

DRAFT

October 27, 2006

Tuolumne Utilities District Urban Water Management Plan 2005 Update

**Tuolumne Utilities District
18885 Nugget Boulevard
Sonora, CA 95370**



Table of Contents

Section 1:	Introduction	1
1.1	Purpose	1
1.2	Benefits	1
1.3	Public Participation	1
1.4	Plan Adoption	2
1.5	TUD's Service Area	2
1.6	Population Projections	2
1.7	Climate	4
1.8	Topography	4
1.9	Soils and Land Use	5
1.10	Background and History of TUD's Tuolumne Water System	5
Section 2:	Water Supply Sources	7
2.1	Water Supply Sources	7
2.2	Surface Water	7
2.3	Groundwater	7
2.4	Recycled Water	9
2.5	Raw Water Distribution	9
Section 3:	Water Use in TUD	10
3.1	Current and Project Water Use (excluding recycled water)	10
Section 4:	Reliability and Planning	11
4.1	Past, Drought and Water Demands	11
4.2	Three Year Minimum Water Supply - Operation of PG&E's Strawberry and Pinecrest Reservoirs	12
4.3	Plans to Assure a Reliable Water Supply	13
4.4	Transfer or Exchange Opportunities	14
Section 5:	Supply and Demand Comparison Provisions	15
5.1	Supply and Demand Comparison	15
Section 6:	Water Demand Management Measures	18
6.1	DMM 1 - Water Survey Programs	18
6.2	DMM 2 - Residential Plumbing Retrofit	18

Continued

Table of Contents - Page 2

Section 6: Water Demand Management Measures 18
(continued) 6.3 DMM 3 - System Water Audits, Leak Detection and Repair . 19
6.4 DMM 4 - Metering with Commodity Rates 19
6.5 DMM 5 - Large Landscape Conservation Programs 19
6.6 DMM 6 - High-Efficiency Washing Machine Rebate Program 19
6.7 DMM 7 - Public Information Programs 19
6.8 DMM 8 - School Education Programs 19
6.9 DMM 9 - Conservation Programs for Commercial, Industrial
and Institutional 20
6.10 DMM 10 - Wholesale Agency Programs 20
6.11 DMM 11 - Conservation Pricing 20
6.12 DMM 12 - Water Conservation Coordinator 20
6.13 DMM 13 - Waste Water Prohibition 20
6.14 DMM 14 - Residential Ultra-Low-Flush Toilet Replacement
Programs 21

Section 7: Water Shortage Contingency Plan 22
7.1 Water Shortage Contingency Plan 22
7.2 Stages of Action 22
7.3 Water Shortage Phases and Triggering Mechanisms 22
7.4 Water Allotment Methods 22
7.5 Mandatory Prohibitions on Water Wasting 23
7.6 Excessive Use Penalties 23

Section 8: Information on Recycled Water and its Potential For
Use as a Water Source in TUD's Service Area 24
8.1 Wastewater System Background 24
8.2 Description of Existing System for Reuse of Recycled Water 25
8.3 Recycled Water Currently Being Used 26

Section 9: Provision of Water to Proposed Development
9.1 Low Income Preferences 28
9.2 Procedure to Implement Preference Policy 28

Continued

Table of Contents - Page 3

List of Tables and Map

1	Population Projection	2
2	Temperature and Rainfall	4
3	Potential Annual Yield	8
4	Customer Numbers and Usage Projections	10
5	Water Supply Critical Day Period Analysis	15
Map	TUD Water Systems	3

List of Appendices

A	Notice of Public Meeting	30
B	Resolution of Plan Adoption	31
C	Water Shortage Contingency Plan, Regulation No. 12	32
D	Public Information	39

Section 1: Introduction

Section 10620 - 10656 of the California Water Code require the Tuolumne Utilities District (TUD or District) to develop an Urban Water Management Plan and to update the plan every five years.

1.1 Purpose

This update of the Urban Water Management Plan will identify the current and future anticipated demands on the existing water supply system. The District has compared available water supplies with expected future water demands, has analyzed the possibility of a drought-induced water shortage and has adopted various management procedures to be implemented during both normal and emergency conditions.

1.2 Benefits

TUD expects the implementation of long range water planning to help anticipate overall future water demands, identify timing for expansions to treatment plants, storage facilities or transmission lines, and foresee the need to increase water supplies. Use of recycled water will help augment raw water supplies and postpone the increased water supply demand. The Water Shortage Contingency Plans will provide uniform direction for District board and staff decisions during periods of critical year drought.

1.3 Public Participation

Tuolumne Utilities District (TUD) encourages public participation in the development of its Urban Water Management Plan updates every five years. TUD sought input from the City of Sonora, Tuolumne County, Jamestown Sanitary District and the Tuolumne County Farm Bureau.

A public meeting workshop, during which the District's Board of Directors sought public input was held on November 14, 2006, prior to finalization and TUD Board of Directors' approval. Notices of the meeting have been published in the local Sonora newspaper, the Union Democrat, posted at Sonora City Hall, posted at the Tuolumne County Public Library and was placed on the District's website. Copies of the report have been made available for public review at the Tuolumne County Offices, the Sonora City Office, and the District's website

1.4 Plan Adoption

This Urban Water Management Plan (UWMP) was updated during 2005/2006. The updated plan was adopted by the TUD Board of Directors on November 14, 2006, and was submitted to the California Department of Water Resources. Attached, as Appendix B is the Resolution of Plan Adoption as adopted by the Board of Directors.

1.5 TUD's Service Area

TUD is a county water district organized and existing under Division 12 (§§ 30000 - 32554) of the California Water Code. TUD occupies approximately the northerly 2/3rds of Tuolumne County. It is bounded on the north by the North Fork and main stem of the Stanislaus River, on the south by the Tuolumne River and the Yosemite National Park, on the east by Alpine County and on the west by Stanislaus County. The total area within TUD boundaries is approximately 1,200 square miles. TUD is the owner and operator of the Tuolumne Water System, which receives water from the PG&E owned Main Canal which diverts the water at PG&E's Lyons Dam on the South Fork Stanislaus River. TUD's Tuolumne Water System distributes the water to most of the populated areas in western Tuolumne County. Figure 1 shows the distribution water systems within the District's service area which are served by the District's Tuolumne Water System. The TUD water supply and distribution system includes nearly 56 miles of water supply canals and ditches, thirteen water treatment plants, and approximately 202 miles of distribution piping. The District provides a treated water supply to approximately thirteen thousand customers, and also provides some untreated water for agricultural and other uses. The District also owns and operates the regional wastewater collection, treatment and regional reclamation system, which provides sewer service to a large portion of the District's service area.

