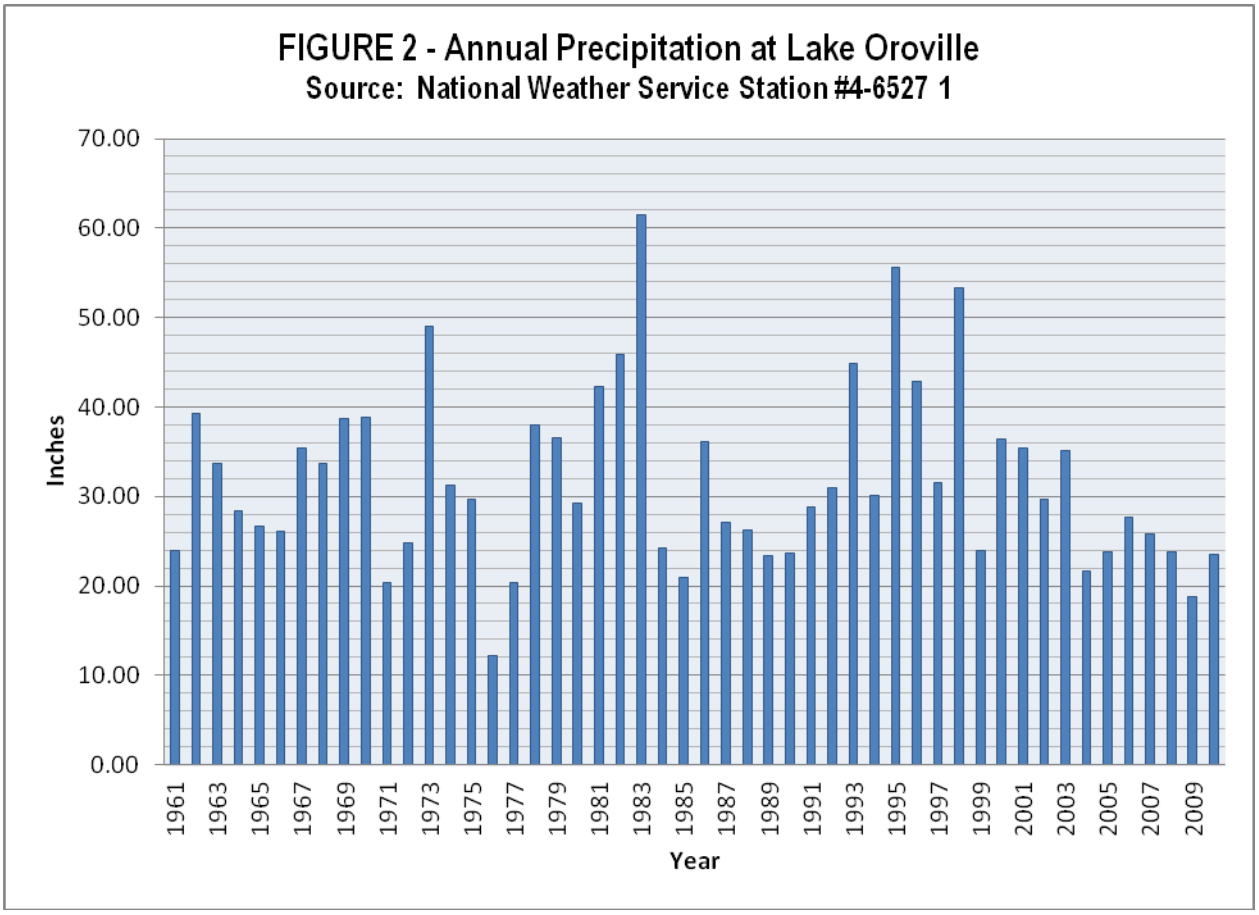
Law (Describe the service area) climate (10631(a)).

The Agency's service area has a Mediterranean-type climate with four distinct seasons. Winter months are cool to cold with temperatures from the mid 30s to low 60s. Summers are warm to extremely warm with temperatures ranging from the upper 60s to low 110s, and an annual average temperature of 67ºF. Figure 1 presents the mean-monthly high temperatures (minimum, average and maximum) for each month based on the 29-year period from 1982 through 2010[1] (the data from which Figure 1 was derived is tabulated in Appendix B).



[1] Source: California Department of Water Resources' weather station (National Weather Service Station #4-6527 1) located on the Agency's northern service-area boundary at Oroville Dam.

SFWPA's service area ranges in elevation from 250 feet above sea level to 1,100 feet. Winter monthly precipitation totals in the Agency's service area vary from 0.06 inches in January 2007 to 18.7 inches in January 1995. The average annual precipitation is 32.7 inches with 78.9% occurring in November through March. Figure 2, below, presents the annual precipitation totals measured at Lake Oroville (elevation 900 feet), and Figure 3, also below, presents mean monthly precipitation totals (minimum, average and maximum) for each month based on the 51-year period from 1959 through 2010[2]. Chart 1 presents the frequency distribution of annual rainfall for the totals shown in Figure 2, with "critically dry" being less than 50% of average annual rainfall, dry being between 50% and 80% of average annual rainfall, normal being between 80% and 120% of average annual rainfall, and wet being above 120% of average annual rainfall. (The data from which Figure 2, Figure 3 and Chart 1 were derived is tabulated in Appendix C.)



[2] Source: California Department of Water Resources' weather station (National Weather Service Station #4-6527 1) located on the Agency's northern service-area boundary at Oroville Dam.

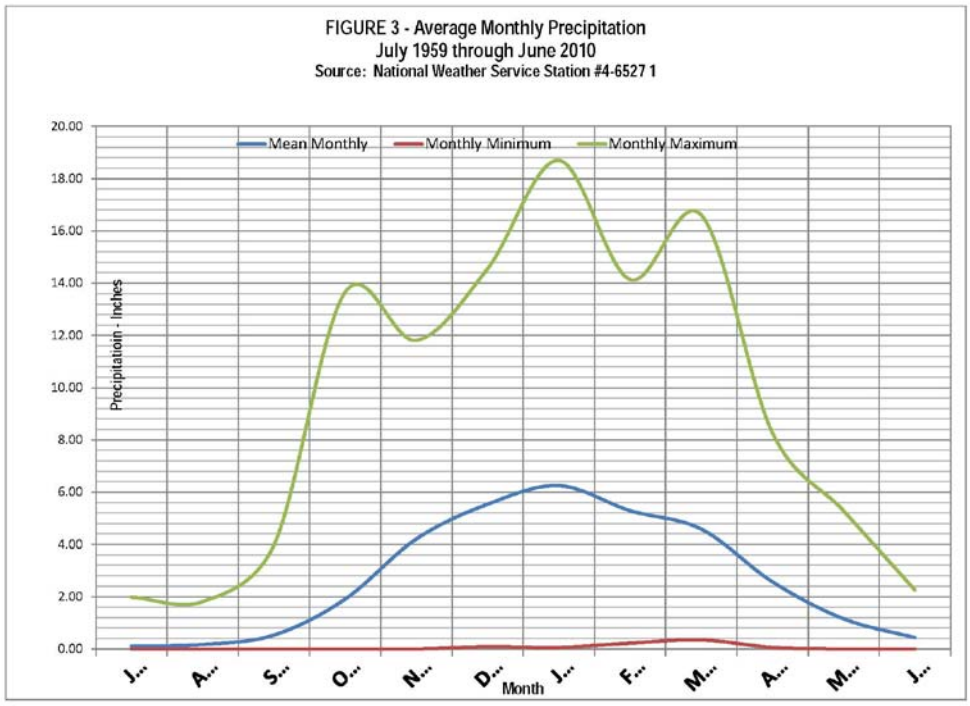
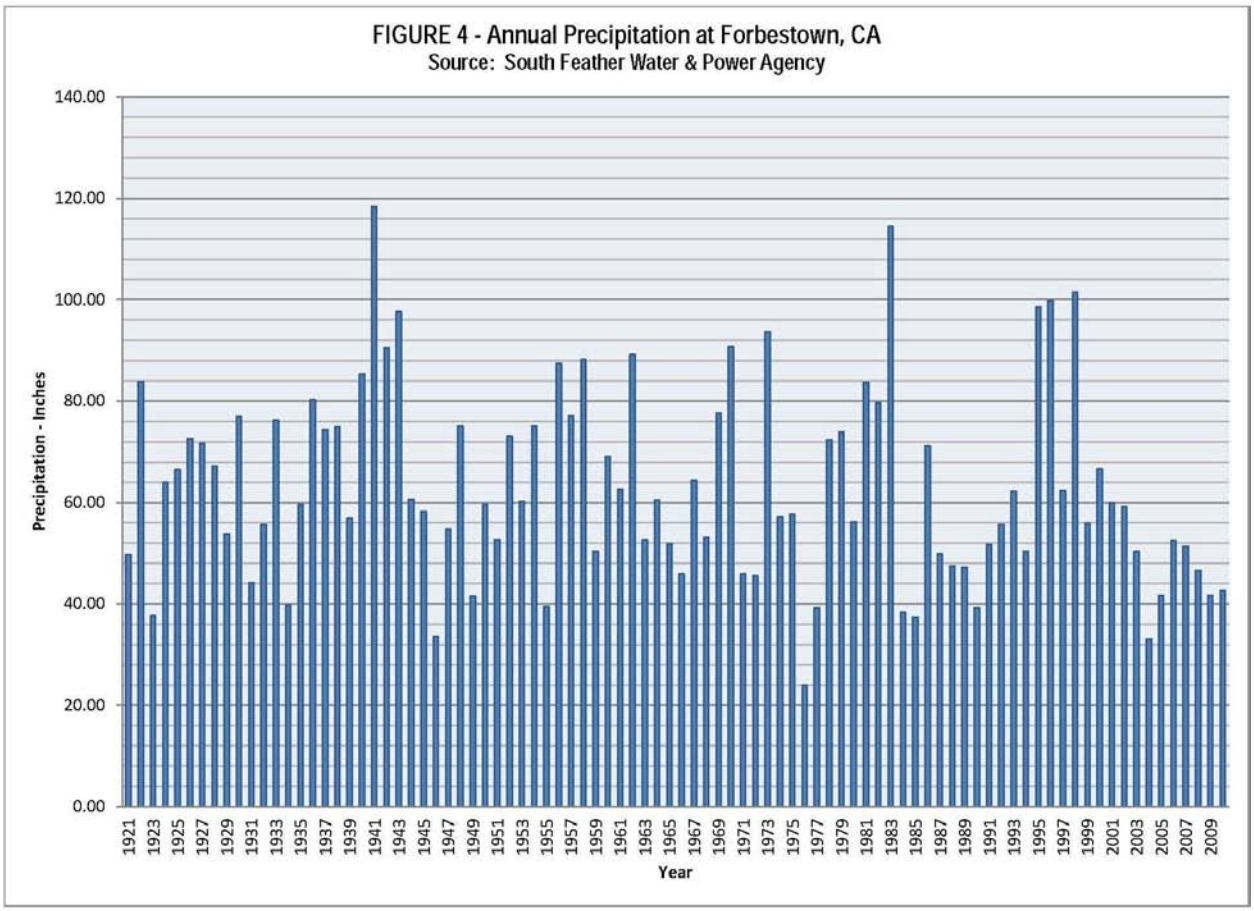


CHART 1 - Frequency Distribution of Annual Rainfall				
	Lake Oroville (1959 - 2010)			
			Frequency	
	# of Years	% of Years	Probability	Once / X Years
Critically Dry (<50%)	2	3.9%	6.2%	16
Dry (50%<80%)	12	23.5%	20.6%	5
Normal (80%<120%)	24	47.1%	46.5%	2
Wet (>120%)	13	25.5%	26.8%	4
Total	51	100.0%	100.0%	1

The South Fork Feather River watershed, which is the source of the Agency's water, ranges in elevation from 1,000 feet above sea level to 7,500 feet. Precipitation within this elevation range is significantly greater than within the Agency's service area, as discussed, graphed and charted above.

Precipitation data taken in Forbestown, California, at elevation 2,900 feet is shown in Figure 4, below. For the years 1919 through 1962, the readings were taken by private observers. From 1963, rainfall statistics were maintained by Agency personnel. Figure 5, also below, presents mean monthly precipitation totals (minimum, average and maximum) for each month based on the 91-year period from 1919 through 2010. Chart 2 presents the frequency distribution of annual rainfall for the totals shown in Figure 4. (The data from which Figure 4, Figure 5 and Chart 2 were derived is tabulated in Appendix D.)



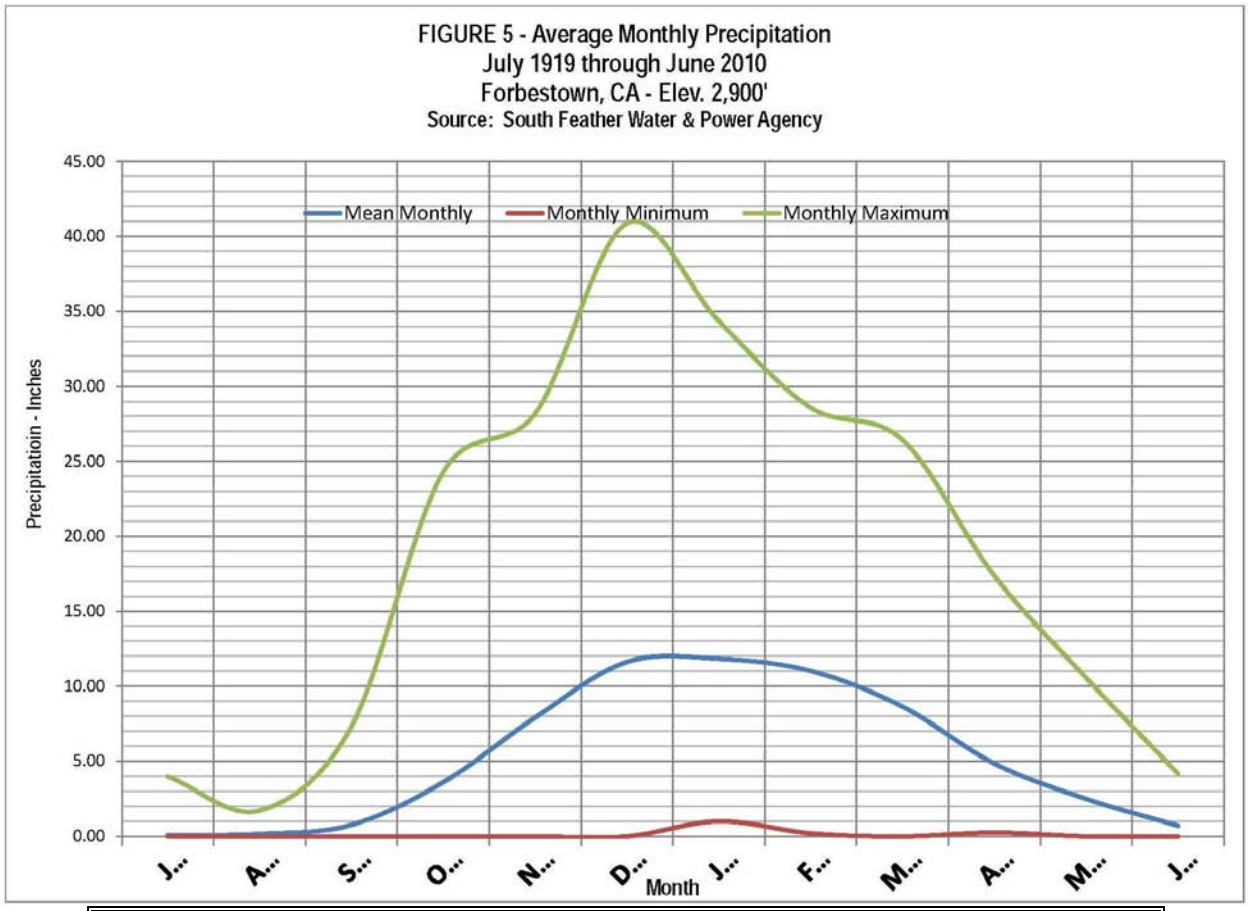


CHART 2 - Frequency Distribution of Annual Rainfall				
	Forbestown, CA (1919 - 2010)			
			Frequency	
	# of Years	% of Years	Probability	Once / X Years
Critically Dry (<50%)	3	3.3%	5.5%	18
Dry (50%<80%)	25	27.5%	20.6%	5
Normal (80%<120%)	20	22.0%	47.8%	2
Wet (>120%)	13	14.3%	26.1%	4
Total	61	67.0%	100.0%	1

Service Area Population

Law *(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)).*

The Agency provided domestic water service to 6,618 customer accounts in 2010 (average). Given the predominantly residential makeup of the Agency's service area, almost all of its customer accounts represent a household. Therefore, and based on the California Department of Finance's 2009 estimate that the average household size in unincorporated Butte County is 2.47[3] people, the estimated population within SFWPA's service area in 2010 is estimated to be 16,346 (see Table 2, below).

Not all households within the Agency's domestic water distribution system sphere of influence are connected to the system. Many get their potable water from individual on-site wells. Based on 2010 census data, it is estimated that an approximate population of 21,400 reside within the Agency's sphere of influence. New connections to the Agency's potable-water distribution system have increased by 0.7% annually between 2000 and 2010. The Butte County Association of Governments forecasts 2010-2035 annual population growth for the unincorporated areas within Butte County at 1.1% ("low scenario")[4]. This is the rate used in Table 2 to project the population within the Agency's service area through 2035.

As noted in the UWMP's Foreword and discussed in Appendix A, hereto, in addition to complying with the UWMP Act and the Water Conservation Bill of 2009, this document also provides an evaluation of the proposed Rio 'dOro Specific Plan water-demand impact on the Agency's available water supply in conformance with Senate Bill 610. In Table 2, below, the projected population from the Rio 'dOro project is included.

[3] Butte County General Plan 2030 Draft EIR, p.4.11-4.

[4] Butte County Association of Governments, "Draft Butte County Long-Term Regional Growth Forecasts 2010-2035," January 26, 2011, p.3.

Table 2

Population — Current and Projected

	2010	2015	2020	2025	2030	2035	Data source
Service Area Population	16,346	17,265	18,236	19,261	20,344	21,488	BCAG*
Rio 'dOro Specific Plan	0	500	2,688	4,813	6,825	6,825	Benchmark Engineering**
Total Population	16,346	17,765	20,924	24,074	27,169	28,313	

**Butte County Association of Governments (BCAG), "Draft Butte County Long-Term Regional Growth Forecasts 2010-2035," January 26, 2011, p.3.*

***Water Feasibility Analysis for Rio 'dOro Specific Plan by Benchmark Engineering, Inc., 2008 (see Figure 16, Appendix A).*

System Demands

Baselines and Targets

Law *#1. An urban water supplier shall include in its urban water management plan…due in 2010 the 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)).*

Table 13
Base Period Ranges

Base	Parameter	Value	Units
10- to 15-year base period	2008 total water deliveries	229,581,100	cubic feet / year
	2008 total volume of delivered recycled water	0	*see below*
	2008 recycled water as a percent of total deliveries	0	percent
	Number of years in base period*	10	years
	Year beginning base period range	1999	
	Year ending base period range**	2008	
5-year base period	Number of years in base period	5	years
	Year beginning base period range	2003	
	Year ending base period range***	2007	

**If the 2008 recycled water percent is less than 10 percent, then the first base period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first base period is a continuous 10- to 15-year period.*

***The ending year must be between December 31, 2004 and December 31, 2010.*

****The ending year must be between December 31, 2007 and December 31, 2010.*

Table 14
Base Daily Per Capita Water Use — 10-year Range

Base period year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gcpd)
Sequence Year	Calendar Year			
Year 1	1999	14,944	3.9516	264.4
Year 2	2000	15,050	4.1506	275.6
Year 3	2001	15,163	4.2984	282.5
Year 4	2002	15,341	4.4976	292.0
Year 5	2003	15,736	4.3523	275.6
Year 6	2004	15,914	4.6192	290.2
Year 7	2005	16,104	4.0763	252.4
Year 8	2006	16,653	4.4007	264.0
Year 9	2007	16,559	4.6886	282.4
Year 10	2008	16,653	4.6920	281.9
			Base Daily Per Capita Water Use*	276.1

**Average of values in column.*

In accordance with CWC §10608(e), SFWPA's Urban Water Use Target for 2020 – being 80% of the Base Daily Per Capita Water Use (276.1 gcpd) – is 220.9 gcpd; and, the Agency's Interim Water Use Target for 2015 – a value halfway between the Base Daily Per Capita Water Use and the Urban Water Use Target – is 248.5 gcpd.

It should be noted that the Agency more than achieved its Interim Water Use Target (248.5 gcpd) in 2010 with an annual per capita water use of 236.8 gcpd.

Table 15
Base Daily Per Capita Water Use — 5-year Range

Base period year		Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gcpd)
Sequence Year	Calendar Year			
Year 1	2003	15,736	4.3523	275.6
Year 2	2004	15,914	4.6192	290.2
Year 3	2005	16,104	4.0763	252.4
Year 4	2006	16,653	4.4007	264.0
Year 5	2007	16,559	4.6886	282.4
			Base Daily Per Capita Water Use*	272.9

**Average of values in column.*

The continuous five-year period shown in Table 15, above, is used to determine whether the 2020 per capita water use target meets the legislation's minimum water use reduction requirement of at least a 5% reduction per capita water use.

The Base Daily Per Capita Water Use for the 5-year base period is 272.9 gcpd (see Table 15). The minimum reduction requirement would be 259.3 gcpd (272.9 gcpd x 95%). As noted above, SFWPA's Urban Water Use Target for 2020 is 220.9 gcpd. Thus, the Agency's Urban Water Use Target meets the legislation's minimum water use reduction.

Water Demands

Law *#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) and (2)).*

Table 3
Water Deliveries — Actual, 2005

	2005				
	Metered		Not metered		Total
Water use sectors	No. of Accounts	Volume*	No. of Accounts	Volume	Volume
Single family	6,416	173,080,073	0	0	173,080,073
Multi-family	44	11,677,672	0	0	11,677,672
Commercial	28	8,955,755	0	0	8,955,755
Industrial	0	0	0	0	0
Institutional/governmental	28	2,650,900	0	0	2,650,900
Landscape	4	2,015,600	0	0	2,015,600
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	6,520	198,380,000	0	0	198,380,000

**Units: cubic feet per year*

Table 4
Water Deliveries — Actual, 2010

	2010				
	Metered		Not metered		Total
Water use sectors	No. of Accounts	Volume*	No. of Accounts	Volume	Volume
Single family	6,490	168,581,968	0	0	168,581,968
Multi-family	66	9,596,164	0	0	9,596,164
Commercial	28	6,733,640	0	0	6,733,640
Industrial	0	0	0	0	0
Institutional/governmental	28	2,442,958	0	0	2,442,958
Landscape	6	1,504,270	0	0	1,504,270
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	6,618	188,859,000	0	0	188,859,000

**Units: cubic feet per year*

Table 5
Water Deliveries — Projected, 2015

	2015				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume*	# of accounts	Volume	Volume
Single family	6,855	172,378,754	0	0	172,378,754
Multi-family	70	9,810,487	0	0	9,810,487
Commercial	30	6,894,378	0	0	6,894,378
Industrial	0	0	0	0	0
Institutional/governmental	30	2,491,246	0	0	2,491,246
Landscape	6	1,544,959	0	0	1,544,959
Agriculture	0	0	0	0	0
Other**	900	22,507,520	0	0	22,507,520
Total	7,890	215,627,343	0	0	215,627,343

**Units: cubic feet per year*
***Rio 'dOro Specific Plan (see Figure 15, Appendix A)*

Table 6
Water Deliveries — Projected, 2020

	2020				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume*	# of accounts	Volume	Volume
Single family	7,240	175,632,854	0	0	175,632,854
Multi-family	74	9,995,686	0	0	9,995,686
Commercial	31	7,024,527	0	0	7,024,527
Industrial	0	0	0	0	0
Institutional/governmental	31	2,538,274	0	0	2,538,274
Landscape	7	1,574,124	0	0	1,574,124
Agriculture	0	0	0	0	0
Other**	1,775	40,117,209	0	0	40,117,209
Total	9,158	236,882,674	0	0	236,882,674

**Units: cubic feet per year*
***Rio 'dOro Specific Plan (see Figure 15, Appendix A)*

Table 7
Water Deliveries — Projected 2025, 2030, and 2035

	2025		2030		2035 - optional	
	Metered		Metered		Metered	
Water Use Sectors	No. of Accounts	Volume*	No. of Accounts	Volume*	No. of Accounts	Volume*
Single family	7,647	185,504,738	8,077	195,935,226	8,531	206,953,212
Multi-family	78	10,557,518	82	11,151,142	87	11,778,202
Commercial	33	7,419,358	35	7,836,531	37	8,277,201
Industrial	0	0	0	0	0	0
Institutional/ Governmental	33	2,680,945	35	2,831,688	37	2,990,921
Landscape	7	1,662,601	7	1,756,085	8	1,854,835
Agriculture	0	0	0	0	0	0
Other**	2,525	55,065,365	2,730	59,342,998	2,730	59,342,998
Total	10,323	262,890,525	10,967	278,853,670	11,430	291,197,369

**Units: cubic feet per year*
***Rio 'dOro Specific Plan (see Figure 15, Appendix A)*

Table 10
Additional Water Uses and Losses***

Water use*	2005	2010	2015	2020	2025	2030	2035 -opt
Saline barriers	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0	0
System losses**	248,222	526,430	375,704	375,704	375,704	375,704	375,704
Other (define)	0	0	0	0	0	0	0
Total	248,222	526,430	375,704	375,704	375,704	375,704	375,704

**Units: cubic feet per year*

***The estimate of system losses for 2015-2035 is the average of the 2005-2010 system losses.*

****Any water accounted for in Tables 3 through 7 are not included in this table.*

Table 11
Total Water Use

Water Use*	2005	2010	2015	2020	2025	2030	2035 - opt
Total water deliveries (from Tables 3 to 7)	198,380,000	188,859,000	215,627,343	236,882,674	262,890,525	278,853,670	291,197,369
Sales to other water agencies	0	0	0	0	0	0	0
Additional water uses and losses (from Table 10)	248,222	526,430	375,704	375,704	375,704	375,704	375,704
Total	198,628,222	189,385,430	216,003,047	237,258,378	263,266,229	279,229,374	291,573,073

**Units: cubic feet per year*

Water Demand Projections

Law *#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)).*

South Feather Water and Power Agency, as an urban water supplier, does not rely upon a wholesale agency for a source of water.

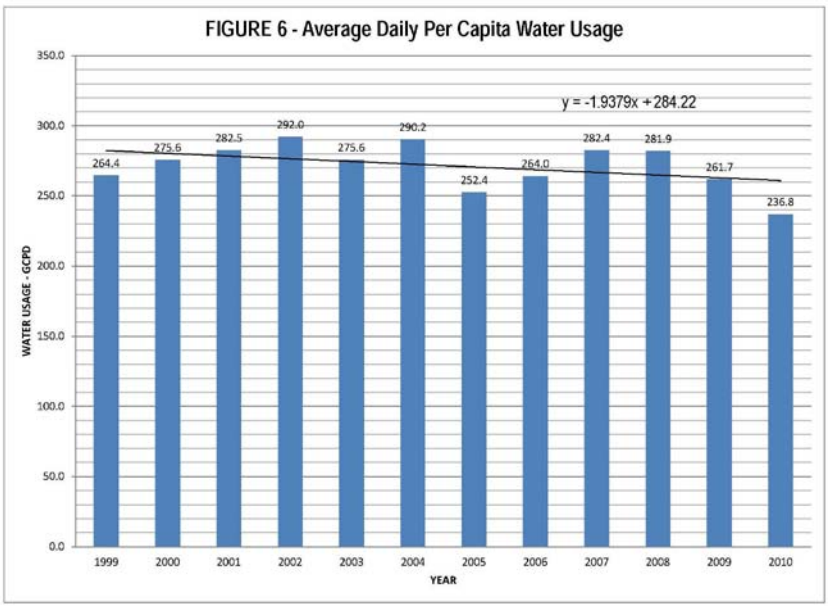
Water Use Reduction Plan

Law *#2. Urban wholesale water suppliers shall include in the urban water management plans…an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part (10608.36). Urban retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements and conduct a public meeting which includes consideration of economic impacts (CWC §10608.26).*

In Table 14, above, the Agency's "Base Daily Per Capita Water Use" was determined to be 276.1 gallons per capita per day (gcpd). This was derived from the daily per capita use for the 10-year period of 1999 through 2008.

The Agency's 2020 water use target would be 80% of the Base Daily Per Capita Water Use, or 220.9 gcpd (276.1 gcpd x 80%).

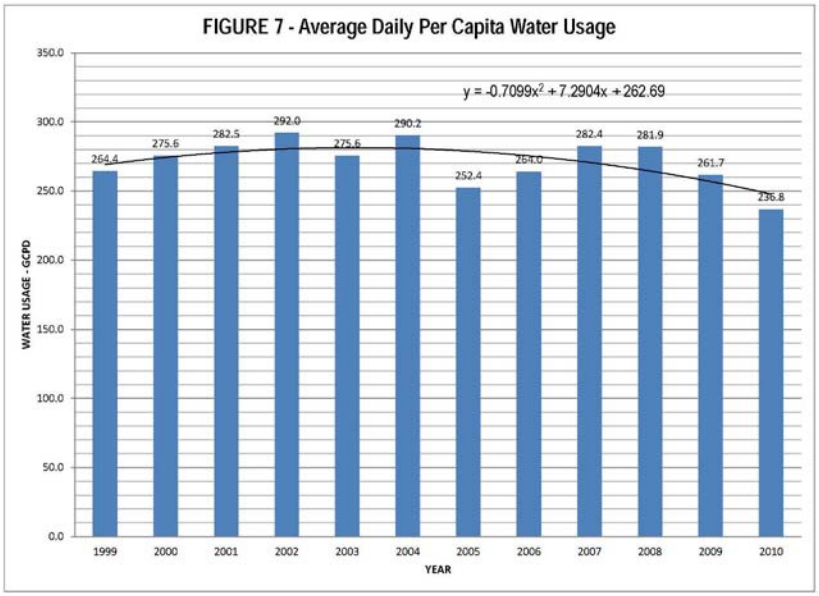
In the graph at right (Figure 6) are the Annual Daily Per Capita Water Use values from Table 14 (10-year range from 1999 through 2008), above. Also included in the graph is SFWPA's average daily per capita water use for 2009 (261.7 gcpd) and 2010 (237.3 gcpd). As shown, a linear trendline for the graph's 12 years of data is declining at a rate of



nearly 2 gcpd. This is consistent with water-consumption trends throughout the western United States over the past 20 years (National Water Resources Association 2011)[5]. If one were to assume that the linear trendline best represented a reasonable prediction for the future (absent any change in the Agency's operations or conservation efforts), the 220.9 gcpd water use target would be achieved by 2032.

However, a cursory review of the Agency's annual daily per capita water use for the period 1999 to 2010 shows that it was generally increasing until 2004, and then began to generally decline. While the downturn in the economy in 2009 may have had some impact on water consumption within the Agency, it is more likely that water-conservation advertising and public relations campaigns in Northern California promoted by Southern California water interests had more to do with the decline in consumption after 2005.

The polynomial trendline in Figure 7 at right (same data as above) seems to be a better fit for the actuall rise-then-decline trending of the values. If this trendline is a better predictor for the future, then the 220.9 gcpd water use target would be achieved by 2013.



Based on the foregoing analysis of historical data, the Agency's near-term water-use reduction plan is to continue operating its treatment and distribution systems in the same efficient manner that has characterized its operations over the past decade.

[5] National Water Resources Association. "Water News Daily." *National Water Resources Association.* 2011. http://www.nwra.org/content/articles/wests-water-use-declining-despite-continued-popula/ (accessed January 31, 2012).

System Supplies

Water Sources

Law *#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)).*

The Agency has an excellent water supply. The South Fork Feather River (SFFR) watershed is located at the north end of the Sierra Nevada mountain range. The watershed's headwaters originate at an elevation of 7,457 feet, and is bounded by the volcanic Cascade Range to the north, the Great Basin to the east, the Sacramento Valley to the west, and higher portions of the Sierra Nevada to the south. The upper watershed is ruggedly mountainous, bisected by deep canyons in the eastern third of the watershed. The central third of the watershed is a transition zone

The combined South Fork Feather River/Slate Creek watershed is an expansive watershed within the Sierra Nevada Mountain Range, covering approximately 100,814 acres, or 158 square miles (mi^2). Principal tributaries include Lost Creek, a natural tributary of the South Fork Feather River, and the upper portion of Slate Creek, a tributary of the North Fork Yuba River (which contributes to the South Fork Feather River watershed by way of a tunnel through the Gibsonville Ridge). The area of the Slate Creek sub-watershed is approximately 31,600 acres (49.4 mi^2), or 31.4 percent of the total combined South Fork Feather River/Slate Creek watershed area. The area of Lost Creek sub-watershed is approximately 19,200 acres (30.0 mi^2), or 19.0 percent of the total South Fork Feather River/Slate Creek watershed area.

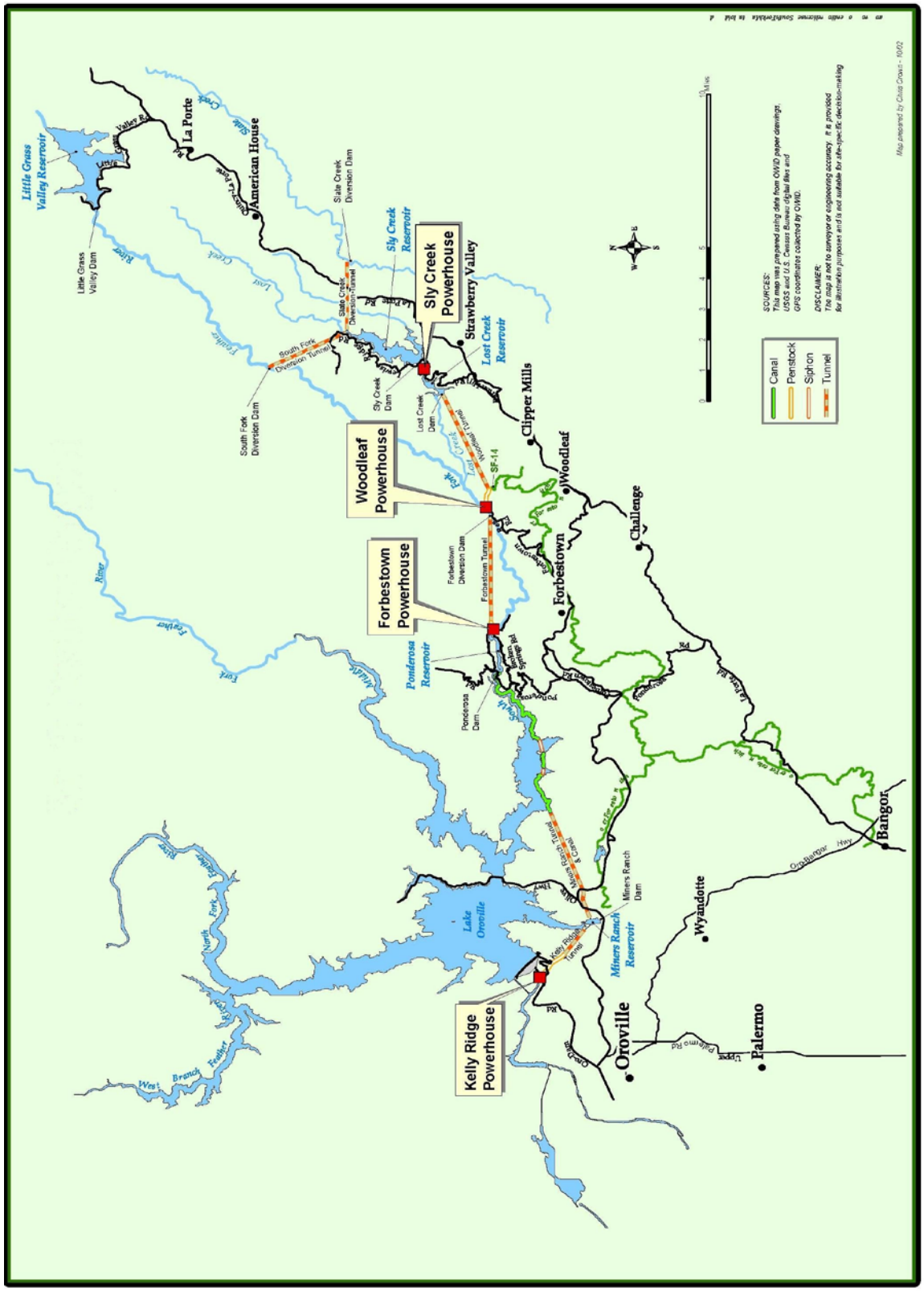
This watershed falls within the jurisdictions of four adjacent counties: Plumas County, Butte County, Sierra County, and Yuba County. Approximately 49,580 acres of the watershed (49.2%) is located within the unincorporated boundaries of Plumas County. Approximately 28,440 acres of the watershed (28.2%) is located within the unincorporated boundaries of Butte County. Approximately 19,160 acres of the watershed (19.0 %) is located within the unincorporated boundaries of Sierra County. Approximately 3,560 acres of the watershed (3.5 %) is located within the unincorporated boundaries of Yuba County.

Lands in the region are owned or managed by a variety of governmental and private entities. The single largest land owner within the watershed is the federal government, whose United States Forest Service (USFS) manages the Plumas National Forest. Soper-Wheeler Company, Chy Corporation, and Sillar Brothers are private owners of managed forest lands within this watershed. Land ownership between the federal government, SFWPA, and others within the watershed is tabulated below by county.

	Total	Plumas Natl. Forest		SFWPA		Others	
County	Acres	Acres	%	Acres	%	Acres	%
Butte	28,521	11,964	11.8	712	0.7	17,520	17.4
Plumas	49,574	32,288	32.0	<1,000	<1.0	17,286	17.1
Sierra	19,160	16,182	16.0	0	0	2,978	2.9
Yuba	3,559	1,941	1.9	<300	<0.3	1,618	1.6
Totals	100,814	62,375	61.8	<2,000	<2.0	39,402	39.0

SFWPA is permitted to store 172,064 acre-feet of runoff from the watersheds of the South Fork of the Feather River and Slate Creek (a tributary of the North Fork of the Yuba River) in several Agency reservoirs: Little Grass Valley, Sly Creek, Lost Creek, Forbestown, Ponderosa, and Miners Ranch. The water is distributed to the hydroelectric powerhouses, to agricultural consumers, and to the water treatment plants for domestic use. SFWPA's primary water treatment plant is located at the Miners Ranch Reservoir. Completed in 1981, the treatment plant has the capacity to treat 14.5 million gallons per day (MGD).

The total average annual runoff of the SFFR excluding diversions from Slate Creek is 254,347 AF. Map 1, below, is a schematic of SFWPA's water sources and raw-water distribution. SFWPA operates its system of reservoirs and hydropower plants and manages the runoff throughout the annual hydrologic cycle to best achieve its purposes and needs including power supply, flood control, irrigation and municipal water supply, and recreation. There are nine dams that either divert or store water supply for multipurpose uses. Little Grass Valley and Sly Creek Reservoirs provide 93% of the active storage capacity within the system. Lost Creek and Ponderosa Reservoirs have active storage capacity equal to approximately 6% of active storage. The combined total storage capacity of these eight impoundments is 165,016 AF, or about 65% of the SFFR's average annual runoff.