1.6 Population Projections

The 2005 population within TUD was an estimated 53,638 persons. For planning purposes TUD has determined that the growth rate forecast for our service area is approximately 1.45 percent per annum. The projected population for the service area is depicted in Table 1.

Table 1

POPULATION PROJECTION						
Year	2005	2010	2015	2020	2025	2030
ServiceArea Population	53,638	56,630	59,621	62,612	65,603	68,594

MAP

1.7 Climate

Tuolumne County has a varying range of temperature and precipitation. The Sierra Nevada foothill areas experience hot, dry summers and mild winters. The higher elevations, above 5,000 feet, experience long and severe winters, accompanied by heavy snowfall. Table 2 shows the precipitation and temperature averages for the Sonora area.

Table 2

TEMPERATURE AND RAINFALL						
	January	February	March	April	May	June
Average Rainfall	6.21	5.75	4.82	2.75	1.19	0.3
Average Temperature	44	46.5	50	55.2	62	69.4
	July	August	September	October	November	December
Average Rainfall	0.05	0.09	0.46	1.67	3.66	5.27
Average Temperature	76.7	75.5	70.3	61.1	50.8	44.5
Annual Average						
Average Rainfall	32.2	inches				
Temperatures	58.8	degrees F				

1.8 Topography

The topography of Tuolumne County varies greatly from gently rolling terrain at the lower elevations, to steep hilly uplands deeply traversed by streams and tributaries that drain south to the Tuolumne River or north to the Stanislaus River. A large number of TUD's customers reside in or near the community of Sonora which is at about the 2,000 foot elevation. TUD treated water service area in the lower elevations includes the communities of Sonora, Jamestown, Columbia, and extends east to include several communities and semi-rural areas up too about elevation 5,000 feet in the Sierras. Untreated water is also provided to the community of Twain Harte at about 4,000 feet.

The two passes with paved roads in the Sierra, Sonora Pass (9,628-feet) and Tioga Pass (9,941-feet) are located in Tuolumne County. This high elevation to the east serves as the watershed for the TUD water supply with significant snow pack during the winter months.

1.9 Soils and Land Use

The majority of Tuolumne County is underlain by hard, impermeable bedrock such as greenstone and granite. Some of these rocks are fractured and these fractures can yield relatively small amounts of groundwater to wells that intersect the fractures.

The soils in the TUD service area can be segregated into two broad categories: The first is that of recent alluvial soils. Shallow soil profiles and extreme rockiness are found in the lower western portions of TUD. Many of the shallow, rocky soils have proven to be marginal even for the production of pasture because of low moisture retention and low fertility. Upland soils represent the second category. The bedrock is granodiorite which in places has weathered to decomposed granite with large, hard, residual boulders.

Large areas of Pliocene Mehrten formations overlie the granitic bedrock. The Mehrten contains mudflows, andesitic lava, tuff and gravel. In general the soil was formed in place by the weathering and decomposition of the underlying rock material.

Crop adaptability of the upland soils is largely restricted to irrigated pasture or various deciduous orchards. Both slope and soil depth directly affect the degree of suitability of lands for irrigation or development, as does public land ownership.

In 1897, the lumber industry realized the commercial value of the trees in the higher elevation and that has subsequently become a major industry for the County. Very large segments of irrigable land within TUD are presently forested and subject to forest and range management. This land possesses the slope and soil characteristics to sustain irrigable agriculture lands but because of conditions of climate, location and availability of water, it will in all likelihood remain under some type of forest or range management program.

Today, nearly half of the County remains unsettled. Tourism and logging are the major industries, but residential areas are also growing in the greater Sonora area and other existing communities.

Much of the County is owned by the federal government, which will limit the extent of future development. The Stanislaus National Forest of the U.S. Forest Service, Emigrant Wilderness, and most of Yosemite National Park are located in Tuolumne County.

1.10 Background and History of TUD's Tuolumne Water System

Tuolumne County is located in the middle of California's Gold Country. Gold was first discovered in Tuolumne County at Woods Diggins in June 1848. The history of water in Tuolumne County is linked with the Gold Rush days

of the 1850s. The first units of the still-used water conveyance system were built for the mines and thriving camps of the gold seekers. The Tuolumne County Water Company, incorporated in 1852, was for more than fifty years the driving force in the construction of dams, reservoirs and ditches serving what is now TUD's service area.

Water was supplied to the early placer mines as well as the later hydraulic and quartz mines from diversion sites along the South and Middle Forks of the Stanislaus River. Throughout the Gold Rush and subsequent settlement of the County, the Tuolumne County Water Company absorbed by merger or outright purchase, the properties of some twenty-two other water companies as it developed water sources to supply a growing number of customers.

In 1898, the Tuolumne County Water Company was reincorporated as the Tuolumne County Water and Electric Power Company as a part of expanding its activities to include generating electricity by water power. Within a few years it became part of the Sierra and San Francisco Power Company. In 1927, its dual water supply/hydro-generation system was sold to Pacific Gas and Electric Company (PG&E) and for more than fifty-five years thereafter the dual system was owned and operated by PG&E.

In 1983, Tuolumne County purchased the water conveyance, treatment and distribution portion of the system (commonly known as the Tuolumne Water System) from PG&E. PG&E, retained and continues to own all facilities that are a part of its hydro-generation system, including Lyons Dam, the Main Canal and the Phoenix powerhouse.

TUD was organized on July 1, 1992 in response to a voter initiative election which required the consolidation of two public systems which were then operating: the County-owned Tuolumne Water System and the water and regional wastewater systems of the Tuolumne Regional Water District (previously known as Tuolumne County Water District No. 2). TUD, as the newly-created successor to the Tuolumne Regional Water District, thereby became the principal provider of water and sewer services in the County.

Through the course of its history, the Tuolumne Water System has changed from serving mainly mining operations to serving the rapid growing residential, commercial and industrial sectors of Tuolumne County.



Section 2: Water Supply Sources

2.1 Water Supply Sources

TUD has three primary sources of water: (1) surface water from the South Fork Stanislaus River under TUD's Agreement with PG&E, (2) groundwater and (3) recycled water. The surface water supply from the South Fork Stanislaus accounts for 98.35 percent of total supply. Groundwater in Tuolumne County is severely limited due to the hard, impermeable bedrock that covers the majority of the County. Recycled water is used by some landowners for irrigation of farm and pastureland.