Map 1
SFWPA's Water Conveyance and Distribution System

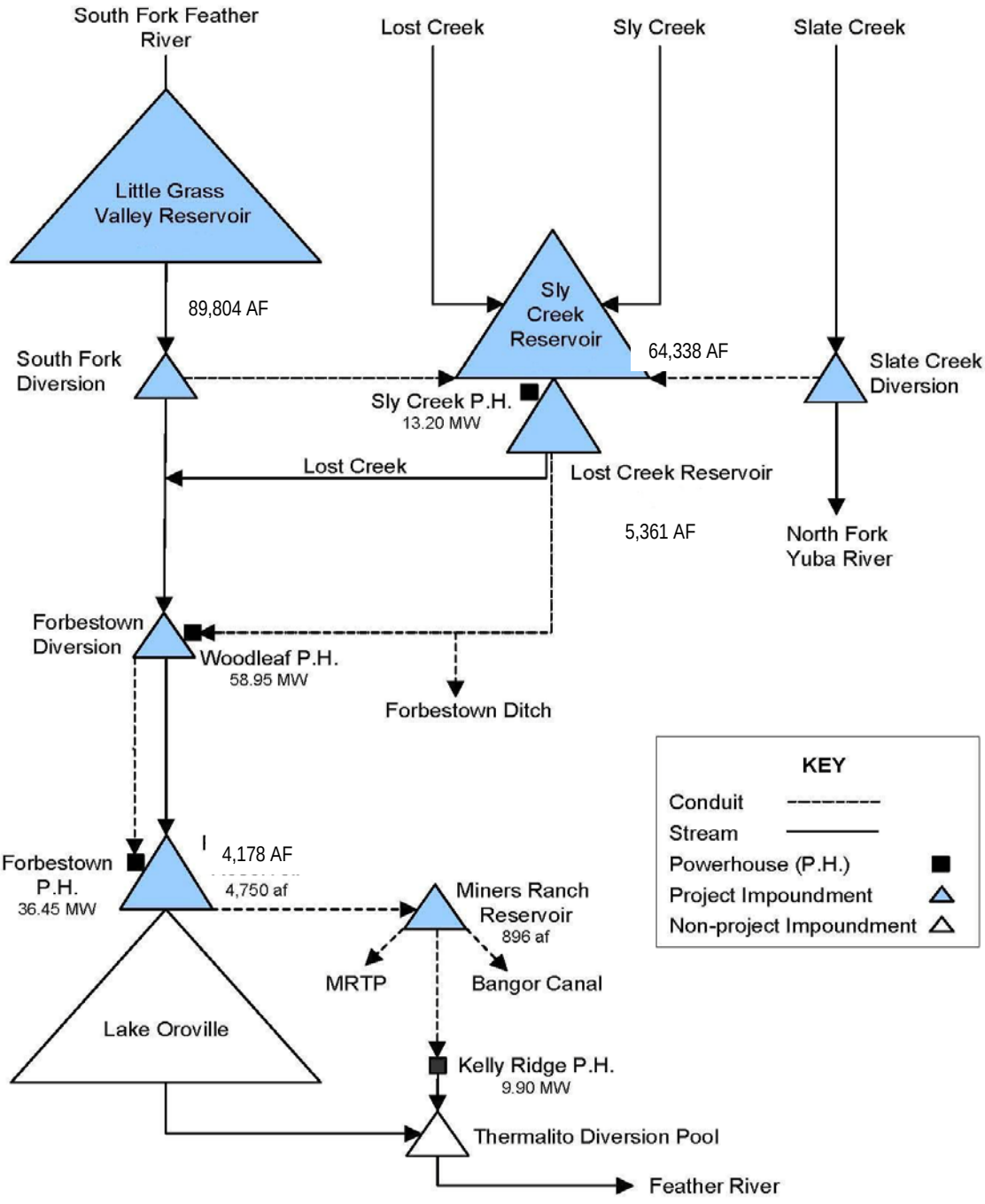


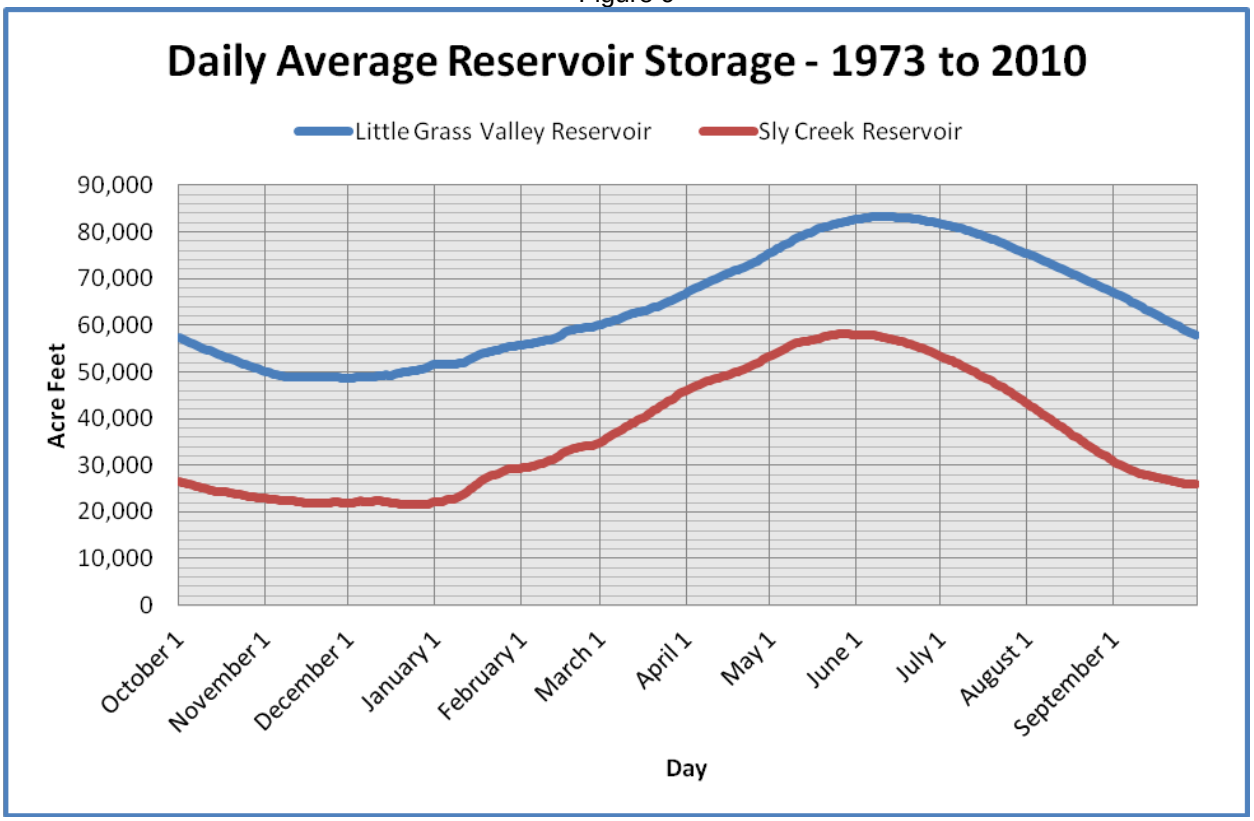
Figure 8
Schematic – SFWPA Water Storage, Conveyance and Distribution System

Figure 9, below, shows the historical operations of SFWPA reservoirs and the relative seasonal fluctuations of the active storage.

The figure shows median daily storage based on daily storage readings from water year 1973 through 2010. Little Grass Valley and Sly Creek reservoirs are operated to capture rain and snowmelt in the winter and spring months and slowly drafted during the summer and fall for environmental, power generation, irrigation, and domestic consumption purposes. Lost Creek, Forbestown, Ponderosa and Miners Ranch reservoirs are not shown because they are operated as re-regulating reservoirs and do not have annual draw down and refill cycles.

The water diversion, storage, conveyance, and distribution operations are guided by a set of priorities as follows: 1) safety; 2) regulatory requirements and allocations; 3) water consumptive demands; and 4) power generation.

Figure 9



Based on the Agency's annual watershed production of 254,347 acre-feet, its ability to store 165,016 acre-feet, and its associated consumptive water rights, SFWPA believes that its sources of developed water supply will continue to more than adequately meet the current and the foreseeable demand through 2035.

SFWPA purchases no water from wholesale water suppliers.

Within SFWPA's distribution system, no water is reused for municipal purposes that is not treated to Title 22 standards.

Table 16
Water Supplies — Current and Projected

Water Supply Sources*	2010	2015	2020	2025	2030	2035 - opt
Wholesaler supplied	0	0	0	0	0	0
Supplier-produced groundwater	0	0	0	0	0	0
Supplier-produced surface water**	214,336	254,347	254,347	254,347	254,347	254,347
Transfers in	0	0	0	0	0	0
Exchanges In	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Desalinated Water	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	214,336	254,347	254,347	254,347	254,347	254,347

Units: acre-feet per year

***Average / Normal Water Year water supply yield from Agency's watershed.*

Groundwater

Law *#14. (Is) groundwater…identified as an existing or planned source of water available to the supplier…(10631(b))?*

SFWPA does not have the need and does not anticipate a need within the planning horizon of the UWMP to develop groundwater resources. Some private wells within the Agency's sphere of influence are used by property owners for domestic and irrigation purposes.

Portions of the Agency service area are included in Butte County Groundwater Management Plan.

Transfer Opportunities

Law *#24. Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (10631(d)).*

South Feather Water and Power Agency believes that there are no opportunities for exchanges of water on either a short- or long-term basis. The Agency's raw-water storage reservoirs are above Lake Oroville on the South Fork of the Feather River, and there are no water storage or diversion facilities above those owned and operated by the Agency within its watershed. While the Agency can release raw water from its reservoirs into Lake Oroville for distribution via the State Water Project to downstream suppliers, there are no delivery systems by which water can be diverted to the Agency by other suppliers.

RAW-WATER TRANSFERS

SFWPA transferred 15,000 acre-feet of water to Westlands Irrigation District in 1990; 10,000 acre-feet to the State Water Bank in 1992; 10,000 acre-feet to the Environmental Water Account in 2000, 2002 and 2004; and, in 2008, another 10,000 acre-feet of water was transferred to the State Water Contractors. To make these transfers, Agency reservoirs were drawn down in November and December below their combined minimum pool of 60,000 acre-feet to 50,000 acre-feet, which water was then spilled at Ponderosa Reservoir into Lake Oroville. In most of the transfers, Lake Oroville held the water until the following summer when it was needed by the transfer recipients.

Each year that the Agency participated in a transfer agreement, the Department of Water Resources (DWR) imposed refill requirements that increased in complexity and difficulty with each succeeding transfer. It became abundantly clear with each transfer after 2000 that DWR was losing interest in facilitating transfers of SFWPA water and, unfortunately, SFWPA cannot affect a transfer without DWR's cooperation and assistance.

SFWPA subjects itself to economic risk when it transfers water. The amount transferred reduces the Agency's hydropower-generation resources, and in dry winters immediately after transfers, Agency reservoirs are at risk of not completely filling. Once the Agency's commitment to its raw- and treated-water consumers is met, its next highest priority is to meet the terms of its power-purchase agreement with PG&E.

Transferring water put the first two priorities at risk, and given DWR's resistance to facilitating Agency transfers, the Agency has elected not to attempt direct raw-water transfers in the future.

However, SFWPA has aggressively affected conservation measures that have resulted in surplus water that could be available for transfer. Over the past 15 years, domestic pipeline replacement and irrigation canal improvements have generated approximately 1,500 acre-feet of conserved water annually. It is conservatively estimated that an additional 7,000 acre-feet of conserved water annually could be made available for transfer. SFWPA is open to partnering with other suppliers who would fund capital improvement conservation projects in which they would receive the resulting surplus water.

TREATED-WATER TRANSFERS

SFWPA's treated-water distribution system is adjacent to that of California Water Company (CalWater) in Oroville, California. There are opportunities for inter-connections of the two water suppliers' systems in several locations. In fact, by expanding the Agency's Miners Ranch Treatment Plant's capacity, SFWPA could treat and wholesale enough water to CalWater to meet the demands of its customers in Oroville.

It is the Agency's understanding that CalWater considered this opportunity in 2009 and elected to continue operating its own treatment facilities and wells.

Desalinated Water Opportunities

Law #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)).

South Feather Water and Power Agency is not considering desalination.

SFWPA is not considering desalination because it has ample supply and storage for fresh surface water from the South Fork of the Feather River. The Agency has no groundwater pumps for fresh water, let alone for briny groundwater. The Pacific Ocean is 120 miles west of the Agency's distribution system, making it somewhat unavailable as a desalination opportunity.

Recycled Water Opportunities

Law #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).

The City of Oroville and Lake Oroville Area Public Utility District (LOAPUD) each operate and maintain sewage collection systems in portions of the Agency's service area. However, approximately half of the parcels receiving water service from SFWPA utilize septic systems for sewage disposal.

The sewage collection systems of the City of Oroville and LOAPUD each terminate at Sewage Commission – Oroville Region's (SCOR) treatment facility that is west of and not within the Agency's service area. SCOR's treated effluent is discharged to the Feather River below Lake Oroville. SCOR does not operate a recycled water program.

Thus, recycled water is not available to the Agency for use as a water source. Further, the Agency has no need to utilize recycled water – if it was available – because it has an ample supply and storage facilities for fresh surface water from the South Fork of the Feather River.

Future Water Projects

Law #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 (I) 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 the 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)).

SFWPA's water supply is adequate to meet its projected future water use. Therefore, other than the demand management measures discussed below, the Agency has no future water supply projects or programs planned.

Although it has no water supply projects or programs planned, the Agency does have plans to increase the capacity of its water treatment plant. In 2009 CDM, Inc., was commissioned by SFWPA to prepare a pre-engineering study for expansion of Miners Ranch Treatment Plant. That study, approved by the Agency's Board of Directors, recommended improvements and expansion staged into two phases:

- Phase 1 addresses projected system demand for a 30-year planning window and includes enhanced mixing, clarification, filtration, disinfection and residuals handling facilities and practices. The plant expansion will increase treatment (design) capacity from 14.5 to 21 million gallons per day (mgd), which corresponds to 18 mgd firm capacity with one filter out of service.
- Phase 2 includes ultimate build-out of the plant to 29 mdg design capacity (25.4 mgd firm capacity with one filter out of service) should water demands in the system approach the plant's design capacity of 21 mgd.

As prescribed in the 10-year (2012-2021) Revenue and Expense Projection in the Agency's 2012 approved budget, design and engineering for the treatment plant's expansion is scheduled for funding in 2013, with construction of Phase 1 to commence in 2014.

Water Supply Reliability and Water Shortage Contingency Planning

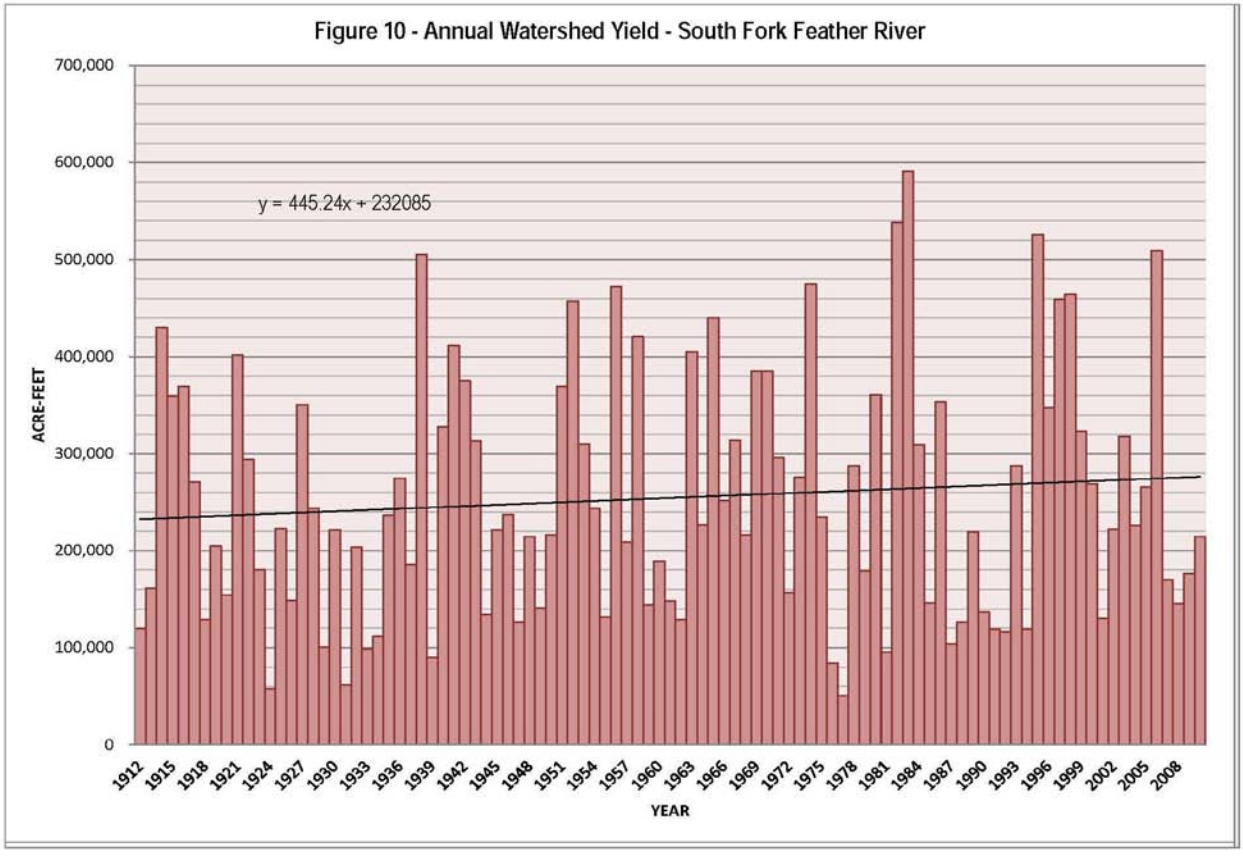
Water Supply Reliability

Law *#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)).*

#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)).

South Feather Water and Power Agency's source of water is surface runoff from the South Fork Feather River (SFFR) above Lake Oroville, including diversions from Slate Creek, a tributary of the North Fork Yuba River. This supply is diverted from its natural watercourse at Ponderosa Reservoir and is transported via the Agency's Miners Ranch Canal to Miners Ranch Reservoir for treatment and delivery to customers.

Figure 10, below, charts annual SFFR watershed amounts from 1912 through 2010.



The data shown in Figure 10 for 1912 through 1918 is USGS annual mean daily flows at Enterprise plus estimated diversions (average of measured diversions, 1928-1941) into the Forbestown Ditch for irrigation purposes by the South Feather Land and Water Company (predecessor to Oroville-Wyandotte Irrigation District, which was named South Feather Water and Power Agency in 2003).

Values in Figure 10 for 1919 through 1927 are USGS annual mean daily flows at Enterprise plus estimated diversions (average of measured diversions, 1928-1941) into the Forbestown Ditch for irrigation purposes by Oroville-Wyandotte Irrigation District ("OWID", which was formed in 1919 and assumed responsibility for the Forbestown Ditch and the irrigators to whom it supplied water).

Values in Figure 10 for 1928 through 1941 are USGS annual mean daily flows at Enterprise plus diversions into the Forbestown Ditch for irrigation purposes recorded by OWID.