2.2 Surface Water

The surface water is supplied to TUD from the South Fork of the Stanislaus River under a 1983 Agreement with PG&E, and under PG&E water rights. Under the 1983 Agreement, PG&E transferred ownership of the Tuolumne Water System to the County, and the System and the PG&E water supply Agreement was transferred from the County to TUD in 1992.

The 1983 Agreement provides that PG&E will continue to provide in perpetuity a water supply to the Tuolumne Water System under PG&E's water rights in the South Fork Stanislaus, including its PG&E's Strawberry and Lyons Reservoirs, and delivered through PG&E's Main Tuolumne Canal. The 1983 Agreement provides that PG&E will supply a "base supply" and a "supplemental supply" of water. The base supply and a portion of the supplemental supply is free, but additional "supplemental water" must be paid for. The amounts of water available under the Agreement each year are not quantified, but are formula-determined, based on amounts of natural flow of the South Fork Stanislaus and what can be made available to the Tuolumne Water system each year from PG&E's facilities on the South Fork Stanislaus. A copy of the 1983 agreement with PG&E is available at the District office.

The South Fork Stanislaus River watershed has an average annual yield of approximately 100,000 acre-feet. Strawberry and Lyons Reservoirs have a combined storage of approximately 24,000 acre feet.

2.3 Groundwater

Groundwater from District wells provides approximately 5.5 percent of the domestic water consumed annually within the district. The majority of available groundwater is transient and found in fractured rock. Tuolumne County is located within the Sierra foothills and higher elevations of the Sierras, where the subsurface material consists primarily of impermeable granitic and greenstone bedrock, and where the groundwater yield may be

quite low and there is not a large amount of groundwater in storage. The California Department of Water Resources in its Bulletin 118 provides a detailed description of groundwater basins in California, but the DWR Bulletin does not identify or describe any groundwater basins in Tuolumne County.

Current, non-critical year pumping of TUD wells produces on average 260 acre-feet. Uncommitted well water reserves provide approximately 550 acre-feet. In calculating sustained pumping during a critical year, TUD assumes that District wells could sustain 50 percent of the total potential annual yield of 2,150 acre-feet per year over a nine-month period. Table 3 shows TUD's wells and their potential annual yield.

Table 3

POTENTIAL ANNUAL YIELD	
TUD Groundwater Source List	Ac/Ft
Apple Valley #1 Well	73
Apple Valley #2 Well	128
Brentwood Park Well	29
Canepa Well	110
Caylor Well	95
Cedar Ridge Springs Well	120
Comstock Well	15
Confidence #1 Well	18
Confidence #2 Well	29
Crystal Falls Business Park Well	29
Crystal Falls Plant Well	95
Cuesta Center Well	113
Gibbs Ranch Well	142
Lambert Lake Well	110
Marble Quarry Well	80
Mill Villa Well	288
Oakhaven Well	18
Oakridge Ranch Well	26
Peaceful Pines Well	44
Phoenix Lake Well	62
Rybar #1 Well	37
Rybar #2 Well	55
Rybar #3 Well	40
Rybar #4 Well	29
Scenic Brook #1 Well	69

Scenic Brook #2 Well	29
Scenic View Well	55
SPI Well	161
Sugar Pine #1A Well	22
Sugar Pine #2 Well	15
Willow Springs Plant Well	15
Maximum Production	2150

The District will continue to use the limited groundwater supply available from its wells as needed each year. The District has not adopted any groundwater management plan under Part 2.75 (commencing with Section 10750) of the Water Code nor has the groundwater supply in the District been subject to any adjudication.

2.4 Recycled Water

The District owns and operates the Regional Wastewater System which collects wastewater from most of the principal communities and developed areas within the District and transmits it to the Sonora Regional Wastewater Treatment Plant for treatment. The treated wastewater (recycled water) from both TUD's Sonora plant and also Jamestown's Wastewater Treatment Plant is then delivered to private landowners for irrigation of approximately 500 acres of farm and pastureland. The District's wastewater project supply and the use of such recycled water are more fully described in Section 8 of the Plan, beginning on the 23.

2.5 Raw Water Distribution

The District has the ability to convey non-potable water throughout Tuolumne County using its historic ditch system. The ability to utilize raw water for industrial, landscape, irrigation and agriculture uses instead of treated water allows the District to use the treated water system more efficiently.

Section 3: Water Use in TUD

3.1 Current and Project Water Use (excluding recycled water)

The average daily residential household water use for the TUD service area is approximately 377 gallons. TUD does not break down the customer list by specific type such as single-family residential, multi-family residential, commercial or industrial. Table 3 shows the actual and projected number of treated water and raw water customers,¹ with associated usage.

Table 4

CUSTOMER NUMBERS AND USAGE PROJECTIONS						
	Treated Water			Raw Water		
Year	Customers	Usage A/F	Loss A/F	Customers	Usage A/F	Loss A/F
2000	11528	5226	843	621	4131	5889
2005	12286	5495	962	592	3919	6810
2010	12758	5899	1040	592	3958	7147
2015	13316	6338	1119	600	3998	7515
2020	13875	6812	1202	600	4038	7899
2025	14434	7320	1292	600	4079	8316
2030	14993	7866	1388	600	4120	8761

¹ Raw water use shown here is primarily irrigation, but it does not include the use of recycled water (which is described in Section 8)

Section 4: Reliability and Planning

4.1 Past Drought and Water Demands

Current demand for water within TUD is approximately 17,000 acre-feet (dry year demand, 2004), as shown on Table 5. Of this amount, 10,276 acre-feet was consumed and 6,749 acre-feet were used in conveyance or transmission losses in TUD's and PG&E's ditch and canal systems.

During the prolonged drought of 1987 to 1994, spring runoff each year filled Strawberry and Lyons Reservoirs to their capacity. By July, runoff is typically near zero and system water demands are met from storage facilities. The timing of the runoff is nearly the same for wet or dry years with the only difference being the magnitude of the runoff and the length of time the reservoirs spill.

Water availability under historical drought conditions was established through implementation of conservation modeling procedures that call for maintaining a minimum target storage level of 1,500 acre-feet at Lyons Reservoir, and 3,500 acre-feet at Strawberry (Pinecrest) Reservoir.

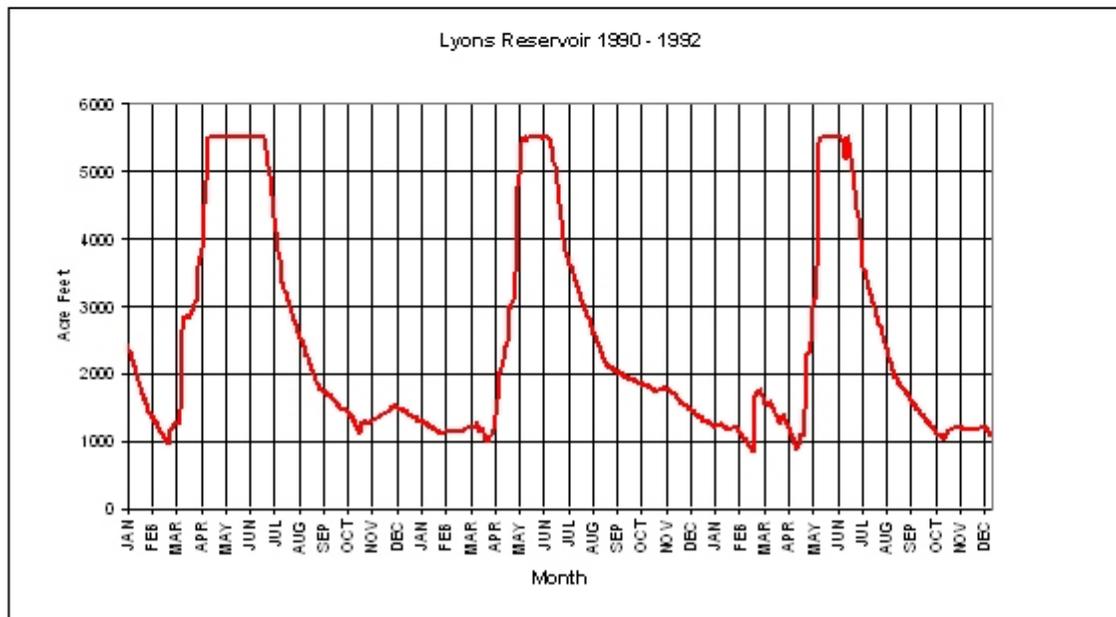
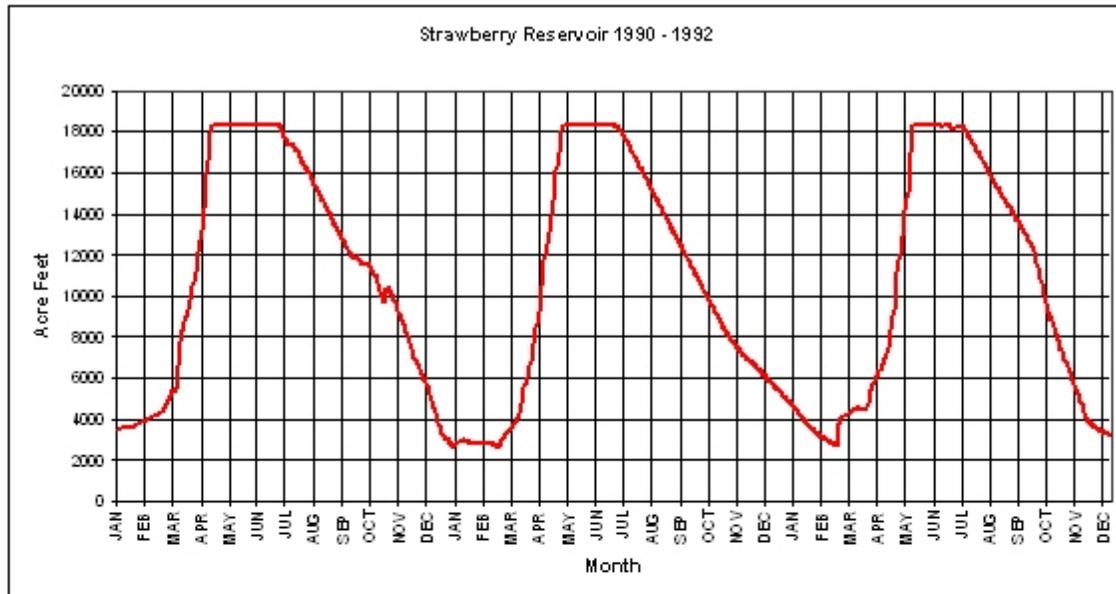
The critical dry year inflow of 19,250 acre-feet, coupled with an assumed combined storage in Lyons and Strawberry Reservoirs of 5,200 acre-feet, for a total of 24,500 acre-feet of a critical year yield, is sufficient to meet demand through the year 2036 at a population growth rate of 1.45 percent.

Since 1995, water demand has generally paralleled population increases. Historically, per capita water consumption has increased due to greater use of home appliances, landscaping, and other uses. However, an increased awareness for the need to conserve water has resulted in a general leveling off of per capita consumption until 2004 when per capita consumption began to increase. For the plan update, average daily per residential connection demand is assumed to be 377.5 gallons.

TUD adopted their most recent updated Water Rules and Regulations on July 11, 2006. Regulation 12 deals with TUD's water conservation plan as presented in Appendix C.

4.2 Three Year Minimum Water Supply - Operation of PG&E's Strawberry and Pinecrest Reservoirs

TUD's operation of the Tuolumne Water System water supply during normal years and prolonged drought conditions, such as 1988 to 1994, indicates that at a water demand of 24,500 acre feet per year, the spring runoff will fill PG&E's Strawberry and Lyons Reservoirs to their capacity.



During unusual severe drought, such as occurred in 1976 and 1977, PG&E would be required under the terms of the 1983 PG&E Purchase Agreement to reduce or curtail its out-of-watershed diversions from the South Fork Stanislaus River into the Middle Fork Stanislaus for power production, in order to assure an adequate water supply to meet TUD's projected consumptive needs in such years.

Projections of reservoir storage levels, river yields and demands are preformed weekly by TUD. The unimpaired natural flow at Lyons Reservoir for a critically dry year with a probability exceedance factor of 90 percent is 44,000 acre-feet. PG&E would be called upon, under this scenario, to stop or reduce power diversions in orders to maintain minimum storage elevations at both Strawberry and Lyons Reservoirs.

Federal Energy Regulatory Commission (FERC) requirements contained within the Stanislaus Hydroelectric Project #2130 require PG&E to fill Strawberry (Pinecrest) Reservoir by June 1 of each year except under emergency conditions (FERC License 2130 states; "License shall, consistent with operational demands, maintain the maximum water surface elevation in Strawberry (Pinecrest) Reservoir during the period from June 1 to September 15, except under emergency conditions."