Values in Figure 10 for 1942 through 1962 are USGS annual mean daily flows at Enterprise plus estimated diversions (average of measured diversions, 1928-1941) into the Forbestown Ditch for irrigation purposes by OWID.

Values in Figure 10 for 1963 through 1972 are USGS annual mean daily flows at Enterprise plus diversions into the Forbestown Ditch for irrigation purposes recorded by OWID.

The data shown in Figure 10 for 1973 through 2010 are actual SFWPA measurements (Kelly Ridge Powerhouse + Ponderosa Reservoir spills + consumptive use).

The data from which Figure 10, above, Table 27, Chart 3, and Figures 11 and 12, below, were derived is tabulated in Appendix E.

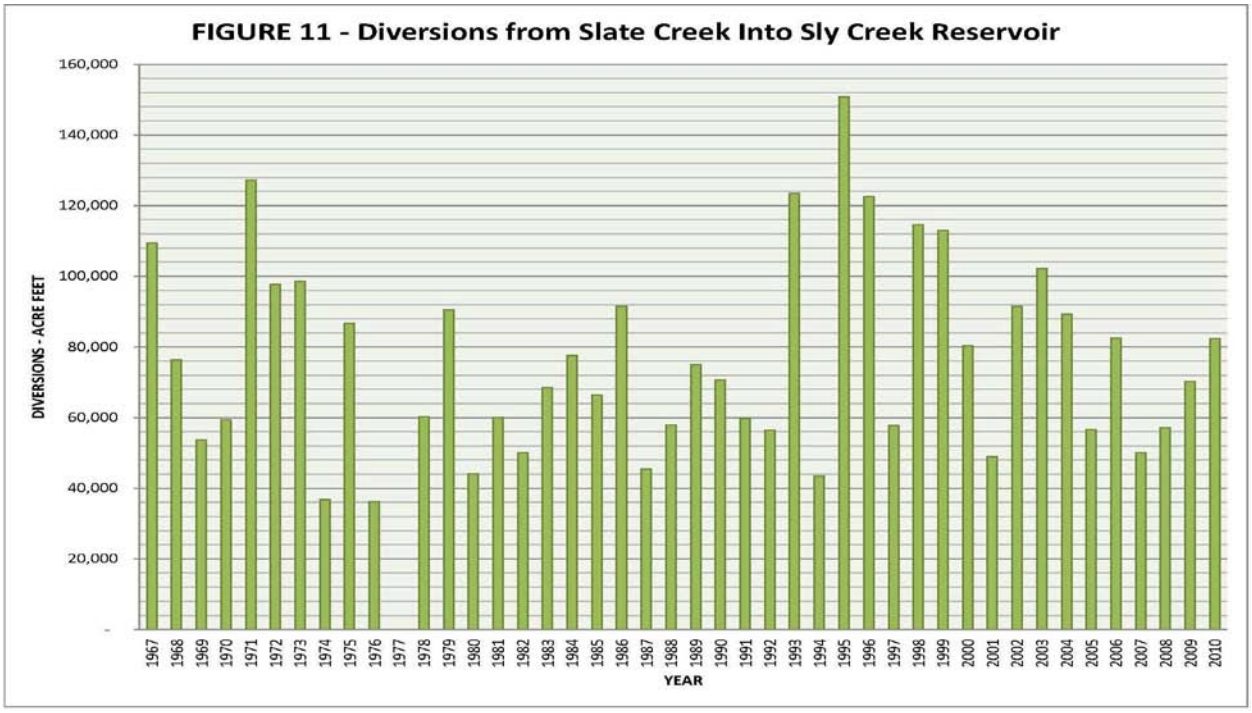
The median annual watershed runoff ("Average Year") is 254,347 acre-feet.

The single-dry year was in 1977, with a total runoff of 50,677 acre-feet.

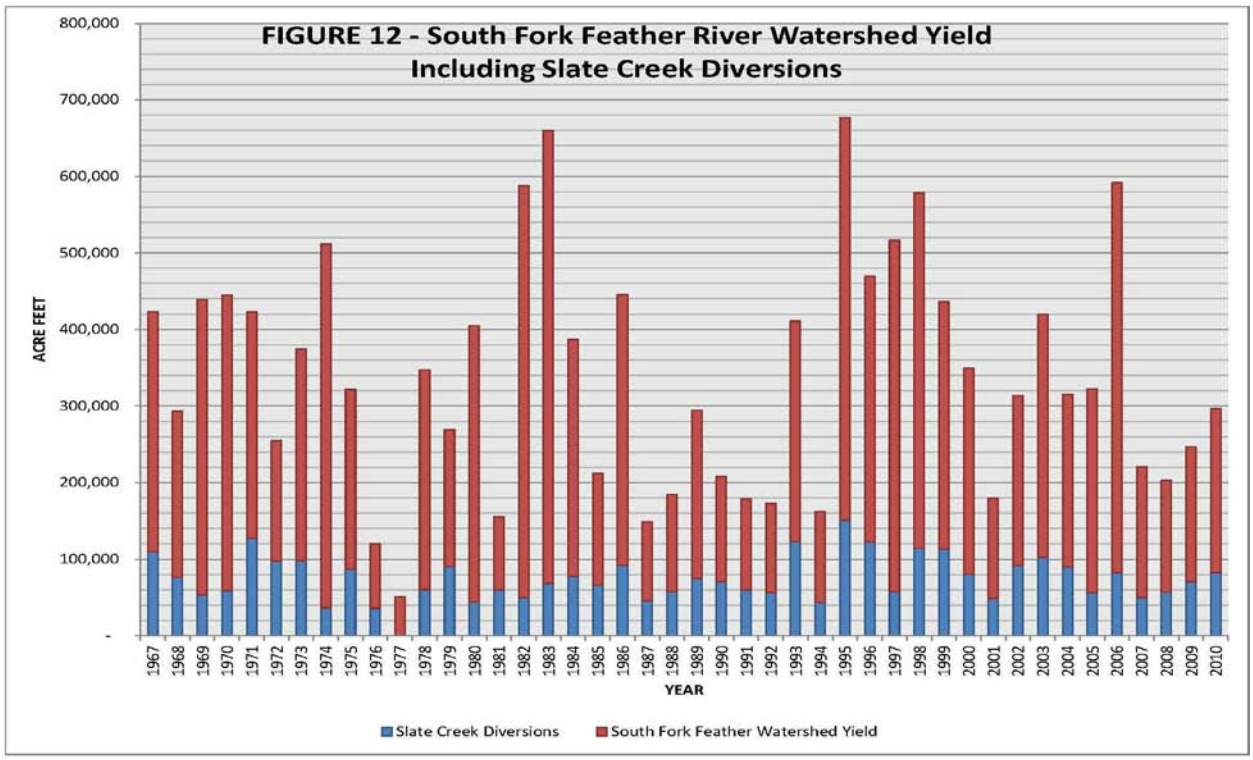
The lowest average runoff for a consecutive multiple-year period ("multiple-dry year period") was 118,834 acre-feet for the four-year period, 1931-1934.

CHART 3 - Frequency Distribution of Annual Watershed Yield (Excluding Slate Creek Diversions)				
	South Fork Feather River (Water Year 1912 - 2010)			
	# of Years	% of Years	Frequency	
			Probability	Once / X Years
Critically Dry (<50%)	16	16.2%	19.5%	5
Dry (50%<80%)	21	21.2%	17.2%	6
Normal (80%<120%)	29	29.3%	26.6%	4
Wet (>120%)	33	33.3%	36.7%	3
Total	99	100.0%	100.0%	1

Beginning in 1963, upon completion by the Agency (then OWID) of the South Feather Power Project (FERC Project No. 2088), water from Slate Creek (a tributary of North Fork Yuba River) began being diverted into the Agency's Sly Creek Reservoir. The annual diversion volumes were not included in Figure 10 or in the statistics discussed, above. Figure 11, below, presents the annual diversions from Slate Creek that were part of the Agency's supply from 1967 (the first year that gauge records became available) through 2010.



The average annual diversion from Slate Creek into Sly Creek Reservoir is 74,858 acre feet. The combined average annual yield (1967-2010) from the South Fork Feather River watershed and Slate Creek Diversions is 329,205 acre feet.



For the Agency's combined supply of Slate Creek and South Fork Feather River, the single-dry year (1967-2010) was 1977 (50,677 acre-feet), and the multiple-dry year period was 1931-1934 (118,834 acre-feet average).

For the water-supply source identified in Table 16 (above), and discussed in this section ("Water Supply Reliability"), weather is the only factor that could reduce the amount of the water supply.

As discussed above, the Agency's surface-water supply from the South Fork Feather River watershed is stored primarily in Little Grass Valley Reservoir and Sly Creek Reservoir. Releases from storage and natural runoff is diverted for Agency consumptive purposes just above Lake Oroville (DWR) at SFWPA's Ponderosa Reservoir via the Miners Ranch Canal. Miners Ranch Canal has a normal operational carrying capacity of 285 cubic feet per second (cfs). Accounting for the 12 days annually it is out of service for maintenance purposes, the maximum amount of water the Miners Ranch Canal can transport to the Agency for consumptive puroses is 200,000 acre-feet annually. All flows in excess of this amount from the watershed will spill into Lake Oroville out of Ponderosa Reservoir. SFWPA is not obligated to spill any water from the South Fork Feather River into Lake Oroville if it can divert the water for consumptive usage and hydropower generation at the Agency's Kelly Ridge Powerhouse (also supplied by Miners Ranch Canal and located on the Feather River immediately downstream of Oroville Dam).

South Feather Water and Power Agency maintains water rights permits to support the consumptive uses of water within the Agency (the Agency has separate licensed water rights for its power operations) with a maximum diversion authorization for consumptive use of 51,000 acre-feet per annum. SFWPA also

possesses limited amounts of pre-1914 appropriative rights on the upper reaches of the South Fork Feather River, generally located on tributaries to the South Fork.

Permits issued by the State Water Resources Control Board (SWRCB) have a maximum period of time during which the Agency can place the full amount of the permit to beneficial use. At the end of that period, a water rights holder proceeds either to acquire a license for the amount used, or it may petition to extend the period to place more of the authorized quantity to beneficial use. The most recent period of time for the Agency expired December 31, 2004. Since the Agency was not using the full 51,000 acre-feet, the Agency timely made application for an extension of the permits in order to extend the period of time to which it could place the full amount of water to beneficial use. On December 17, 2008, the Water Resources Control Board's staff issued an order denying the extension and requesting that the Agency apply for a license for the amount of which it was then using. The Agency timely filed a "Petition for Reconsideration" of said order. The matter remains pending. The SWRCB is required to hold additional hearings before it can actually reduce the amount of the Agency's permits below the currently authorized amount of 51,000 acre-feet and neither said hearings, nor any action on the Agency's petition for reconsideration, has been filed. The Agency reserves the right to seek court review if in fact the Water Board were to uphold the decision of its staff.

Notwithstanding the foregoing, the Agency would not be limited to these quantities to meet future growth, but would only be limited to those quantities under its currently authorized permits. If the Agency determined that it required additional water for future growth, then the Agency is fully authorized to file a new application with the State Water Resources Control Board to initiate a new diversion of water from its available supplies from the South Fork Feather River.

The Agency is within the County and the Area of Origin, and entitled to protection under the provisions of Water Code Sections 10505 and 11460. These sections specify that the Agency has a priority for its own uses within its boundaries which is ahead of the State Water Project and, therefore, the Agency is not precluded, if future needs require it, from applying for additional water for uses with the Agency. In those circumstances, the largest diverter downstream of the Agency, the State Water Project, would have its own water rights relegated to a priority subordinate to the Agency. While the Agency would prefer to retain its permanent rights to its full 51,000 acre-feet to avoid the time, expense, and regulatory demands of a new application, the Agency cannot be deprived of the right to apply for and receive an appropriative permit for that water with a priority above the State Water Project, notwithstanding whether or not its current authorized quantity of 51,000 acre-feet is reduced.

Water Shortage Contingency Planning

Law *#37. Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster (10632(c)).*

#38. 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)).

#39. 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)).

#40. Penalties or charges for excessive use, where applicable (10632(f)).

SFWPA's total consumptive usage (domestic and irrigation) in 2010 was 19,398 acre-feet. The domestic portion of that total was 4,336 acre-feet. Projected water deliveries for domestic purposes in 2035 (see Table 7, above) is 231,854,371 cubic feet (5,323 acre-feet) if the Rio 'dOro Specific Plan is not developed, and 291,197,369 cubic feet (6,685 acre-feet) after total buildout if it is developed. Using 2010 domestic-irrigation proportions, without Rio 'dOro, total consumptive demand in 2035 is expected to be 23,812 acre-feet, less than half of the single-dry year yield of the Agency's supply (50,677 acre-feet, see Table 28, below). Including Rio 'dOro, total consumptive demand in 2035 is expected to be 29,907 acre-feet, or less than 60% of the single-dry year yield. The 2035 projected domestic delivery without Rio 'dOro is only 10.5% of the single-dry year yield, and 13.2% of the single-dry year yield with Rio 'dOro. (The foregoing is summarized in the following table.)

	2010	2035	
		Without Rio 'dOro	With Rio 'dOro
Total Consumptive Usage (acre-feet)	19,398	23,812	29,907
Total Domestic Demand (acre-feet)	4,336	5,323	6,685
Total Domestic Demand as % of Single-Dry Year Yield (50,677 acre-feet)	8.6%	10.5%	13.2%

Based on the foregoing, SFWPA believes that its water supply sources will continue to more than adequately meet the current and foreseeable future demand through 2035, even with the addition of the units proposed in the Rio 'dOro Specific Plan. Other factors that contribute to this opinion are:

- the Agency's average annual watershed production = 254,347 acre-feet;
- the Agency has the ability to store 165,016 acre-feet;
- the Agency possesses all necessary consumptive water rights;
- Miners Ranch Canal's maximum carrying capacity is 200,000 acre-feet annually; and,
- SFWPA is not dependent on other water suppliers.

Based on the foregoing, South Feather Water and Power Agency is not considering imposing water-shortage contingencies such as mandatory rationing, consumption reduction methods, or penalties/charges for violating water shortage restrictions or prohibitions.

Law *#41. An analysis of the impacts of each of the actions and conditions described in subdivision (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 (10623(g)).*

As discussed above in this section, SFWPA believes that its water supply sources will continue to more than adequately meet the current and foreseeable future demand through 2035. Therefore, there are no potential water shortage scenarios for which the Agency will need a response plan. SFWPA has not identified any catastrophic water-supply reductions or interruptions for which contingency planning is necessary.

Law #42. A draft water shortage contingency resolution or ordinance (10632(h)).

SFWPA has not prepared a water shortage contingency resolution or ordinance, and does not believe that one is necessary, given the foregoing discussions.

Water Quality

Law #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).

The vast majority of the land use within SFWPA's water-supply watersheds consists of undeveloped forest, brush, and grazing lands. Within this area are scattered pockets of development, including rural and community residential and recreational facilities. Community populations exist around the centers of Forbestown and La Porte. To a lesser degree, smaller, more dispersed rural populations live around the loose communities of Woodleaf, Oroleve, Clipper Mills, Strawberry Valley, Schwartz Meadow, American House, Yankee Hill, and Gibsonville.

SFWPA personnel have conducted vulnerability analyses of potential contaminant sources to which its water supply was most vulnerable following the procedures provided by the California State Department of Health Services. There are three potential contaminant sources of most concern to the Agency within the South Fork Feather River and Slate Creek watersheds tributary: Managed Forests, Historic/Active Mining Operations, and High-Density Septic Systems (>1/0.5 acre). These potential contaminant sources are discussed below.

Managed Forests

Poorly managed forests can contribute significant water quality contamination as well as limitations to available water supply and quantity through erosion. Timber harvesting methods, including extent and slope, proximity to water courses, use of erosion control measures, truck and equipment fuel management and fueling practices, as well as fire suppression and fuels management can all impact water quality and available quantity.

Managed forests (those lands in both public and private ownership), account for the vast majority of land use in the Agency's upper watershed tributary to the MRTP. Lands within the Plumas National Forest account for almost 75% of the acreage within this watershed. Additional large, managed forest land owners include Soper-Wheeler Company, Chy Corporation, and Sillar Brothers.

For the most part, timber harvesting is practiced rarely now within the Plumas National Forest, with the exception of the construction and maintenance of fire breaks and defensible fuel profile zones. Use Permits provided by the USFS require timber harvest plans with stipulated erosion control best management practices. Timber harvest plans submitted for private lands require publication of notifications inquiring about domestic water supply sources within 1,000 feet of planned operations.

The Agency has not experienced serious effects from managed forests as a potential contaminant source within its water supply watershed. SFWPA will continue to rely on the U.S. Forest Service and other permitting agencies for enforcement, continued review and comment on notices for planned timber harvests, and passive surveillance of timber harvests while underway will be conducted.

Historic/Active Mining Operations

Existing and abandoned mines can contribute a variety of contaminants to surface water supplies depending upon the type of mining activity (acid mine drainage – metals and low pH, asbestos, mercury, sediment from hydraulic mining, etc.). Historic and active gold mining operations are pervasive throughout the Sierra Nevada. Over one hundred of these operations dot the upper Slate Creek reach of the watershed tributary to the MRTP. Fewer, but still a significant number dot the lower reaches of the South Fork Feather River watershed.

Various Federal and State agencies enforce the laws and regulations governing proposed and active mining operations in California (Bureau of Land Management, USFS, California Geological Survey, Department of Fish & Game, Regional Water Quality Control Board, County Planning and Building, etc). Mining on National Forest lands in California that might cause disturbance of surface resources requires the filing of a Notice of Intent and approval of a Plan of Operations. The Plan of Operations is basically an agreement between the miner and the land owner that describes the work to be done, and the steps to be taken to protect surface resources, including reclamation measures during operation and following completion.

Effects are still noticeable from historic and active mining operations within the Agency's water-supply watershed. Turbidity and settleable solids generated from generally small but active placer gold dredge mining still occurs in the warmer months of the year. Ongoing erosion of the large land scars denuded of vegetation from historic hydraulic mining operations contributes turbidity, settleable solids, and mobile gravel deposits. Significant gravel loads have migrated down Slate Creek from the historic hydraulic placer diggings upstream of La Porte. Notable large scale abandoned mining operations with problematic legacies include the Gardner Point Mine (T21N, R9E, S13) and Pioneer Pit (T21N, R9E, S14) in Sierra County. An older debris dam located upstream of the Agency's Slate Creek Diversion Dam historically captured a large amount of this mobile bed load. Unfortunately, in the mid 1960's the dam was intentionally breached by unknown individuals. Significant amounts of gravel have now migrated and filled in most of the available volume behind the Agency's dam. Fortunately, exhaustive testing of sediments and water quality at Slate Creek Diversion Dam has found no evidence of contamination by mercury (historically used in the mining of placer gold). Furthermore, the technologies and procedures employed at the Agency's water treatment plant ensure the effective treatment of raw water for customer consumption.

During the summer months influent turbidities are low, in the 1.0 NTU to 5.0 NTU range; and during the winter months range from 10 NTU to a rarely seen 70 NTU.

Septic Systems and Sanitary Waste Management

Septic tank leach fields and inappropriate waste management associated with certain recreation activities can result in water quality contamination of surface water supplies. The key contaminants of concern are pathogenic organisms (e.g., coliform bacteria, including E. coli), nutrients, and oxygen-demanding substances. Various sanitary waste management systems are notable potential contaminant sources at numerous locations within the Agency's water supply watershed. Representative examples include:

- rural communities and subdivisions on septic systems in La Porte, Clipper Mills, and Forbestown;
- campground wastewater septic systems at Little Grass Valley Reservoir and Sly Creek Reservoir (pumped vaults), Golden Trout Campsite on South Fork Feather River (pumped vault), and numerous undeveloped but actively used campsites around the other reservoirs;
- existing homes adjacent to Little Grass Valley Reservoir and Ponderosa Reservoir; and,
- small septic systems for the Agency's hydroelectric powerhouses adjacent to Lost Creek Reservoir (pumped vault), Forbestown Diversion Reservoir, and Ponderosa Reservoir.