During the spring annual runoff when Strawberry (Pinecrest) and Lyons Reservoirs are projected to spill, PG&E has, subject to Tuolumne County consumptive needs, historically diverted as much water as possible to hydroelectric generation.

Water supply transfers to Lyons Reservoir generally total approximately 50 acre-feet per day. Following Labor Day weekend each year, the reservoir is routinely drafted to provide storage for the next spring runoff. TUD typically maintains a minimum pool in Lyons Reservoir of 1,500 acre-feet for water quality purposes.

The minimum pool in Lyons Reservoir is typically reached in mid October. The TUD's customer demand then falls off, followed by a transfer of storage from Strawberry (Pinecrest) Reservoir to bring Lyons Reservoir to the 2,500 acre foot level thus assuring adequate carryover storage in Lyons Reservoir to meet projected demands until the next year spring runoff.

4.3 Plans to Assure a Reliable Water Supply

Based upon the foregoing, TUD expects that combined water supplies, including the critical year yield from the South Fork of the Stanislaus River available to TUD under the 1983 Agreement with PG&E, uncommitted groundwater, and critical year conservation (estimated to be 1,861 and acre-feet by 2036 under terms of existing water conservation policy) will provide sufficient quantities of water to meet projected demands over the next twenty years assuming a projected growth rate of 1.45 percent per year.

Due to the long delay between planning and actual completion of construction of water development projects, TUD also continues to look at possible options to obtain additional water supplies. TUD has explored funding options for the development of a New Lyons Dam and continues to pursue authorization of an agreement with the Bureau of Reclamation for pumping of up to 5,000 acre feet of water from New Melones Reservoir.

A New Lyons Dam would provide additional storage capacity and yields which could be used to meet future demands, and would also provide a reliable water supply during times of drought. TUD has tabled its aggressive pursuit of this option at this time.

TUD recognizes that some of the raw water open canal/ditch conveyance facilities constructed decades ago may require improvements for a variety of purposes including water conservation. However, it may not be prudent to replace some of these ditches with pipelines due to operational, environmental and/or economic reasons.

4.4 Transfer or Exchange Opportunities

Other than its efforts to negotiate an agreement with the Bureau of Reclamation for additional water from New Melones Reservoir, TUD is not pursuing water transfers or exchanges at this time. The current terms of the 1983 Agreement with PG&E appear to provide sufficient water for TUD's current and mid range needs. TUD would consider any future opportunities for short-term and/or long-term water transfers and/or exchanges with others if TUD would benefit from such an agreement.

Section 5: Supply and Demand Comparison Provisions

5.1 Supply and Demand Comparison

Table 5 compares current, and projected water supply and demand. The table indicates that in average, dry and critical dry precipitation years, TUD has sufficient water to meet its customer's needs, through 2036.

Table 5

WATER SUPPLY CRITICAL DAY PERIOD ANALYSIS (South Fork Stanislaus River)												
September 2005												
Footnote	*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*11	*12
Calendar Year	TUD Production	Untreated Consumption	Required Delivery	Est. Ditch Losses	Total Demand	Total Supply	Uncommitted Reserve	System Conservation	Demand Conservation	District Commitments	Adjusted Reserves	Est.Crit. Year Conservation
	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)	(ac ft)
2004	6365	3,911	10,276	6,749	17,025	24,500	7,475	0	10	918	6,567	1,419
2005	6457	3,919	10,376	6,810	17,186	24,500	7,314	0	20	1,000	6,334	1,429
2006	6551	3,927	10,478	6,874	17,352	24,500	7,148	0	30	1,000	6,178	1,440
2007	6646	3,935	10,580	6,941	17,521	24,500	6,979	0	40	1,000	6,019	1,451
2008	6742	3,942	10,685	7,008	17,693	24,500	6,807	0	50	1,000	5,857	1,463
2009	6840	3,950	10,790	7,077	17,868	24,500	6,632	0	60	1,000	5,692	1,474
2010	6939	3,958	10,897	7,147	18,044	24,500	6,456	0	70	1,000	5,526	1,486
2011	7040	3,966	11,006	7,218	18,224	24,500	6,276	0	80	1,000	5,356	1,497
2012	7142	3,974	11,116	7,289	18,405	24,500	6,095	0	90	1,000	5,185	1,509
2013	7245	3,982	11,227	7,362	18,590	24,500	5,910	0	100	1,000	5,010	1,521
2014	7351	3,990	11,340	7,436	18,776	24,500	5,724	0	100	1,000	4,824	1,533
2015	7457	3,998	11,455	7,511	18,966	24,500	5,534	0	100	1,000	4,634	1,545
2016	7565	4,006	11,571	7,586	19,157	24,500	5,343	0	100	1,000	4,443	1,558
2017	7675	4,014	11,689	7,663	19,352	24,500	5,148	0	100	1,000	4,248	1,570
2018	7786	4,022	11,808	7,741	19,549	24,500	4,951	0	100	1,000	4,051	1,583
2019	7899	4,030	11,929	7,820	19,749	24,500	4,751	0	100	1,000	3,851	1,596
2020	8014	4,038	12,052	7,899	19,951	24,500	4,549	0	100	1,000	3,649	1,609
2021	813	4,046	12,176	7,980	20,156	24,500	4,344	0	100	1,000	3,444	1,622
2022	8248	4,054	12,302	8,063	20,365	24,500	4,135	0	100	1,000	3,235	1,636
2023	8367	4,062	12,430	8,146	20,575	24,500	3,925	0	100	1,000	3,025	1,649
2024	8489	4,070	12,559	8,230	20,789	24,500	3,711	0	100	1,000	2,811	1,663
2025	8612	4,079	12,690	8,316	21,006	24,500	3,494	0	100	1,000	2,594	1,677
2026	8737	4,087	12,823	8,402	21,226	24,500	3,274	0	100	1,000	2,374	1,691
2027	8863	4,095	12,958	8,490	21,449	24,500	3,051	0	100	1,000	2,151	1,705
2028	8992	4,103	13,095	8,579	21,674	24,500	2,826	0	100	1,000	1,926	1,720
2029	9122	4,111	13,234	8,670	21,903	24,500	2,597	0	100	1,000	1,697	1,734
2030	9254	4,120	13,374	8,761	22,135	24,500	2,365	0	100	1,000	1,465	1,749
2031	9389	4,128	13,516	8,854	22,371	24,500	2,129	0	100	1,000	1,229	1,764
2032	9525	4,136	13,661	8,948	22,609	24,500	1,891	0	100	1,000	991	1,780
2033	9663	4,144	13,807	9,044	22,851	24,500	1,649	0	100	1,000	749	1,795
2034	9803	4,153	13,956	9,140	23,096	24,500	1,404	0	100	1,000	504	1,811
2035	9945	4,161	14,106	9,238	23,344	24,500	1,156	0	100	1,000	256	1,827
2036	10089	4,169	14,259	9,338	23,596	24,500	904	0	100	1,000	4	1843