Controls on existing and future sanitary waste management systems are usually administered and enforced by the environmental health divisions of the respective county. The volume and generally cold temperature of the source water reduces the likelihood of detrimental effects to water quality within the watershed. In fact, no real effects have been observed from these potential contaminant sources at the the Agency's Miners Ranch Water Treatment Plant (MRTP). The technologies and procedures employed at MRTP ensure the effective treatment of raw water for customer consumption.

Grazing Animals

Grazing animals are not believed to present a significant potential contaminant source within the watershed that is the Agency's water supply. This is due to the fact that the watershed's topography is generally unsuitable for grazing. Further, no grazing permits have been issued within the watershed since 2000.

Notwithstanding the foregoing discussion of water quality issues, the Agency is not aware of potential water quality issues that could impact water supplies.

Drought Planning

Law *#22. Describe the reliability of the water supply and vulnerability to seasonal or climate 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 27
Basis of Water Year Data

Water Year Type	Base Year(s)
Average Water Year	1966
Single-Dry Water Year	1977
Multiple-Dry Water Years	1931 - 1934

Table 28 Supply Reliability — Historic Conditions					
Average / Normal Water Year	Single-Dry Water Year	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
254,347	50,677	61,048	203,667	98,923	111,696
Percent of Average/Normal Year:	19.9%	24.0%	80.1%	38.9%	43.9%

As discussed earlier, the Agency's total consumptive demand in 2035 is expected to be 23,812 acre-feet, less than half of the single-dry year yield of the Agency's supply (50,677 acre-feet, see Table 28, above). Including the proposed Rio 'dOro project, total consumptive demand in 2035 is expected to be 29,907 acre-feet, or less than 60% of the single-dry year yield.

Based on the foregoing, SFWPA believes that its water supply sources will continue to more than adequately meet the current and foreseeable future demand through 2035, even with the addition of the units proposed in the Rio 'dOro Specific Plan.

Law *#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)).*

A 50% reduction in water supply will not require South Feather Water and Power Agency to implement a drought contingency or a water supply reliability plan.

Law *#36. 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)).*

#43. A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis (10632(i)).

Table 31 Supply Reliability — Current Water Sources				
Water supply sources*	Average / Normal Water Year Supply**	Multiple Dry Water Year Supply[2]		
		Year 2011	Year 2012	Year 2013
Supplier-produced surface water	254,347	61,043	203,732	98,941
Percent of normal year:		24.0%	80.1%	38.9%
Units: acre-feet per year **From Table 16.* ***See Table 27 for basis of water type years.*				

Total consumptive demand in 2011 through 2013 is projected to be less than 20,000 acre-feet annually (see Figure 7, above). Clearly, even under a multiple-dry water year scenario (Table 31, above), the Agency's water supply source exceeds the demand by 300%. As stated earlier, South Feather Water and Power Agency will not need to implement a drought contingency or a water supply reliability plan. Thus, a mechanism for determining actual reductions in water use pursuant to an urban water shortage contingency analysis is also not needed.

Law *#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)).*

The following supply and demand comparisons (Tables 32-34) include water demands from the proposed Rio 'dOro Specific Plan (see Appendix A).

Table 32
Supply and Demand Comparison — Normal Year

	2015	2020	2025	2030	2035 - opt
Supply totals (from Table 16)	254,347	254,347	254,347	254,347	254,347
Demand totals (From Table 11)	4,959	5,446	6,044	6,410	6,694
Difference	249,388	248,901	248,303	247,937	247.653
Difference as % of Supply	98.1%	97.9%	97.6%	97.5%	97.4%
Difference as % of Demand	5029%	4570%	4108%	3868%	3700%

Units are in acre-feet per year.

Table 33 Supply and Demand Comparison — Single Dry Year					
	2015	2020	2025	2030	2035 - opt
Supply totals	50,677	50,677	50,677	50,677	50,677
Demand totals	4,959	5,446	6,044	6,410	6,694
Difference	45,718	45,231	44,633	44,267	43,983
Difference as % of Supply	90.2%	89.3%	88.1%	87.4%	86.8%
Difference as % of Demand	922%	831%	738%	691%	657%
Units are in acre-feet per year.					

Table 34
Supply and Demand Comparison — Multiple Dry-Year Events

		2015	2020	2025	2030	2035 - opt
Multiple-dry year first year supply	Supply totals	61,048	61,048	61,048	61,048	61,048
	Demand totals	4,959	5,446	6,044	6,410	6,694
	Difference	56,089	55,602	55,004	54,638	54,354
	Difference as % of Supply	91.9%	91.1%	90.1%	89.5%	89.0%
	Difference as % of Demand	1131%	1021%	910%	852%	812%
Multiple-dry year second year supply	Supply totals	203,667	203,667	203,667	203,667	203,667
	Demand totals	4,959	5,446	6,044	6,410	6,694
	Difference	198,708	198,221	197,623	197,257	196,973
	Difference as % of Supply	97.6%	97.3%	97.0%	96.9%	96.7%
	Difference as % of Demand	4007%	3640%	3270%	3077%	2943%
Multiple-dry year third year supply	Supply totals	98,923	98,923	98,923	98,923	98,923
	Demand totals	4,959	5,446	6,044	6,410	6,694
	Difference	93,964	93,477	92,879	92,513	92,229
	Difference as % of Supply	95.0%	94.5%	93.9%	93.5%	93.2%
	Difference as % of Demand	1895%	1716%	1537%	1443%	1378%

Units are in acre-feet per year.

Demand Management Measures

Law *#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) and (2)).*

#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)).

#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)(f)).

#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)).

Demand Management Measures (Implemented and Scheduled for Implementation)

DMM A – Water survey programs for single-family residential and multifamily residential customers.

IMPLEMENTATION DATE: 2005.

IMPLEMENTATION DESCRIPTION: SFWPA supports upgrading and retrofitting with water-efficient plumbing and appliances. The Agency began providing educational material on its website in 2005 explaining how to check for leaks within residential plumbing systems. Information is also provided regarding who residential customers should contact if they have questions about their water consumption.

An Agency technician is dispatched to a residence when the customer contacts the Agency regarding suspiciously high water bills or suspected leaks.

STEPS NECESSARY TO IMPLEMENT: The Agency will retain a website development consultant to revise and upgrade its website to provide opportunities for the Agency to add, change and modify information as necessary regarding ways to conserve water.

IMPLEMENTATION SCHEDULE: In addition to the information and assistance already provided to residential customers on its website, the Agency will revise and upgrade its website in 2012 to include information to educate customers regarding replacing old fixtures with water-saving faucets, toilets and appliances.

METHODS USED TO EVALUATE EFFECTIVENESS: None proposed.

ESTIMATE OF CONSERVATION SAVINGS: Conservation savings resulting from this DMM are not quantifiable.

DMM B – Residential plumbing retrofit.

IMPLEMENTATION DATE: 2015.

IMPLEMENTATION DESCRIPTION: Many of SFWPA's residential customers have homes that were built many years ago. Their plumbing is often galvanized steel that has internal corrosion resulting in reduced flow capacity. Buried galvanized steel lines are at high risk for leakage and failures as a result of external corrosion. The Agency will provide grants to low-income customers, and low- or no-interest loans to medium-and-above-income customers to assist in replacing old distribution systems and in installing water-saving faucets and appliances.

STEPS NECESSARY TO IMPLEMENT: The Agency's revenue and expenditures will be monitored, including rolling 10-year projections that will incorporate the funding for this DMM beginning in 2015, as described below, to ensure that sufficient funds will be available to allocate for this purpose. Once funds have been allocated in the 2015 budget and a program administration policy has been approved by the board of directors, a funding application process in accordance with the approved policy will be developed with qualification criteria – income and project – and application forms. The Agency's Water Conservation Coordinator will prepare and distribute a public announcement of the program to residential customers. Thereafter, applications will be evaluated by the Coordinator. Those meeting the policy's prescribed qualification criteria will be funded on a "first-come" basis until funds are exhausted.

IMPLEMENTATION SCHEDULE: Beginning with the Agency's 2015 budget, and continuing thereafter for five years, $125,000 will be allocated to a "Residential Plumbing Retrofit Fund" to be used to finance this demand management measure. In subsequent years, funds will be allocated to maintain the fund at a balance of $250,000.

METHODS USED TO EVALUATE EFFECTIVENESS: The Agency's Water Conservation Coordinator will oversee this program and will evaluate applications for retrofit funding. He/she will report annually to the

Agency's board of directors as to the number of retrofit funding applications received, the funds dispersed, and the cost to the Agency on some appropriate unit-of-cost basis (e.g., feet of pipe replaced, units of low-flow shower heads installed, etc.).

ESTIMATE OF CONSERVATION SAVINGS: Conservation savings resulting from this DMM will not be quantifiable until after the program is implemented and statistics are available as to the number and type of funding applications received.

DMM C – System water audits, leak detection, and repair.

IMPLEMENTATION DATE: 1988.

IMPLEMENTATION DESCRIPTION: The Agency has conducted water audits and leak detection and repair since the late 1980's. Over the past twenty years SFWPA has undertaken a steel pipeline replacement project at a cost of over $10.7 million. The agency has completely replaced old failing steel water mains with over 60 miles of new C900 PVC pipe.

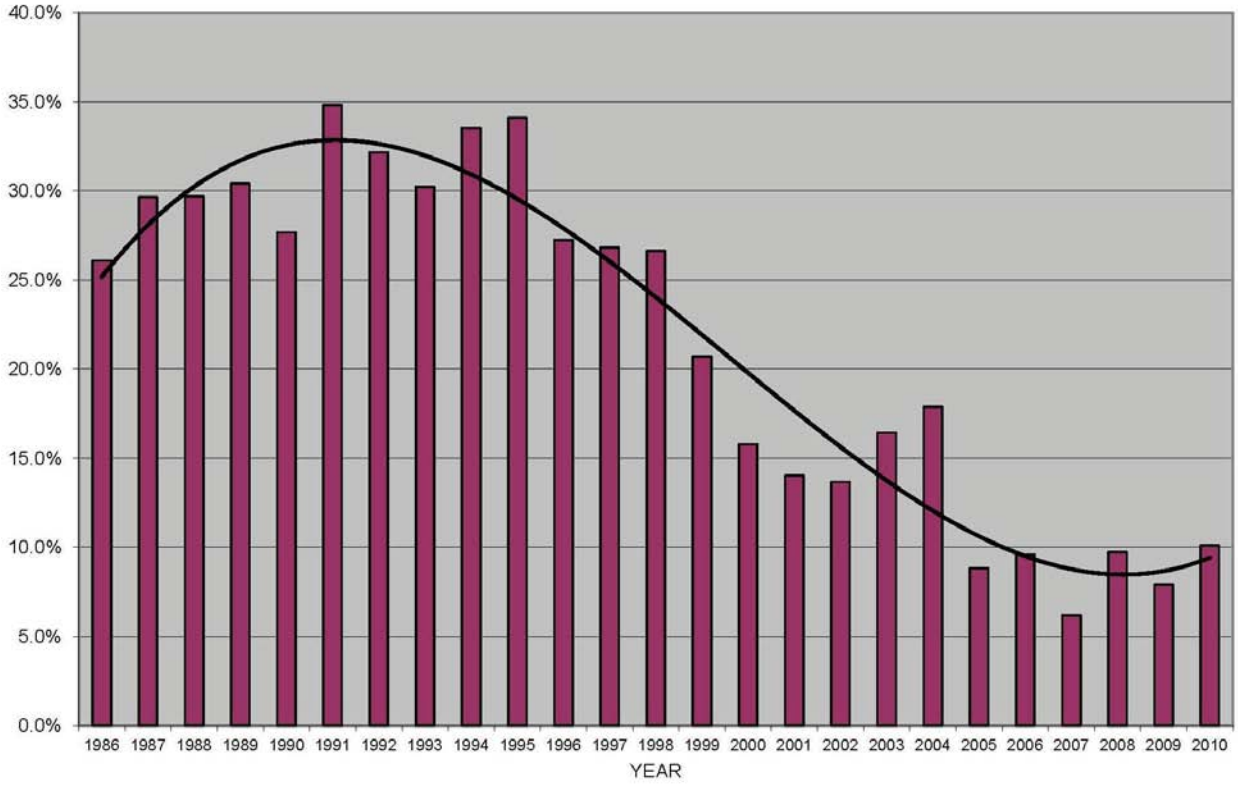
STEPS NECESSARY TO IMPLEMENT: The Agency has permanently incorporated this DMM into its operations and maintenance procedures.

IMPLEMENTATION SCHEDULE: This DMM is already implemented.

METHODS USED TO EVALUATE EFFECTIVENESS: The number of reported and repaired leaks per month is the primary method for evaluating the effectiveness of this DMM. In 1993, the Agency repaired as many as 167 distribution-system leaks in a single month. Presently, the number of leaks repaired has dropped to less than five leaks per month.

ESTIMATE OF CONSERVATION SAVINGS: As shown in Figure 13, below, unaccounted water losses (as a percentage of total water diverted for treatment and distribution purposes) reached their peak in 1991 at 34.8%, being a total of 1,825 acre-feet. However, although not the highest percentage of loss, 1,979 acre-feet of water was unaccounted for in 1987 (29.6% of all water). The polynomial trendline in Figure 13 shows a drastic reduction in unaccounted water from 1991 to 2005. From 2005 through 2010, unaccounted water losses stabilized at an annual average of 8.7% (464 acre-feet annual average). From the high of 1987 to the average of 2005 through 2010, 1,515 acre-feet of unaccounted water is being conserved annually.

FIGURE 13 - UNACCOUNTED WATER
MINERS RANCH TREATMENT PLANT AND ASSOCIATED DISTRIBUTION SYSTEM



DMM D – Metering with commodity rates for all new connections and retrofit of existing connections.

IMPLEMENTATION DATE: 1983.

IMPLEMENTATION DESCRIPTION: The Agency's domestic water services are 100% metered, and non-potable agricultural water services are volumetrically measured.

STEPS NECESSARY TO IMPLEMENT: The Agency's Rules & Regulations Governing Water Service require all new water-service connections to be metered.

IMPLEMENTATION SCHEDULE: This DMM is already implemented.

METHODS USED TO EVALUATE EFFECTIVENESS: The Agency monitors the consumption of its customers. Comparative analysis of consumption statistics from year to year reveals changes in consumption behavior.

ESTIMATE OF CONSERVATION SAVINGS: The average daily per-capita water use within the Agency's service area has declined over the past 12 years. As discussed above, the Agency's "Base Daily Per Capita Water Use" was determined to be 276.1 gcpd (derived from the ten-year period of 1999-2008). As shown in Figure 6, above, daily per capita water use in 2009 and 2010 was 261.7 gcpd and 237.3 gcpd, respectively, and the 12-year linear trend for 1999-2010 per-capita usage is declining at a rate of nearly 2 gcpd annually. This equates to a total of 266 acre-feet conserved annually.

DMM G – Public information programs.

IMPLEMENTATION DATE: 2005.

IMPLEMENTATION DESCRIPTION: The Agency promotes water conservation by distributing information to the public through bill inserts, brochures, speakers for community service clubs and organizations, and other special events each year. The Agency's website includes information on water conservation and other resource issues. Annually, the Agency conducts a public tour to provide information to its customers on SFWPA's water supply, conservation, operations and other issues. .

Agency water bills were redesigned in 2005 to show customers their monthly consumption for the last 12 monthly billings. This provides the customer with the ability to visualize their annual water use pattern and to compare the current billing period to the same period for the previous year. It is assumed that the comparative data causes customers to think and helps to motivate them about conservation.

STEPS NECESSARY TO IMPLEMENT: This DMM is already implemented.

IMPLEMENTATION SCHEDULE: The Agency will continue the implementation of this DMM

METHODS USED TO EVALUATE EFFECTIVENESS: Comments received periodically from customers and website browsers are evaluated to determine if the commenting individual's needs for information were met. Modifications to the website, printed information resources, and information dissemination policies and procedures are modified accordingly.

ESTIMATE OF CONSERVATION SAVINGS: Conservation savings resulting from this DMM are not quantifiable.

DMM H – School education programs.

IMPLEMENTATION DATE: 1995

IMPLEMENTATION DESCRIPTION: The Agency continues to work with local school districts to promote water conservation measures and to educate students about resource issues.

The Agency provides educational materials for several grade levels at local science fairs and conducts facilities tours (for example, Miners Ranch Reservoir, the surrounding watershed, and water treatment facilities) to individual classes upon request.

STEPS NECESSARY TO IMPLEMENT: The Agency will continue to survey interested schools/colleges/universities and educators on the value of the programs and materials it provides to students.

IMPLEMENTATION SCHEDULE: This DMM is already implemented.

METHODS USED TO EVALUATE EFFECTIVENESS: The Agency has no method to quantify the savings of this DMM but believes that it is in the public's interest.

ESTIMATE OF CONSERVATION SAVINGS: Conservation savings resulting from this DMM are not quantifiable.

DMM L – Water conservation coordinator.

IMPLEMENTATION DATE: 2005

IMPLEMENTATION DESCRIPTION: The Agency's Water Division Manager assumes the responsibilities of Water Conservation Coordinator. Other Agency staff assist with these efforts, including the General Manager, Assistant Engineer, GIS Technician, and Treatment Plant Superintendent. In 2015, daily per capita water usage will be assessed to ensure that the Agency is on track to meet its 2020 conservation goal. If it is apparent that additional efforts are warranted, a full-time Water Conservation Coordinator will be recruited and hired at an estimated cost of $75,000 annually (salary and overhead).

STEPS NECESSARY TO IMPLEMENT: This DMM is already partially implemented. If it is determined that a full-time Water Conservation Coordinator is necessary, the 2015 Agency budget will include funding for the position. Once approved by the board of directors, the General Manager will recruit and hire an individual for the position.

IMPLEMENTATION SCHEDULE: The Agency will continue implementation of this DMM. If needed, the full-time Water Conservation Coordinator will be hired in 2015.

METHODS USED TO EVALUATE EFFECTIVENESS: Average daily per capita water usage will be determined each year. Reductions will indicate effectiveness. Increases will indicate ineffectiveness.

ESTIMATE OF CONSERVATION SAVINGS: The average daily per-capita water use within the Agency's service area has declined in recent years. As discussed above, the Agency's "Base Daily Per Capita Water Use" was determined to be 276.1 gcpd (derived from the ten-year period of 1999-2008). As shown in Figure 6, above, daily per capita water use in 2009 and 2010 was 261.7 gcpd and 237.3 gcpd, respectively, and the 12-year linear trend for 1999-2010 per-capita usage is declining at a rate of nearly 2

gcpd annually. Statistics presented in Figure 6 indicate that the Agency's conserved amount is increasing by 266 acre-feet each year.

DMM M – Water waste prohibition.

IMPLEMENTATION DATE: 1990.

IMPLEMENTATION DESCRIPTION: As a matter of policy (Rules & Regulations Governing Water Service) the Agency prohibits the wasting of water for irrigation customers and has reserved the right to refuse service until conditions causing the waste of water are remedied. However, this prohibition does not apply to domestic customers. In 2015, daily per capita water usage will be assessed to ensure that the Agency is on track to meet its 2020 conservation goal. If it is apparent that additional efforts are warranted, an amendment of the Rules & Regulations prohibiting the wasting of water by domestic customers will be submitted to the board of directors for approval.

STEPS NECESSARY TO IMPLEMENT: The Agency will continue to implement this DMM.