NOTES
Critical Dry Period Water Supply Analysis

Notes:

- *1 The Actual TUD Treatment Plant Production for 2004, increased by 1.45% annually thereafter.
- *2 Amount of water billed by TUD to ditch water customers in 2004, increased by .2% annually thereafter.
- *3 The required delivery column is the sum of both treatment plant production (1) and Untreated Consumption (2).
- *4 Est. Ditch Losses reflect actual data for 2004 and is estimated at 40% of the previous year's total demand for subsequent years.
- *5 The Total Demand column is actual data for 2004. For subsequent years it is the sum of Required Delivery and Estimated Losses and is also equivalent to the total consumptive diversions from the Tuolumne Ditch
- *6 The Total Supply column is the total annual amount of available water per year from the South Fork Stanislaus River as measured at the diversion point from Lyons Reservoir during the historic critical dry period of Water Years 1976 and 1977 (a 24-month period).
- *7 The Uncommitted Reserve column is the difference between Total Supply (6) and Total Demand (5) and reflects the annual amount of water available from the South Fork Stanislaus River less water saved from conservation and commitments.
- *8 The System Conservation column reflects anticipated annual water savings from improvements to the Tuolumne Ditch System that will be identifies in the Capital Improvement Plan developed as a part of the Ditch Optimization Study. This plan has been put on hold and therefore there are no water savings indicated.
- *9 The Demand Conservation column reflects the annual water savings anticipated from demand side water conservation programs. The amount saved will remain constant or reduce over time due to the age and a deterioration of installed water conservation devices and saturation of the market for the devices.
- *10 The District Commitments is based on annual report and will vary over time. Fixed development commitments are assumed to start in 2005, and remain constant.
- *11 The Adjusted Reserves number is the amount of available water from the South Fork Stanislaus River for new connections within the TUD service area.
- *12 Critical Year Conservation (rationing) is considered to be a short term annual water saving measure to be used as a contingency buffer during a critical dry year or during an emergency. This quantity of water is not to be used as supply for new service. It is assumed treated water consumption will be reduced by 10% and untreated water consumption will be reduced by 20%.

General Notes:

- *13 Uncommitted groundwater is not considered in this analysis to be available water rather it is to be used as an additional contingency source. The groundwater quantity is estimated as follows: Total developed groundwater reduced by 50% (for reliability) less the current average annual pumped quantity and further reduced by pumping 2/3 of the year: $2,150 \text{ AF} / 2 - 260 \times 2/3 = 543$ acre foot of available developed groundwater supply.

Section 6: Water Demand Management Measures

This section discusses water conservation measures being implemented by TUD. TUD does not directly budget for conservation programs. Cost for the Water Demand Management Measures (DMM) or programs are folded into the public information and maintenance budgets. Existing District policy reserves the right for TUD to allocate the delivery of available water supplies among its water users.

The annual allocation of water during a critical year is based upon projections of municipal and industrial use, public trust requirements (where fish flow requirements and other environmental uses are a condition of use imposed by an appropriate regulating governmental body), and the watering of livestock (including poultry).

The next highest priority is for maintaining the survival of permanent crops, and fire protection; followed by irrigation of nonpermanent crops, and other agricultural and commercial uses.

The final group includes the delivery of water delivered under a "Surplus Water" agreement and for other uses such as noncommercial recreation, scenic, and construction purposes.

6.1 DMM 1 - Water Survey Programs

TUD, through the Master Gardener program has in the past offered free residential water use surveys to customers upon request. The Master Gardeners had also provided landscape surveys including sprinkler system efficiency, distribution uniformity, seasonal scheduling and repairs or improvements.

TUD does not track the number of surveys performed annually. This program has been eliminated for funding reasons.

6.2 DMM 2 - Residential Plumbing Retrofit

TUD offers water-saving kits free upon customer request. The water-saving kits include free showerhead replacements and a device for reducing toilet flush water requirements for regular toilets.

TUD does not track the number of kits requested annually. In addition to the water-saving kits, TUD offers a rebate program, for ultra-low-flush toilet replacement.

6.3 DMM 3 - System Water Audits, Leak Detection and Repair

TUD has a water leak detection and repair program. Records are kept annually on water production versus consumption to track unaccounted water in the system (see Table 5). TUD has budgeted \$100,000.00 per year for its open ditch conveyance system leak reduction program.

6.4 DMM 4 - Metering with Commodity Rates

TUD's water systems are fully metered and TUD's rates and charges include increasing commodity rates as usage increases.

6.5 DMM 5 - Large Landscape Conservation Programs

TUD reviews all landscape plans proposed for new developments in coordination with the County Planning and Building Department. Drought tolerant native plants are recommended with down sized turf areas.

6.6 DMM 6 - High-Efficiency Washing Machine Rebate Programs

TUD does not presently offer a rebate on high-efficiency washing machine replacement. We are currently discussing this option.

6.7 DMM 7 - Public Information Programs

TUD promotes public awareness of water conservation through bill inserts, brochures, special events throughout the year, and water conservation programs sponsored in local schools. Appendix D displays samples of public information distributed by TUD. In addition to brochures and handouts, TUD's website (www.tudwater.com) provides information on water conservation, reservoir levels, river flows, and links to local, state, and federal agencies for additional information.

6.8 DMM 8 - School Education Programs

TUD contracts with a consultant to implement school education programs. Educational materials and videos for this program are provided by TUD. Presentations and demonstrations on water conservation are conducted at the local schools.

6.9 DMM 9 - Conservation Programs for Commercial, Industrial and Institutional

TUD offers to review plans for new commercial, industrial, and institutional customers. In addition, TUD will provide water use audits to any commercial, industrial, or institutional customer who requests one.

6.10 DMM 10 - Wholesale Agency Programs

TUD does not receive support for the DMMs from any wholesale agency and does not offer support to their raw water clients to implement the DMMs.