IMPLEMENTATION SCHEDULE: This DMM is already implemented. If needed, the necessary amendments to the Rules & Regulations will be made in 2015.

METHODS USED TO EVALUATE EFFECTIVENESS: The Agency has no method to quantify the savings of this DMM, aside from the fact that there have been no incidents of customers wasting water in the past five years.

ESTIMATE OF CONSERVATION SAVINGS: Conservation savings resulting from this DMM are not quantifiable.

DMM N – Residential ultra-low-flush toilet replacement programs.

IMPLEMENTATION DATE: 2015

IMPLEMENTATION DESCRIPTION: Commencing in 2015, the Agency will begin offering to pay customers to replace their conventional toilets with ultra-low-flush toilets.

STEPS NECESSARY TO IMPLEMENT: The Agency's revenue and expenditures will be monitored, including rolling 10-year projections that will incorporate the funding for this DMM beginning in 2015, as described below, to ensure that sufficient funds will be available to allocate for this purpose. Once funds have been allocated in the 2015 budget and a program administration policy has been approved by the board of directors, a funding application process in accordance with the approved policy will be developed with qualification criteria and application forms. The Agency's Water Conservation Coordinator will prepare and distribute a public announcement of the program to residential customers. Thereafter, applications will

be evaluated by the Coordinator. Those meeting the policy's prescribed qualification criteria will be funded on a "first-come" basis until funds are exhausted.

IMPLEMENTATION SCHEDULE: The goal of the Agency will be to replace 300 toilets annually over a ten-year period. Beginning with the Agency's 2015 budget, and continuing thereafter for ten years, $75,000 ($250/toilet) will be allocated to a "Residential Toilet Replacement Fund" to be used to finance this demand management measure.

METHODS USED TO EVALUATE EFFECTIVENESS: The Water Conservation Coordinator will maintain a record of the number of applications received for replacing toilets.

ESTIMATE OF CONSERVATION SAVINGS: Ultra-low-flush toilets save 1.9 gallon per flush, and approximately 5,500 gallon/person/year (approximately 13,585 gallons/service/year). The total annual amount of water conserved by 300 ultra-low-flow toilets (estimating 1.5 toilets per service) will be approximately 2,717,000 gallons (8.3 acre-feet).

Demand Management Measures (Not Implemented or Scheduled for Implementation)

DMM E -- Large landscape conservation programs and incentives.

ECONOMIC AND NONECONOMIC FACTORS: In 2010, only six of the Agency's 6,643 customers (average) were for large landscapes, with a combined total annual consumption of 11,251,940 gallons (34.5 acre-feet) in 2010, or 0.00002% of the Agency's total water deliveries in 2010 (see Table 4, above).

BENEFIT-COST ANALYSIS: Given the Agency's very low number of landscape-irrigation customers, and the extremely small percentage of total water deliveries their combined usage amounts to, this DMM does not have the potential of a sufficient conservation impact to warrant appropriating Agency funds that could be used more productively for other conservation programs.

IMPLEMENTATION FUNDING AVAILABLE: General Fund of South Feather Water and Power Agency.

LEGAL AUTHORITY TO IMPLEMENT: California Irrigation Code

DMM F – High-efficiency washing machine rebate programs.

ECONOMIC AND NONECONOMIC FACTORS: The implemented DMMs, discussed above, will sufficiently achieve the Agency's 2020 usage target. The $26,940 price tag for this DMM (see analysis, below) makes it fiscally inefficient.

BENEFIT-COST ANALYSIS: According to P.G.& E.[6], clothes washing machines account for more than 20% of water used inside the home. Running a conventional washing machine can use more than 50 gallons of water per cycle. Most full-sized high-efficiency clothes washers use 18-25 gallons of water per load.

The twenty-seven Northern California water agencies that participate in P.G.& E.'s 2010-2012 rebate program for high-efficiency washing machines offer an average rebate of $60, with an average total combined rebate (P.G.& E. + water agency) of $110.

Low-end high-efficiency washers have a retail price (e.g., Home Depot) of approximately $600. Therefore, a homeowner wanting to participate in a rebate program like the one described above would have to pay a minimum of $500 (after sales tax) from their own funds. Given that the average family living in SFWPA's service area is considered low income, such an incentive to get them to switch from a conventional washing machine to a high-efficiency one would not be as motivating as it might in a higher-income community.

For the sake of this analysis, it is assumed that 3% of the Agency's customers would apply for a rebate program like the one described above, wherein SFWPA would pay $60 to a customer who purchased a high-efficiency clothes washing machine. Using 2010 figures (6,641 customers, average), 199 customers would be paid a combined total of $11,940. If each family used their machine six times weekly, their high-efficiency washing machine (using 20 gallons/load less than their old conventional machine) would save them 6,240 gallons annually. The combined annual savings from all 199 customers would be 1,241,760 gallons (3.8 acre-feet), or an average daily per capita usage savings of 0.21 gcpd.

Mangement of this DMM, if it were implemented, would be the responsibility of the Agency's Water Conservation Coordinator. Approximately 20% of the Coordinator's time would be dedicated to management of this DMM. Therefore, the total annual cost to implement this DMM would be $26,940 ($11,940 rebate expense + 20% of $75,000).

IMPLEMENTATION FUNDING AVAILABLE: General Fund of South Feather Water and Power Agency.

LEGAL AUTHORITY TO IMPLEMENT: California Irrigation Code.

DMM I – Conservation programs for commercial, industrial, and institutional accounts.

ECONOMIC AND NONECONOMIC FACTORS: Of the Agency's 6,643 customers (2010 average), none of them are industrial in nature. There are 28 commercial customers and 28 institutional (government, schools and churches) customers. Those 56 customers had a combined consumption of 68,640,953 gallons (210.7 acre-feet) in 2010, or 4.9% of the Agency's total water deliveries in 2010 (see Table 4, above).

[6] P.G.& E. "High-Efficiency Washers." *Water Energy Savings.* 2008. http://www.waterenergysavings.com/washers.html (accessed February 14, 2012).

BENEFIT-COST ANALYSIS: Given the Agency's low number of commercial and institutional customers, and the small percentage of total water deliveries their combined usage amounts to, this DMM does not have the potential of a sufficient conservation impact to warrant appropriating Agency funds that could be used more productively for conservation purposes.

IMPLEMENTATION FUNDING AVAILABLE: General Fund of South Feather Water and Power Agency.

LEGAL AUTHORITY TO IMPLEMENT: California Irrigation Code.

DMM J – Wholesale agency programs.

ECONOMIC AND NONECONOMIC FACTORS: SFWPA is a retail municipal water provider. It does not provide wholesale water to any other water providers or consumers, nor is it aware of any opportunities to do so.

BENEFIT-COST ANALYSIS: N/A

IMPLEMENTATION FUNDING AVAILABLE: N/A

LEGAL AUTHORITY TO IMPLEMENT: N/A

DMM K – Conservation pricing.

ECONOMIC AND NONECONOMIC FACTORS: The assumed purpose of this DMM is to motivate consumers to conserve through price incentives. As discussed above, the Agency's customers have been demonstrating conservation awareness by progressively reducing the daily per-capita usage. If this trend continues, the Agency is on track to achieve its 2020 water use goal (80% of Base Daily Per Capita Water Use) before 2020. Therefore, the Agency is not considering implementing conservation pricing.

BENEFIT-COST ANALYSIS: The Agency's board of directors has established the following rate structure applied unilaterally to all of its customers:

	First	After First
Per Unit Chg	100 Units	100 Units
2010 - 2011	$0.64	$0.25
2012 - 2013	$0.53	$0.28
2014 -2016	$0.42	$0.31
After 2016	$0.35	$0.35

(One unit = 100 cubic feet = 748 gallons.)

With each reduction in rates, shown above, the vast majority of SFWPA domestic-water customers will enjoy a lower bill for the same amount of water used during the previous price tier. However, customers who use large volumes of water will have to pay more money than they did under a previous price tier. The table, below, analyzes the impact the new rates would have on high-volume customers.

Year	Rate for First 100 Units	Rate After First 100 Units	Cost for First 100 Units	Breakeven Volume (units)	Total Bill for Breakeven Volume	Highest Average Monthly Increase
2010 - 2011	64¢	25¢	$64.00			
2012 - 2013	53¢	28¢	$53.00	466.7	$155.67	$4.52
2014 - 2016	42¢	31¢	$42.00	466.7	$155.67	$9.05
After 2016	35¢	35¢	$35.00	390.0	$136.50	$11.75

Most customers do not exceed 100 units (74,800 gallons) of consumption per month. The "breakeven volume" in the table, above, is that consumption volume at which the succeeding rates (after 2011) would result in a bill equal to what the 2010-2011 rate generates (this happens because the second tier increases as the first tier decreases so that they are equal in 2017).

IMPLEMENTATION FUNDING AVAILABLE: Each subsequent price tier (after 2010-2011, in the table above), reduces SFWPA General Fund revenues by approximately $110,000 to $180,000 per year, or an estimated $465,000 per year after the three adjustments are in effect. This loss of revenue from the sale of water will be offset by revenue from the sale of hydroelectricity by the Agency's power division.

LEGAL AUTHORITY TO IMPLEMENT: Proposition 218.

DMM M -- Water Waste Prohibition

IMPLEMENTATION DESCRIPTION: The Agency has a prohibition on wasting water for irrigation customers and has reserved the right to refuse service until conditions causing the waste of water are remedied. The Agency is currently investigating the addition of a prohibition on wasting water for domestic customers.

IMPLEMENTATION SCHEDULE: The Agency has permanently incorporated this DMM into its rules and regulations.

METHODS TO EVALUATE EFFECTIVENESS: All citations and violations are reported annually.

CONSERVATION SAVINGS: The Agency has no method to quantify the savings of this DMM but believes that this program is in the public's interest.

BUDGET: Enforcement costs are a part of the water department's overhead.

EXHIBIT 1 – SFWPA 2010 UWMP

SOUTH FEATHER WATER & POWER AGENCY

MICHAEL C. GLAZE, GENERAL MANAGER
2310 ORO-QUINCY HIGHWAY
OROVILLE, CALIFORNIA 95966
530-533-4578, EXT. 109
530-533-3968 (FAX) GLAZE@SOUTHFEATHER.COM

March 1, 2012

City of Oroville
c/o Howard Duffey, Administrator
1735 Montgomery Street
Oroville, CA 95965

Re: Urban Water Management Plan – Public Hearing

Ladies and Gentlemen:

The purpose of this letter is to advise that the Board of Directors of South Feather Water and Power Agency will be conducting a public hearing on its 2010 Urban Water Management Plan (2010 UWMP) in compliance with the Urban Water Management Planning Act (UWMP Act) and the Water Conservation Bill of 2009. (It is referred to as the 2010 UWMP because it includes 2010 water data.) The hearing will be conducted as part of the Agency's regular monthly board meeting at 2:00 p.m. on Tuesday, May 22, 2012, in the Board Room at the address shown above.

The UWMP Act requires urban water suppliers to report, describe, and evaluate:

- Water deliveries and uses;
- Water supply sources;
- Efficient water uses; and,
- Demand management measures, including implementation strategy and schedule.

Additionally, the 2010 UWMP includes an evaluation of the impact the proposed Rio 'dOro Specific Plan will have on the Agency's water supply sources, and the Agency's ability to treat and deliver water for the project.

Enclosed for your review and consideration is a copy of the Draft 2010 UWMP.

If you have questions, need additional information, or have any other input that would be useful, please let me know.

Sincerely,
South Feather Water and Power Agency

Michael C. Glaze, General Manager

EXHIBIT 2 – SFWPA 2010 UWMP

SOUTH FEATHER WATER & POWER AGENCY

MICHAEL C. GLAZE, GENERAL MANAGER
2310 ORO-QUINCY HIGHWAY
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March 2, 2011

City of Oroville
c/o Howard Duffey, Administrator
1735 Montgomery Street
Oroville, CA 95965

Re: Urban Water Management Plan – Participation Invitation

Ladies and Gentlemen:

The purpose of this letter is to advise that South Feather Water and Power Agency is commencing preparation of its 2010 Urban Water Management Plan (2010 UWMP) in compliance with the Urban Water Management Planning Act (UWMP Act) and the Water Conservation Bill of 2009. (Although submitted in 2011, it is referred to as the 2010 UWMP because it includes 2010 water data.)

The UWMP Act requires urban water suppliers to report, describe, and evaluate:

- Water deliveries and uses;
- Water supply sources;
- Efficient water uses; and,
- Demand management measures, including implementation strategy and schedule.

The UWMP Act directs water agencies in carrying out their long-term resource-planning responsibilities to ensure adequate water supplies are available to meet existing and future demands. Urban water suppliers are required to assess current demands and supplies over a 20-year planning horizon and consider various drought scenarios. The Act also requires water shortage contingency planning and drought response actions to be included in the Plan.

The Water Conservation Bill of 2009 added requirements for developing Urban Water Management Plans to enable the State of California to set targets and track progress toward decreasing daily per capita urban water use throughout the state.

If you have questions, need additional information, would like the opportunity to review a copy of the UWMP draft when it is available, or have any other input that would be useful, please let me know.

Sincerely,
South Feather Water and Power Agency

Michael C. Glaze, General Manager

EXHIBIT 3 – SFWPA 2010 UWMP

SOUTH FEATHER WATER & POWER AGENCY

RESOLUTION OF THE BOARD OF DIRECTORS

Resolution 12-05-01

ADOPTION OF THE 2010 URBAN WATER MANAGEMENT PLAN

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 (UWMP), the primary objective of which is to plan for the conservation and efficient use of water; and,

WHEREAS, the California Legislature enacted the Water Conservation Bill of 2009 which requires urban water suppliers to report in their UWMPs their base daily per capita water use, urban water use target, and compliance daily per capita water use; and,

WHEREAS, South Feather Water and Power Agency is an urban supplier of water providing water to more than 3,000 customers; and,

WHEREAS, the UWMP must be periodically reviewed and updated at least once every five years, and the Agency shall make any amendments or changes to its UWMP which are indicated in the review; and,

WHEREAS, the UWMP must be adopted after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and,

WHEREAS, the Agency has therefore, prepared and made available for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the Agency on May 22, 2012.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the South Feather Water and Power Agency that the 2010 Urban Water Management Plan is hereby adopted.

BE IT FURTHER RESOLVED that the General Manager is authorized and directed to file the 2010 Urban Water Management Plan within 30 days to the California Department of Water Resources.

PASSED AND ADOPTED by the Board of Directors of the South Feather Water and Power Agency at the regular monthly meeting of said Board on the 22nd day of May 2012 by the following vote:

AYES: Edwards, Hunter, Lodigiani, Moreland.

NOES: None.

ABSTAINED: None.

ABSENT: Onken.

Dee Hunter, President

(seal)

Michael C. Glaze, Secretary

APPENDIX A – SFWPA 2010 UWMP

Rio 'dOro Specific Plan – Project Description

The Butte County Department of Development Services' website provides the following summary of the Rio 'dOro Specific Plan (Rio 'dOro).

> The Rio d' Oro Specific Plan was submitted to the Butte County Department of Development Services on October 09, 2008…a 2nd Draft of the plan (and additional Technical Studies) was submitted on March 05, 2009. This information is currently under review by staff and is available for public review.
>
> Snapshot of Specific Plan: The Specific Plan encompasses 685 acres; proposed land uses include residential, commercial, public facility, park and open space, and environmental conservation. Up to 2,700 residential units are proposed, which includes a variety of densities, ranging from low density single family residences to high density condominiums. Two commercial centers are proposed, totaling up to 248,000 square feet of building space. Public facilities, which include a school site and public safety office space, encompass 25.9 acres. Sixty-five (65) acres are proposed for parks and open space and 246.5 acres for environmental conservation. The site is located on the east and west sides of Highway 70, south of Ophir Road and north of Palermo Road, south of the City of Oroville.[7]

Figure 14 - Rio 'dOro Project Location[8]

[7] Butte County Department of Development Services. "Rio dOro." *Butte County.* 2009. http://lf.buttecounty.net/weblink7/DocView.aspx?id=553541&searchhandle=25936&dbid=0 (accessed February 15, 2012).
[8] Butte County Development Services Department. *Initial Study for Rio d'Oro Specific Plan SP08-0001.* CEQA Compliance Document, Oroville, CA: Butte County Development Services Department, Planning Division, 2011, 47.

> Potentially Significant Impact. Specific Plan Land Uses could result in a substantial water impacts [sic] if water demand exceeds reliable supply. As noted above, the project site is located in the South Feather Water and Power Agency sphere of influence and annexation is required prior to service. The Agency will evaluate the project's water demand against available water supply. This analysis is required because the project proposes construction of over 500 residential housing units; and therefore, is subject to the provisions of Senate Bill (SB) 610 (Chapter 643 of the 2001 Statutes). Requirements include the documentation and written verification that sufficient water supplies are available to meet the project's projected water demands during normal, single-dry, and multiple-dry water years over a 20-year horizon. This analysis includes consideration of cumulative development. South Feather Water & Power Agency will provide this verification, also referred to as an "SB 610 analysis." The information included in the SB 610 analysis will be reviewed for completeness and technical accuracy and will then be incorporated into the Utilities and Service Systems section of the EIR. The water supply section of the EIR will also determine potential environmental impacts associated with the provision of a reliable source of water to the project site, including direct impacts associated with water supply infrastructure.[9]

A "Water Feasibility Analysis" prepared for Rio 'dOro by Benchmark Engineering, Inc., dated August 31, 2007, contained the following "Anticipated Water Demands" (Exhibit 7-2).

[9] Butte County Development Services Department. *Initial Study for Rio d'Oro Specific Plan SP08-0001.* CEQA Compliance Document, Oroville, CA: Butte County Development Services Department, Planning Division, 2011, 47.

FIGURE 15 - Anticipated Water Demands - Rio 'dOro Specific Plan

Year	Description	Units		Yearly Flows (gpd)	Cumulative Total (gpd)
2011	Commercial	30	acres	90,000	
2011	Residential	200	units	82,500	172,500
2012	Residential	175	units	72,188	244,688
2013	Residential	175	units	72,188	316,875
2014	Residential	175	units	72,188	389,063
2015	Residential	175	units	72,188	461,250
2016	Residential	175	units	72,188	533,438
2017	Residential	175	units	72,188	605,625
2018	Residential	175	units	72,188	677,813
2019	Residential	175	units	72,188	750,000
2020	Residential	175	units	72,188	822,188
2021	Residential	150	units	61,875	884,063
2022	Residential	150	units	61,875	945,938
2023	Residential	150	units	61,875	1,007,813
2024	Residential	150	units	61,875	1,069,688
2025	Residential	150	units	61,875	1,131,563
2026	Residential	205	units	84,563	1,216,125
	Total	2,730	units		1,216,125
					Total Buildout Flow

In preparing the data in Figure 15, above, Benchmark Engineering stated that the following assumptions were made: "commercial will use approximately 3000 gpd/acre"; and, "residential is 2.5 people per dwelling unit at 165 gpd/person."

At a total buildout flow of 1,216,125 gpd, Rio 'dOro will place a water demand on South Feather Water and Power Agency of 59,343,000 cubic feet, or 1,362 acre-feet. This, of course, assumes that projected growth within the Agency's area of service will occur with or without the Rio 'dOro project, and that all of the water demand placed on the Agency by Rio 'dOro will be completely additional to that demand that the projected growth within the Agency's service area will generate.

Because of the downturn in the economy and building industry beginning in 2008, the Rio 'dOro developers postponed commencement of the development, originally planned to begin with the commercial phase in 2011 (see Figure 15, above). For the purpose of the SB 610 analysis that is a part of this UWMP, it is assumed that the Rio 'dOro development will be delayed, and that 2015 will be the commencement date of the first phase. Using that premise and the data from Figure 15, above, the population projections for the Rio 'dOro project are shown in Figure 16, below.

Figure 16

Rio 'dOro Population Projections

2010	2015	2020	2025	2030	2035	Data source
0	500	2,688	4,813	6,825	6,825	Benchmark Engineering*

* Water Feasibility Analysis for Rio 'dOro Specific Plan by Benchmark Engineer, Inc., 2008.

Conclusion

SFWPA's total consumptive usage (domestic and irrigation) in 2010 was 19,398 acre-feet. The domestic portion of that total was 4,336 acre-feet. Projected water deliveries for domestic purposes in 2035 (see Table 7, above) is 231,854,371 cubic feet (5,323 acre-feet) if the Rio 'dOro Specific Plan is not developed, and 291,197,369 cubic feet (6,685 acre-feet) after total buildout if it is developed. Using 2010 domestic-irrigation proportions, without Rio 'dOro, total consumptive demand in 2035 is expected to be 23,812 acre-feet, less than half of the single-dry year yield of the Agency's supply (50,677 acre-feet, see Table 28, below). Including Rio 'dOro, total consumptive demand in 2035 is expected to be 29,907 acre-feet, or less than 60% of the single-dry year yield. The 2035 projected domestic delivery without Rio 'dOro is only 10.5% of the single-dry year yield, and 13.2% of the single-dry year yield with Rio 'dOro. (The foregoing is summarized in the following table.)

	2010	2035	
		Without Rio 'dOro	With Rio 'dOro
Total Consumptive Usage (acre-feet)	19,398	23,812	29,907
Total Domestic Demand (acre-feet)	4,336	5,323	6,685
Total Domestic Demand as % of Single-Dry Year Yield (50,677 acre-feet)	8.6%	10.5%	13.2%

Based on the foregoing, SFWPA believes that its water supply sources will continue to more than adequately meet the current and foreseeable future demand through 2035, even with the addition of the units proposed in the Rio 'dOro Specific Plan. Other factors that contribute to this opinion are:

- the Agency's average annual watershed production = 254,347 acre-feet;
- the Agency's has the ability to store 172,000 acre-feet;
- the Agency possesses all necessary consumptive water rights;
- Miners Ranch Canal's maximum carrying capacity is 200,000 acre-feet annually; and,
- SFWPA is not dependent on other water suppliers.

Based on the foregoing, South Feather Water and Power Agency is not considering imposing water-shortage contingencies such as mandatory rationing, consumption reduction methods, or penalties/charges for violating water shortage restrictions or prohibitions.

APPENDIX B – SFWPA 2010 UWMP

AIR TEMPERATURE - Daytime Highs

Measurement Site: Lake Oroville (elev. 900') - National Weather Service Station #4-6527 1

														Averages	
YEAR	RANGE	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.& Feb.	July & Aug.
1982	Minimum	38	52	42	47	70	68	76	82	71	58	42	42	45	79
	Maximum	61	71	70	80	101	100	101	101	99	88	72	63	66	101
	Avg. High	51	60	59	67	83	86	93	91	84	75	56	54	55	92
1983	Minimum	36	48	45	46	55	71	71	79	71	62	42	42	42	75
	Maximum	65	66	67	77	98	103	103	102	97	88	71	60	66	103
	Avg. High	51	57	58	63	79	87	90	92	89	79	58	53	54	91
1984	Minimum	43	50	57	52	55	63	81	76	69	49	50	36	47	79
	Maximum	75	69	80	86	105	102	109	107	103	87	70	67	72	108
	Avg. High	57	59	69	70	83	88	99	94	92	71	58	54	58	96
1985	Minimum	38	48	45	50	65	69	78	79	63	58	43	37	43	79
	Maximum	60	79	81	89	92	107	108	101	94	98	82	62	70	105
	Avg. High	51	64	60	76	79	94	97	92	81	78	58	50	57	95
1986	Minimum	49	50	50	53	57	79	84	89	55	60	57	40	50	87
	Maximum	69	77	85	86	96	104	103	104	102	92	83	67	73	104
	Avg. High	59	62	68	70	80	91	94	97	80	78	70	54	60	95
1987	Minimum	37	48	49	61	67	77	69	76	74	67	52	43	43	73
	Maximum	67	74	78	93	100	106	102	106	101	96	73	66	71	104
	Avg. High	54	62	64	78	84	91	89	95	87	81	63	54	58	92
1988	Minimum	44	54	55	52	51	64	85	80	76	68	48	37	49	83
	Maximum	70	76	87	92	94	104	109	106	109	95	77	72	73	108
	Avg. High	56	68	71	71	76	88	98	95	93	84	61	57	62	97
1989	Minimum	43	44	48	52	66	70	84	83	66	58	53	38	44	84
	Maximum	69	72	72	92	94	101	106	101	99	87	80	70	71	104
	Avg. High	56	58	63	76	80	88	95	92	85	75	68	56	57	94
1990	Minimum	44	38	51	58	57	74	84	77	78	64	55	35	41	81
	Maximum	65	72	80	90	96	102	109	110	103	100	81	68	69	110
	Avg. High	56	58	68	76	77	88	95	94	91	83	67	54	57	94
1991	Minimum	47	55	44	55	58	66	85	79	79	58	53	42	51	82
	Maximum	77	80	77	83	88	100	112	99	105	102	80	65	79	106
	Avg. High	60	69	58	69	75	86	97	92	94	86	68	56	65	94
1992	Minimum	38	51	55	58	79	69	80	78	78	60	54	35	45	79
	Maximum	69	76	84	89	99	107	105	107	97	98	76	64	73	106
	Avg. High	53	63	67	75	90	88	93	97	88	78	66	51	58	95
1993	Minimum	43	47	53	56	65	58	87	82	75	62	55	35	45	85
	Maximum	68	71	77	87	91	104	100	106	103	96	84	68	70	103
	Avg. High	53	56	66	68	78	86	94	94	91	80	67	55	55	94
1994	Minimum	45	47	55	59	58	73	90	89	78	62	44	43	46	90
	Maximum	68	66	81	85	94	102	105	103	107	91	79	62	67	104
	Avg. High	58	57	69	73	78	90	98	97	91	78	56	49	57	98
1995	Minimum	45	46	44	52	59	60	82	81	81	74	63	47	46	82
	Maximum	61	73	72	81	94	103	105	105	97	91	77	71	67	105
	Avg. High	53	61	76	68	74	83	92	95	90	82	71	58	57	93
1996	Minimum	42	44	49	56	62	72	87	85	70	52	56	47	43	86
	Maximum	69	81	83	88	97	99	105	110	97	97	75	67	75	108
	Avg. High	55	61	67	72	78	89	99	98	88	77	64	57	58	98

APPENDIX B (cont'd) – SFWPA 2010 UWMP

														Averages	
YEAR	RANGE	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.& Feb.	July & Aug.
1997	Minimum	45	54	55	61	70	70	75	77	75	62	55	49	50	76
	Maximum	66	77	83	86	95	97	100	105	98	93	85	65	72	103
	Avg. High	55	62	70	73	86	86	92	90	90	77	64	57	59	91
1998	Minimum	48	48	53	49	57	66	81	81	65	58	51	38	48	81
	Maximum	62	61	73	86	84	91	107	103	105	86	65	75	62	105
	Avg. High	55	54	64	66	68	81	95	94	88	74	58	51	55	94
1999	Minimum	38	43	46	45	55	56	80	75	80	64	54	46	41	78
	Maximum	67	62	65	85	97	100	106	101	95	93	78	75	65	104
	Avg. High	51	53	58	68	78	85	91	89	89	82	64	59	52	90
2000	Minimum	48	48	49	54	57	68	80	73	66	54	47	50	48	77
	Maximum	62	65	78	88	101	108	102	105	103	93	76	64	64	104
	Avg. High	55	56	64	74	79	92	91	94	87	74	58	57	55	93
2001	Minimum	47	44	48	47	65	68	80	86	76	58	48	48	46	83
	Maximum	64	69	82	86	103	103	107	106	97	103	78	67	67	107
	Avg. High	56	56	69	67	89	90	94	95	89	82	64	53	56	95
2002	Minimum	36	49	53	53	55	79	91	81	74	61	53	47	43	86
	Maximum	61	78	84	86	97	102	110	103	101	94	76	65	70	107
	Avg. High	53	61	63	71	79	91	97	94	91	78	67	56	57	95
2003	Minimum	45	52	59	53	58	79	88	75	77	62	52	45	49	82
	Maximum	71	66	78	77	98	102	109	99	103	95	73	64	69	104
	Avg. High	57	60	66	62	77	91	99	91	92	85	60	55	58	95
2004	Minimum	46	45	48	57	72	77	86	65	65	53	52	50	46	76
	Maximum	66	65	86	94	93	101	101	100	100	98	73	69	66	101
	Avg. High	53	57	73	75	81	91	95	89	89	74	62	57	55	92
2005	Minimum	43	54	54	51	61	62	87	88	77	55	49	40	49	88
	Maximum	66	73	86	81	92	95	107	105	97	92	77	66	70	106
	Avg. High	51	62	67	69	76	82	99	97	86	77	67	57	57	98
2006	Minimum	50	45	45	54	70	70	88	82	74	70	51	43	48	85
	Maximum	71	74	66	88	98	106	112	100	101	88	77	70	73	106
	Avg. High	56	63	57	67	83	90	100	94	91	79	63	56	60	97
2007	Minimum	47	35	51	54	60	71	92	75	63	58	59	45	41	84
	Maximum	70	77	86	95	94	100	93	104	101	86	82	68	74	99
	Avg. High	59	59	73	73	94	91	92	95	85	74	71	56	59	93
2008	Minimum	40	44	55	58	60	79	84	84	78	59	55	41	42	84
	Maximum	66	73	85	89	101	100	111	108	102	94	86	69	70	110
	Avg. High	52	59	68	72	82	90	96	96	92	81	68	54	56	96
2009	Minimum	42	46	51	59	58	68	88	77	76	61	52	46	44	83
	Maximum	80	72	80	94	100	107	106	104	103	85	80	65	76	105
	Avg. High	60	59	65	73	83	86	97	95	93	74	66	55	59	96
2010	Minimum	44	52	51	46	55	75	88	73	75	59	46	45	48	81
	Maximum	68	70	79	82	85	103	105	110	104	94	82	70	69	108
	Avg. High	55	60	64	65	73	88	96	92	90	78	65	56	57	94

APPENDIX B (cont'd) – SFWPA 2010 UWMP

														Averages	
YEAR	RANGE	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.& Feb.	July & Aug.
MIN.	Minimum	36	35	42	45	51	56	69	65	55	49	42	35	41	73
	Maximum	60	61	65	77	84	91	93	99	94	85	65	60	62	99
	Avg. High	51	53	57	62	68	81	89	89	80	71	56	49	52	90
MAX.	Minimum	50	55	59	61	79	79	92	89	81	74	63	50	51	90
	Maximum	80	81	87	95	105	108	112	110	109	103	86	75	79	110
	Avg. High	80	77	86	95	101	107	112	110	104	94	86	70	76	110
AVG.	Minimum	43	48	50	53	61	70	83	80	73	60	51	42	45	81
	Maximum	67	72	79	87	96	102	105	104	101	93	77	67	69	105
	Avg. High	55	60	66	71	80	88	95	94	89	78	64	55	57	94

APPENDIX C – SFWPA 2010 UWMP

MONTHLY RAINFALL TOTALS

Measurement Site: Lake Oroville (elev. 900') - National Weather Service Station #4-6527 1

SEASON	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	TOTAL
1959-60	0.00	0.26	2.14	0.00	0.00	1.88	7.10	5.18	6.36	2.35	1.20	0.00	26.47
1960-61	0.00	0.00	0.57	0.60	6.83	3.25	3.34	4.31	5.90	1.22	1.37	0.44	27.83
1961-62	0.00	0.02	0.13	0.30	3.05	3.87	2.28	11.16	3.70	0.50	1.10	0.52	26.63
1962-63	0.00	0.06	0.13	13.65	2.38	3.84	4.07	3.34	5.08	7.17	1.76	1.35	42.83
1963-64	0.00	0.00	0.70	2.66	6.78	0.77	6.29	0.37	2.51	1.76	0.96	0.72	23.52
1964-65	0.00	0.00	0.26	1.46	4.93	9.19	5.88	1.08	1.23	5.34	0.66	0.03	30.06
1965-66	0.00	1.81	0.36	0.05	6.75	3.51	5.06	3.44	1.27	1.68	0.11	0.00	24.04
1966-67	0.00	0.00	0.00	0.00	9.31	5.29	11.82	0.65	7.06	6.81	0.33	2.25	43.52
1967-68	0.00	0.00	0.11	0.60	3.73	2.10	6.33	5.17	4.06	0.33	0.36	0.91	23.70
1968-69	0.00	0.84	0.01	3.87	5.90	5.92	12.07	7.57	2.18	3.14	0.00	0.41	41.91
1969-70	0.00	0.00	0.00	2.07	1.66	9.56	10.83	3.96	4.50	0.81	0.00	0.57	33.96
1970-71	0.00	0.00	0.00	1.89	8.81	7.54	2.34	0.41	4.91	0.98	1.66	0.31	28.85
1971-72	0.00	0.00	0.60	0.42	2.36	6.35	1.69	2.55	0.90	2.34	0.74	0.39	18.34
1972-73	0.00	0.00	0.66	2.71	7.03	5.77	13.04	9.00	3.74	0.19	0.35	0.16	42.65
1973-74	0.00	0.00	0.49	3.18	11.81	7.03	6.13	2.43	10.11	2.57	0.83	0.20	44.78
1974-75	1.91	0.00	0.00	2.23	1.87	3.04	1.64	10.68	6.79	2.21	0.19	0.22	30.78
1975-76	0.08	0.31	0.10	3.14	1.72	2.55	1.01	2.82	1.44	2.18	0.02	0.03	15.40
1976-77	0.05	0.84	1.99	0.04	1.16	0.68	2.51	2.13	1.19	0.52	1.86	0.00	12.97
1977-78	0.05	0.00	1.24	0.41	3.18	7.23	11.57	5.25	6.28	6.64	1.00	0.43	43.28
1978-79	0.00	0.00	0.89	0.00	4.00	1.97	6.69	7.73	4.65	2.78	0.40	0.10	29.21
1979-80	0.14	0.15	0.50	3.82	3.85	5.70	8.06	8.90	2.41	1.38	0.47	0.34	35.72
1980-81	0.26	0.07	0.23	0.73	0.88	5.55	7.48	1.94	6.25	1.29	0.81	0.00	25.49
1981-82	0.00	0.00	1.25	5.36	10.28	7.56	7.22	3.61	6.76	5.88	0.02	1.09	49.03
1982-83	0.07	0.01	2.05	5.92	8.28	4.98	7.42	8.26	11.45	4.68	0.79	1.21	55.12
1983-84	0.07	0.06	0.95	1.85	11.59	13.14	0.70	3.94	2.64	1.80	0.16	0.47	37.37
1984-85	0.00	0.93	0.04	3.35	7.92	2.26	1.53	2.16	3.75	0.06	0.03	0.12	22.15
1985-86	0.00	0.17	2.20	1.07	7.27	2.62	6.80	11.96	5.81	1.70	1.18	0.02	40.80
1986-87	0.07	0.00	3.96	1.16	0.88	2.61	5.00	3.86	6.42	0.34	0.00	0.00	24.30
1987-88	0.05	0.00	0.00	0.66	3.14	7.65	6.46	0.38	0.98	4.51	1.60	1.00	26.43
1988-89	0.00	0.00	0.00	0.16	6.86	4.29	2.15	2.26	10.44	0.96	0.47	0.51	28.10
1989-90	0.00	0.24	2.73	3.59	0.00	0.09	7.54	4.42	2.38	0.56	5.28	0.00	26.83
1990-91	0.00	0.00	0.11	0.97	0.00	2.43	1.31	2.86	16.61	0.80	1.14	0.57	26.80
1991-92	0.00	0.04	0.00	1.48	0.00	3.94	3.00	8.60	4.31	2.66	0.00	1.17	25.20
1992-93	0.00	0.00	0.00	2.77	0.00	8.41	14.08	10.27	3.98	3.06	2.22	1.18	45.97
1993-94	0.00	0.83	0.00	1.14	3.45	4.71	3.95	6.16	0.96	1.89	1.26	0.00	24.35
1994-95	0.00	0.00	0.10	0.81	6.06	8.91	18.70	1.10	16.17	3.67	3.53	1.98	61.03
1995-96	1.98	0.00	0.00	0.00	0.12	8.38	6.50	8.66	2.84	4.88	4.89	0.10	38.35
1996-97	0.10	0.00	0.00	0.02	2.42	12.51	13.61	0.22	1.95	0.96	0.55	0.79	33.13
1997-98	0.00	0.75	0.38	2.54	6.88	2.86	14.66	13.87	4.79	3.80	4.73	0.78	56.04
1998-99	0.00	0.00	0.01	0.00	7.46	3.20	4.19	8.60	2.83	1.85	0.17	0.17	28.48
1999-00	0.00	0.16	0.00	1.50	3.93	0.50	7.30	14.14	4.03	2.04	1.33	0.00	34.93
2000-01	0.00	0.00	0.46	4.98	0.96	1.13	5.38	6.91	2.30	1.93	0.01	0.17	24.23
2001-02	0.00	0.00	0.44	1.47	7.08	9.76	4.44	1.74	3.94	0.66	1.22	0.00	30.75
2002-03	0.00	0.00	0.00	0.00	3.13	14.55	4.72	2.79	2.71	7.67	1.38	0.00	36.95
2003-04	0.00	1.05	0.00	0.12	4.01	10.63	4.84	9.61	1.95	0.32	0.17	0.00	32.70

APPENDIX C (cont'd) – SFWPA 2010 UWMP

SEASON	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	TOTAL
2004-05	0.00	0.00	0.17	4.46	2.61	7.62	5.94	2.67	4.58	1.99	3.83	0.00	33.87
2005-06	0.00	0.00	0.08	1.98	3.79	14.46	4.57	4.31	10.11	8.27	0.42	0.00	47.99
2006-07	0.00	0.04	0.00	0.19	3.01	6.64	0.06	8.88	0.58	2.48	0.80	0.61	23.29
2007-08	0.40	0.00	0.58	1.86	1.17	5.59	7.51	4.47	0.34	0.71	0.80	0.00	23.43
2008-09	0.00	0.00	0.00	2.03	2.54	4.15	2.76	8.99	2.92	0.57	3.15	0.46	27.57
2009-10	0.00	0.00	0.27	1.86	1.75	4.11	9.09	4.13	2.77	5.98	1.41	0.08	31.45
2010-11	0.00	0.00	0.03	4.31	4.20	9.54							
MEAN	0.10	0.17	0.53	1.90	4.21	5.53	6.25	5.29	4.58	2.57	1.15	0.43	32.72
MEDIAN	0.00	0.00	0.13	1.48	3.59	5.14	5.94	4.31	3.94	1.93	0.80	0.22	30.06
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.09	0.06	0.22	0.34	0.06	0.00	0.00	12.97
MAXIMUM	1.98	1.81	3.96	13.65	11.81	14.55	18.70	14.14	16.61	8.27	5.28	2.25	61.03
STD. DEV.	0.38	0.36	0.83	2.28	3.15	3.59	4.07	3.69	3.56	2.17	1.30	0.52	10.62
SKEW	4.70	2.74	2.33	2.89	0.60	0.72	0.93	0.62	1.69	1.11	1.82	1.63	0.69
YTD Avg. Accum.	0.10	0.27	0.78	2.74	6.94	12.55	18.68	24.34	28.93	31.49	32.64	33.07	