6.11 DMM 11 - Conservation Pricing

TUD uses a tier structure for water service rates which is a major factor in promoting effective water conservation. TUD's current water service charges and rates are included in Appendix C.

6.12 DMM 12 - Water Conservation Coordinator

TUD designated a part time Water Conservation Coordinator in 1996. The water conservation coordinator's responsibilities include coordinating all consultant contracts for public outreach and education, media advertisements, and special services.

6.13 DMM 13 - Waste Water Prohibition

TUD enforces the no waste section of their Water Shortage Contingency Plan, Regulation No. 12, as noted in Appendix C. The regulation restricts certain uses of water during dry and critical drought years.

Specific measures include:

- Fire hydrant flow testing prohibited
- Outside water usage restricted between 12:00 noon and 7:00 p.m.
- Unattended water prohibited
- Shortened irrigation season
- Car, boat, building, and trailer washing restrictions
- Restrictions on the washing of sidewalks and driveways
- Restrictions on filling of swimming pools
- Restrictions on use of potable water for sewer flushing, dust control, earth compaction and other construction use

6.14 DMM 14 - Residential Ultra-Low-Flush Toilet Replacement Programs

As part of the residential plumbing retrofit, TUD offers a program that provides for the payment of \$45 for each standard toilet that is replaced with an ultra-low-flush toilet. In addition to the rebate program, new construction requires the installation of ultra-low-flush toilets.

Section 7: Water Shortage Contingency Plan

7.1 Water Shortage Contingency Plan

TUD has adopted a three-phase conservation and rationing program to meet a water shortage situation. Resale customers who treat and distribute potable water have reviewed the Water Shortage Contingency Plan as presented in Appendix C. The three-stage plan includes both voluntary and mandatory water rationing.

7.2 Stages of Action

TUD has developed a three-phase rationing plan to invoke during declared water shortages. The plan includes both voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

7.3 Water Shortage Phases and Triggering Mechanisms

Phase I of the three-phase rationing plan include on going water management. This phase encourages waste reduction in everyday use, common sense water use, and public education and awareness activities. Water conservation measures for this phase is on a voluntary basis.

Phase II of the plan is triggered when the February snow survey, or any subsequent survey, of the South Fork of the Stanislaus River projects a water runoff yielding less than 50 percent of normal. This phase contains both voluntary and mandatory water conservation measures. TUD will determine system water use reduction goals (a function of projected runoff weighed against previous years usage) and update as conditions warrant.

Phase III of the rationing plan is triggered when voluntary and mandatory measures within Phase II fail to achieve projected goals. Water conservation measures implemented at this phase are mandatory. Prohibitions on water wasting and emergency water delivery rates are enforced during this phase.

7.4 Water Allotment Methods

TUD implements an emergency water delivery rate schedule at Phase III of the water conservation plan. A life line rate is established covering the first 500 cubic feet of water usage per month. The life line rates and factors associated with usage are presented in Appendix C.

7.5 Mandatory Prohibitions on Water Wasting

Examples of mandatory prohibitions include:

- Washing of sidewalks, walkways, etc.
- Washing cars, boats, trailers, etc.
- Watering lawns/landscapes
- Decorative fountains, pools, recreational ponds
- Filling of new or existing swimming pools
- Gutter flooding
- Sewer flushing, dust control, earth compaction, etc.
- Unattended watering

7.6 Excessive Use Penalties

Any customer violating the regulations and restrictions on water use will receive a written warning from TUD for the first violation. Upon a second violation, the customer will have water service restricted by a device installed by TUD for a period of thirty days.

The customer will need to pay a penalty for removal of the device. Further violations will result in a restrictive device being installed by TUD and will remain in place until the Board of Directors repeals the state of emergency and a penalty for removal of the device is paid.

Section 8: Information on Recycled Water and its Potential for Use as a Water Source in TUD's Service Area

A large portion of the wastewater in Tuolumne County is collected, treated and used for irrigation of agricultural lands through TUD's Regional Wastewater System.

8.1 Wastewater System Background

Historically, Tuolumne County communities from Jamestown, Sonora and Twain Harte, discharged partially treated sewage effluent to Woods Creek or its tributary, Sullivan Creek.

In 1972, the Regional Water Quality Control Board (RWQCB) ordered those communities to cease discharging because the sewage was being poorly treated. A Regional Wastewater Plan was then developed by TUD's predecessor (Tuolumne County Water District No. 2 a.k.a. TCWD No.2) with participation by the City Sonora, Jamestown and Twain Harte. With grant funding assistance, treatment plants at Sonora and Jamestown were thereafter upgraded to provide secondary treatment of the wastewater.

Interceptor lines were constructed by Twain Harte to bring primary treated sewage from Twain Harte, and by TCWD No.2 to bring untreated sewage from other communities throughout the area to the upgraded Sonora treatment plant. The upgraded regional collection and treatment system has been in operation since its completion by TCWD No.2 in April 1976, with effluent from the Sonora and Jamestown initially discharged to Woods Creek and subsequently to the reclamation system.

In addition to upgraded treatment, the 1972 North Tuolumne Basin Wastewater Management Plan (Regional Plan) called for land disposal of the effluent. The North Tuolumne Basin Wastewater Management Program Project Report, dated October 1972, proposed disposal of wastewater on Bureau of Land Management land in the Red Hills area in the western portion of the County. This concept was unfeasible because of soil and geologic conditions at the proposed disposal site. In mid 1974, with construction proceeding on the interceptor and the treatment systems, a second phase of disposal system studies began.

These studies recommended that the effluent be disposed on land in an area known as the Chinese Camp Triangle. People in the "Triangle" area strongly objected and the Tuolumne County Water District No. 2 (TCWD No. 2) Board, a predecessor agency to TUD, directed that the disposal method no longer be considered. The State Water Resources Control Board (SWRCB) staff did not agree with dropping the alternative, and by the end of 1974 it was apparent that studies should be made once again.

Early in 1975, TCWD No. 2 hired a consultant to overview the situation and identify alternatives for proceeding. Based on the consultant's review, the alternatives for disposal were expanded to include reuse by irrigation and direct surface discharge to streams in addition to land disposal which led to the preparation of a supplemental facility plan for the disposal system.