APPENDIX D – SFWPA 2010 UWMP

MONTHLY RAINFALL TOTALS

Measurement Site: Forbestown, CA

SEASON	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	TOTAL
1919-20	0.00	0.00	0.00	3.00	2.55	10.48	1.83	8.84	12.02	8.64	1.43	1.06	49.85
1920-21	0.00	0.00	0.48	5.96	22.99	19.40	17.43	6.40	5.12	1.36	4.41	0.00	83.55
1921-22	0.00	0.00	0.00	1.87	3.46	15.50	4.80	20.75	12.67	2.03	3.90	0.00	64.98
1922-23	0.00	0.00	0.00	3.47	7.43	22.45	7.18	2.40	1.50	7.10	0.00	0.00	51.53
1923-24	0.00	0.00	3.50	1.04	1.30	3.98	4.93	9.20	3.93	1.68	0.11	0.00	29.67
1924-25	0.00	0.00	0.00	8.89	5.03	8.80	5.72	21.60	6.09	4.83	3.85	1.39	66.20
1925-26	0.00	0.00	1.39	2.63	4.24	5.03	8.68	20.39	0.00	12.75	2.68	0.00	57.79
1926-27	0.00	0.00	0.00	5.87	18.15	2.65	14.15	26.90	6.91	5.90	2.77	0.70	84.00
1927-28	0.00	0.00	0.00	3.20	12.87	9.17	5.00	6.30	22.05	5.01	0.00	0.35	63.95
1928-29	0.00	0.00	0.00	0.63	7.50	8.04	4.03	7.93	5.15	5.37	0.35	4.16	43.16
1929-30	0.00	0.00	0.00	0.25	0.00	29.80	13.50	7.63	7.78	4.52	3.07	0.00	66.55
1930-31	0.00	0.00	1.86	0.25	7.89	2.25	9.15	4.94	5.28	2.17	2.44	1.91	38.14
1931-32	0.00	0.00	1.10	8.69	6.78	22.34	7.59	4.42	2.62	6.69	7.69	0.15	68.07
1932-33	0.00	0.00	0.00	0.12	2.57	6.27	12.48	2.43	8.37	0.84	4.14	0.00	37.22
1933-34	0.00	0.00	0.51	6.92	0.00	16.64	6.19	10.95	3.32	2.25	1.48	1.22	49.48
1934-35	0.00	0.00	0.93	4.25	9.43	9.23	14.30	6.40	9.42	13.43	0.26	0.00	67.65
1935-36	0.00	0.00	0.35	3.62	3.03	6.72	24.60	28.58	4.83	5.68	2.45	2.90	82.76
1936-37	0.00	0.00	0.42	0.33	0.00	5.57	9.49	18.55	14.18	5.07	0.45	3.06	57.12
1937-38	0.00	0.00	0.00	3.86	17.24	19.41	10.31	27.51	20.25	5.63	1.14	0.00	105.35
1938-39	0.00	0.00	0.52	4.15	3.38	3.63	7.46	5.35	7.65	1.10	3.85	0.10	37.19
1939-40	0.00	0.00	0.84	3.01	0.80	5.93	25.62	21.60	21.09	1.45	2.17	0.00	82.51
1940-41	0.00	0.00	0.79	4.19	6.23	23.61	21.89	19.64	8.30	9.87	3.85	0.40	98.77
1941-42	0.00	0.00	0.42	1.95	7.86	27.56	12.78	16.51	4.64	14.26	6.44	0.00	92.42
1942-43	0.00	0.00	0.17	0.65	17.10	12.66	21.34	5.63	13.62	4.99	1.58	1.20	78.94
1943-44	0.00	0.00	0.00	2.13	3.50	5.67	9.38	15.56	6.65	4.97	2.68	1.14	51.68
1944-45	0.00	0.00	0.00	5.40	12.17	9.07	3.70	16.32	10.36	2.15	4.47	2.41	66.05
1945-46	0.00	0.00	0.16	8.45	11.52	25.07	3.85	6.37	7.71	0.55	1.50	0.27	65.45
1946-47	0.00	0.00	0.75	1.61	11.19	7.42	1.73	8.21	14.64	2.50	1.23	2.72	52.00
1947-48	0.00	0.00	0.00	12.08	2.88	2.40	11.66	4.73	11.22	17.37	5.78	0.49	68.61
1948-49	0.00	0.00	0.23	1.11	8.49	11.83	3.62	6.69	15.12	0.38	0.15	0.00	47.62
1949-50	0.00	0.38	0.00	0.25	2.95	5.32	21.30	10.91	11.57	5.91	3.20	0.00	61.79
1950-51	0.00	0.00	0.00	8.03	19.68	18.18	18.79	8.85	6.16	3.08	0.66	0.00	83.43
1951-52	0.00	0.00	0.08	6.82	11.28	23.78	23.49	7.17	10.02	2.45	2.80	1.92	89.81
1952-53	0.30	0.00	0.00	0.00	6.10	20.10	22.15	0.32	10.10	8.63	3.24	0.82	71.76
1953-54	0.00	0.50	0.00	4.44	8.49	2.95	14.58	12.42	11.59	10.45	0.00	1.07	66.49
1954-55	0.20	0.53	0.25	0.75	7.69	8.75	6.41	4.60	1.85	8.33	1.13	0.09	40.58
1955-56	0.00	0.00	0.87	2.70	6.32	40.88	22.56	10.05	0.60	3.95	4.40	0.00	92.33
1956-57	0.00	0.00	1.50	8.26	0.70	2.55	8.25	16.93	8.92	4.55	9.99	0.20	61.85
1957-58	0.00	0.00	3.70	7.35	4.21	14.00	13.35	24.83	14.66	10.02	1.73	1.25	95.10
1958-59	0.00	0.00	0.40	0.80	2.52	4.25	16.55	14.75	3.38	2.00	0.73	0.01	45.39
1959-60	0.00	0.30	4.41	0.00	0.00	4.04	14.45	17.21	16.60	4.50	3.01	0.00	64.52
1960-61	0.02	0.10	0.71	0.99	12.80	4.44	5.46	6.49	10.08	2.91	3.22	0.00	47.22
1961-62	0.00	0.05	0.20	1.06	7.77	5.86	5.97	27.54	10.08	2.40	2.82	0.62	64.37
1962-63	0.00	0.27	0.28	24.28	4.63	10.27	13.24	3.31	8.64	4.84	2.48	0.69	72.94
1963-64	0.00	0.00	0.67	3.77	13.77	1.24	6.71	0.20	5.15	0.25	2.65	1.33	35.74

APPENDIX D (cont'd) – SFWPA 2010 UWMP

SEASON	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	TOTAL
1964-65	0.03	0.45	0.00	2.39	11.79	29.46	13.57	1.79	3.99	8.58	0.41	0.55	73.01
1965-66	0.00	1.39	0.38	0.27	14.00	6.99	7.29	3.82	3.02	3.32	0.25	0.07	40.80
1966-67	0.03	0.06	0.01	0.00	18.48	9.60	24.27	1.12	10.14	9.89	2.66	1.83	78.09
1967-68	0.03	0.00	0.13	2.85	6.87	4.53	6.83	10.11	6.32	0.50	0.59	0.23	38.99
1968-69	0.00	1.70	0.15	4.61	7.34	14.72	27.07	16.90	2.39	4.60	0.00	0.00	79.48
1969-70	0.00	0.00	0.00	3.55	2.39	20.84	32.66	7.01	6.49	2.19	0.25	1.59	76.97
1970-71	0.00	0.00	0.00	3.62	19.92	16.96	6.59	1.42	12.59	3.55	2.41	1.09	68.15
1971-72	0.02	0.14	1.39	0.91	5.46	10.36	4.35	5.86	2.19	5.09	1.31	0.26	37.34
1972-73	0.00	0.00	1.54	4.49	13.14	7.30	21.45	15.40	7.56	0.44	0.92	0.00	72.24
1973-74	0.00	0.14	1.82	7.06	28.17	10.78	11.12	8.88	18.87	3.48	0.00	0.55	90.87
1974-75	3.97	0.00	0.00	2.27	4.01	4.03	6.58	16.58	13.82	3.36	0.84	0.80	56.26
1975-76	0.14	0.83	0.21	7.89	3.51	3.18	1.28	6.62	0.92	3.49	0.00	0.37	28.44
1976-77	0.00	1.45	2.78	0.06	6.39	0.52	4.18	3.24	3.05	0.82	4.37	0.01	26.87
1977-78	0.35	0.06	2.03	0.73	5.60	14.77	25.43	10.61	12.88	11.22	1.94	0.14	85.76
1978-79	0.00	0.09	2.30	0.00	5.89	1.83	11.24	17.50	6.39	4.87	2.48	0.03	52.62
1979-80	0.15	0.79	0.17	8.97	9.76	11.56	15.85	17.22	4.11	2.96	2.26	0.39	74.19
1980-81	0.39	0.04	0.25	1.57	2.88	8.22	12.43	3.68	10.05	1.61	1.47	0.01	42.60
1981-82	0.00	0.00	2.23	9.17	22.17	20.93	4.50	10.11	15.27	12.92	0.00	0.99	98.29
1982-83	0.00	0.10	2.33	6.54	15.24	11.64	12.74	21.37	20.89	7.78	1.84	0.59	101.06
1983-84	0.06	0.08	1.57	3.29	20.10	24.20	0.99	7.53	4.14	2.80	1.30	1.28	67.34
1984-85	0.00	0.51	0.41	4.00	12.52	2.81	2.08	6.01	9.53	0.83	0.09	0.02	38.81
1985-86	0.02	0.11	2.58	1.97	6.69	7.51	15.84	25.41	13.31	2.02	1.37	0.00	76.83
1986-87	0.12	0.00	7.30	1.35	1.17	3.28	7.50	7.77	9.58	0.98	0.17	0.09	39.31
1987-88	0.18	0.00	0.00	0.90	8.07	14.58	10.80	1.88	0.53	6.27	3.09	1.18	47.48
1988-89	0.00	0.00	0.00	0.03	16.98	6.79	3.13	3.59	20.49	3.05	0.95	0.46	55.47
1989-90	0.00	0.15	3.96	7.25	4.27	0.00	13.27	6.96	2.77	1.48	8.17	0.00	48.28
1990-91	0.00	0.00	0.25	1.06	2.62	2.69	2.25	3.62	23.94	2.33	3.03	1.44	43.23
1991-92	0.00	0.27	0.00	5.33	3.63	5.94	4.01	15.08	6.27	3.00	0.01	2.04	45.58
1992-93	0.00	0.00	0.00	4.16	1.21	19.89	16.89	12.84	7.78	4.23	3.59	2.02	72.61
1993-94	0.00	1.12	0.00	2.93	3.25	7.64	5.75	11.91	0.80	5.08	1.78	0.04	40.30
1994-95	0.00	0.00	0.09	1.02	9.48	14.40	34.36	2.41	26.43	8.73	6.56	3.11	106.59
1995-96	0.01	0.00	0.00	0.00	0.30	16.73	16.96	14.76	4.76	7.81	9.28	0.25	70.86
1996-97	0.00	0.00	0.43	3.10	8.84	33.58	25.34	0.68	3.39	2.17	1.12	1.31	79.96
1997-98	0.00	1.00	0.86	5.22	13.40	7.86	28.71	25.88	7.42	6.03	10.39	0.65	107.42
1998-99	0.00	0.00	0.89	1.12	13.44	6.92	14.01	20.27	4.50	3.27	0.55	0.42	65.39
1999-00	0.19	0.00	0.00	4.16	6.82	1.77	14.52	25.50	6.87	2.82	2.92	0.71	66.28
2000-01	0.00	0.00	0.79	6.03	2.28	4.19	6.62	11.06	4.15	3.18	0.09	0.37	38.76
2001-02	0.00	0.00	0.72	2.19	12.57	19.04	7.82	5.09	8.49	1.85	1.76	0.00	59.53
2002-03	0.00	0.00	0.00	0.00	6.98	27.19	7.01	3.94	6.44	11.28	2.57	0.00	65.41
2003-04	0.00	1.19	0.00	0.40	5.86	11.68	12.72	16.46	2.02	1.49	0.37	0.00	52.19
2004-05	0.00	0.00	0.76	9.98	3.40	14.43	9.74	4.66	10.34	4.03	10.55	2.40	70.29
2005-06	0.00	0.00	0.80	3.04	8.06	33.55	10.86	8.26	19.35	13.10	0.95	0.00	97.97
2006-07	0.00	0.00	0.00	0.33	8.50	10.87	1.15	17.45	1.32	5.06	1.26	1.12	47.06
2007-08	0.32	0.00	0.86	4.69	1.85	9.93	17.35	7.38	1.57	0.90	0.29	0.00	45.14
2008-09	0.00	0.00	0.00	2.98	4.81	9.06	4.58	16.89	10.63	1.09	7.92	0.63	58.59
2009-10	0.00	0.04	0.22	3.83	2.90	8.02	15.43	6.62	6.89	10.34	3.32	0.11	57.72
2010-11	0	0	0.1	11.31	9.88	21.69							42.98

APPENDIX D (cont'd) – SFWPA 2010 UWMP

SEASON	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	TOTAL
MEAN	0.07	0.15	0.74	3.59	7.91	11.63	11.83	11.03	8.64	4.84	2.48	0.69	63.60
MEDIAN	0.00	0.00	0.25	3.01	6.80	9.12	10.80	8.84	7.65	3.95	1.84	0.37	64.75
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.20	0.00	0.25	0.00	0.00	26.87
MAXIMUM	3.97	1.70	7.30	24.28	28.17	40.88	34.36	28.58	26.43	17.37	10.55	4.16	107.42
STD. DEV.	0.42	0.35	1.19	3.67	6.00	8.69	7.73	7.53	5.88	3.72	2.47	0.89	19.93
SKEW	9.09	2.82	2.85	2.33	1.01	1.05	0.82	0.66	0.91	1.15	1.60	1.63	0.26
YTD Avg. Accum.	0.07	0.22	0.96	4.63	12.56	24.29	36.00	47.42	56.06	60.91	63.39	64.08	

APPENDIX E – SFWPA 2010 UWMP

South Fork Feather River Watershed Yield (acre-feet)

Water Year (Oct - Sep)	Flow Through Kelly Powerhouse	Spill From Ponderosa Reservoir	Consumptive Use - Irrigation & Domestic	Diversion From Slate Creek	USGS Gauge @ Enterprise	Total Watershed Yield	
1912		Average Forbestown Ditch Diversion - 1928-1932	14,945		104,575	119,520	
1913			14,945		146,419	161,364	
1914			14,945		414,902	429,847	
1915			14,945		344,294	359,239	
1916			14,945		354,629	369,574	
1917			14,945		256,053	270,998	
1918			14,945		114,187	129,132	
1919			14,945		189,781	204,726	
1920			14,945		139,337	154,282	
1921			14,945		386,645	401,590	
1922			14,945		279,396	294,341	
1923			14,945		165,643	180,588	
1924			14,945		42,495	57,440	
1925			14,945		207,415	222,360	
1926			14,945		133,989	148,934	
1927			14,945		335,766	350,712	
1928			12,445		231,336	243,781	
1929			15,552		85,134	100,686	
1930			13,800		207,415	221,215	
1931			16,891		44,157	61,048	
1932			11,646		192,021	203,667	
1933			14,801		84,122	98,923	
1934			16,300		95,396	111,696	
1935			14,900		221,580	236,480	
1936			16,419		258,148	274,567	
1937			16,738		169,545	186,283	
1938			14,716		490,496	505,212	
1939			16,161		73,860	90,021	
1940			14,108		313,363	327,471	

118,834 — Lowest Average Multiple-Dry Year Period

APPENDIX E (cont'd) – SFWPA 2010 UWMP

Water Year (Oct - Sep)	Flow Through Kelly Powerhouse	Spill From Ponderosa Reservoir	Consumptive Use - Irrigation & Domestic	Diversion From Slate Creek	USGS Gauge @ Enterprise	Total Watershed Yield	
1941			14,756		396,618	411,374	
1942		Average Forbestown Ditch Diversion - 1928-1932	14,945		360,049	374,994	
1943			14,945		297,897	312,842	
1944			14,945		119,173	134,118	
1945			14,945		206,692	221,637	
1946			14,945		222,447	237,392	
1947			14,945		111,802	126,747	
1948			14,945		199,248	214,194	
1949			14,945		125,822	140,767	
1950			14,945		201,344	216,289	
1951			14,945		354,484	369,430	
1952			14,945		442,365	457,310	
1953			14,945		295,151	310,096	
1954			14,945		228,301	243,246	
1955			14,945		116,788	131,734	
1956			14,945		457,614	472,559	
1957			14,945		194,045	208,990	
1958			14,945		405,218	420,163	
1959			14,945		129,219	144,164	
1960			14,945		174,460	189,405	
1961			14,945		132,930	147,875	
1962			14,945		113,880	128,825	
1963		398,250	6,851			405,101	
1964		219,800	6,562			226,362	
1965		435,450	4,857			440,307	
1966		244,850	6,663			251,513	
1967		419,050	4,307	109,400		313,957	
1968		284,120	8,889	76,360		216,649	
1969		432,730	6,316	53,720		385,326	
1970		439,030	5,615	59,290		385,355	
1971		418,430	4,524	127,200		295,754	
1972		247,920	6,786	97,740		156,966	
1973	135,984	221,914	16,199	98,551		275,546	
1974	150,967	345,489	14,914	36,809		474,561	
1975	145,439	159,552	16,425	86,714		234,702	
1976	80,367	18,542	21,675	36,193		84,391	
1977	18,818	6,730	25,131	2		50,677	Single-dry Year
1978	69,194	261,845	16,203	60,280		286,962	
1979	86,488	164,729	18,113	90,522		178,808	
1980	145,266	245,018	14,640	44,098		360,826	
1981	109,508	28,462	17,328	60,061		95,237	
1982	156,570	419,546	11,825	50,059		537,882	
1983	154,783	494,562	10,187	68,431		591,101	
1984	160,107	214,753	12,158	77,633		309,385	
1985	131,092	68,176	13,053	66,399		145,922	

APPENDIX E (cont'd) – SFWPA 2010 UWMP

Water Year (Oct - Sep)	Flow Through Kelly Powerhouse	Spill From Ponderosa Reservoir	Consumptive Use - Irrigation & Domestic	Diversion From Slate Creek	USGS Gauge @ Enterprise	Total Watershed Yield
1986	140,738	291,888	12,643	91,497		353,772
1987	105,376	28,275	15,411	45,513		103,549
1988	128,176	40,418	15,700	57,942		126,352
1989	150,161	128,773	15,777	75,064		219,647
1990	152,302	39,758	15,582	70,697		136,945
1991	113,056	46,174	19,531	59,827		118,934
1992	122,440	28,420	22,218	56,514		116,564
1993	143,925	249,896	17,003	123,380		287,444
1994	126,833	14,902	20,477	43,476		118,736
1995	163,293	496,674	16,553	150,810		525,710
1996	170,644	278,676	20,278	122,539		347,059
1997	137,945	355,978	22,654	57,780		458,797
1998	151,121	410,816	16,591	114,662		463,866
1999	169,349	247,128	19,604	113,089		322,992
2000	157,893	170,594	21,022	80,344		269,165
2001	126,274	31,899	21,192	48,909		130,456
2002	131,000	161,020	21,527	91,500		222,047
2003	176,100	223,980	19,901	102,200		317,781
2004	155,800	136,532	23,152	89,350		226,134
2005	155,500	148,740	17,820	56,600		265,460
2006	157,700	415,400	18,501	82,510		509,091
2007	139,900	58,521	22,180	50,130		170,471
2008	137,500	43,606	21,620	57,230		145,496
2009	126,000	102,225	18,487	70,280		176,432
2010	150,600	130,189	15,987	82,440		214,336
2011	154,900	358,470	15,614	78,670		450,314
				74,858 Average		254,347 Average

INDEX