A project Report and a Draft Environmental Impact Report on the supplemental facility plan for the effluent disposal system was submitted to the public and the SWRCB in February 1976. In April 1976, after review of comments from the public and responsible agencies, the TCWD No. 2 Board of Directors adopted reuse of the wastewater by irrigation combined with storage and seasonal surface discharge to Quigley Creek (the Dry Creek Basin) as the apparent best project.

The project included an outfall pipeline, storage Reservoir near Campo Seco, a storage reservoir in the Red Hills, distribution pipelines to various private landowners, and a pipeline to the Quigley Creek discharge point. The U.S. Environmental Protection Agency (EPA) and SWRCB reviews of the apparent best project continued from April 1976 to February 1977 when a negative declaration was issued.

During the negative declaration comment period, landowners expressed concerns about protection of mineral and groundwater resources in and near the proposed Campo Seco Reservoir. Consequently, the SWRCB staff asked the State Division of Mines and Geology to investigate mineral resources and mines at the site. The SWRCB staff also requested an updated analysis from TCWD No. 2 covering reservoir alternatives.

On April 12, 1977, the staffs of the SWRCB, TCWD No. 2, and the RWQCB met to discuss the status of the project. At that meeting, TCWD No. 2 pointed out that because of cost increases already caused by the one-year delay and additionally required design modifications, TCWD No. 2 was no longer able to provide the local share for funding the project. TCWD No. 2 then requested that the RWQCB staff consider modifying the May 28, 1976, discharge permit to allow seasonal discharge releases into Woods Creek instead of Quigley Creek, thereby reducing pipeline and reservoir construction costs so a financially feasible project could be developed. On April 13, 1977, the RWQCB staff agreed to consider such a modification and subsequently issued a new tentative discharge permit. The project was then revised to what is in existence today.

8.2 Description of Existing System for Reuse of Recycled Water

The existing Regional Reclamation System, owned by TUD, consists of the following primary elements: approximately 9 miles of Interceptor and collector pipelines, from 6-inch to 24-inch size; a 1,500 acre-foot storage reservoir ("Quartz Reservoir"); and a 15-horsepower pumping plant at the Jamestown Wastewater Treatment Plant. The system provides the

conveyance of treated wastewater from the Sonora and Jamestown Wastewater Treatment Plants to private landowners for irrigation of approximately 547 acres of farm and pastureland.

The treated recycled water pipelines are divided into three major segments: (1) Upper Pipeline, from the Sonora Wastewater Treatment Plant to Quartz Reservoir, and to ranchers along Smith Ditch; (2) Lower Pipeline, from Quartz Reservoir southerly and westerly to ranchers near Stent and the Montezuma Junction; and (3) Jamestown Connection, from the Jamestown Treatment Plant to Quartz Reservoir.

The Upper and Lower Pipelines flow by gravity while the Jamestown Connection incorporates a pumping plant. During winter months, all of the effluent is stored in Quartz Reservoir. Quartz Dam is a 100-foot high earth fill dam with a total storage of 1,800 acre-feet, usable storage of 1,500 acre-feet, and surface area of 46 acres at a maximum pool elevation.

During the irrigation season, the Regional Wastewater Treatment Plant effluent will be discharged through irrigation turnouts to ranchers along the 5-mile Upper Pipeline route. Also, wastewater effluent stored during the previous winter is released through nine irrigation turnouts to ranchers along the 4-mile Lower Pipeline route.

Because of variability in demands for irrigation water from wet to dry years, the system was originally designed to accommodate an occasional seasonal discharge to Woods Creek downstream of Quartz Dam during those wet years when the supply of effluent exceeds the contracted irrigation demand. However, this potential discharge should only occur when absolutely necessary and only when the flows in the creek are high.

8.3 Recycled Water Currently Being Used

The potential for use of the recycled water from TUD's regional wastewater system is to provide irrigation water to agricultural lands in the western portion of TUD's service area. Substantially all of the recycled wastewater is currently being used for such purposes.

The irrigation delivery system utilizing TUD recycled water consists of pipelines, two District owned properties on which wastewater is applied, and 18 irrigation turnouts to 28 customers.

Meetings between TUD personnel and irrigation customers are held periodically to determine any water delivery constraints or scheduling problems. Based on effluent quantities in storage at that time, estimates of summer flows, and ranchers' acreage and crops; ranchers are notified of any concerns or unusual problems that could affect their operations. At this same meeting, ranchers are provided with information relating to public health concerns and reuse restrictions.

Recycled water irrigation outlets have metering equipment and control valves operated by the Regional Reclamation System personnel. When not in use, the valves are locked in the closed position. Flow rates and flow totals for each of the metered turnouts are recorded. Isolation gate valves ahead of the turnout allow shutoff during servicing.

The District Board of Directors has directed staff to review the potential for future use of tertiary treated wastewater for irrigation.

Section 9: Provision of Water to Proposed Development

9.1 Low Income Preferences

Pursuant to Government Code Section 65589.7 its TUD's policy to grant a priority to proposed developments seeking water or sewer service that includes housing units affordable to lower income households. To further this policy, TUD adopts the following procedures.

9.2 Procedure to Implement Preference Policy

A. TUD will not deny or condition the approval of an application for services to, or reduce the amount of service for by, a proposed development that includes housing units affordable to lower income households unless TUD makes a specific written finding that the denial, condition, or reduction is necessary due to the existence of one or more of the following:

- 1) TUD does not have "sufficient water supply" as defined in paragraph (2) of subdivision (a) of Section 66473.7, or is operating under a water shortage emergency as defined in Section 350 of the Water Code, or does not have sufficient water treatment or distribution capacity, to serve the needs of the proposed development, as demonstrated by a written engineering analysis and report.
- 2) TUD is subject to a compliance order issued by the State Department of Health Services that prohibits new water connections.
- 3) If the proposed development seeks sewer service, if TUD does not have sufficient collection treatment, or reclamation capacity, as demonstrated by a written engineering analysis and report on the condition of the collection treatment, or reclamation works, to serve the needs of the proposed development.
- 4) If the proposed development seeks sewer service, if TUD is under an order issued by a regional water quality control board that prohibits new sewer connections.
- 5) If the applicant failed to agree to reasonable terms and conditions relating to the provision of service generally applicable to development projects seeking service from TUD, including but not limited to the requirements of local, state, or federal laws, and regulations or payment of a fee or charge.

For the purposes of this Section, the following definitions apply:

- 1) "Proposed developments that include housing units affordable to lower income households" means that dwelling units will be sold

or rented to lower income households, as defined in Section 50079.5 of the Health and Safety Code, at an affordable housing cost, as defined in Section 50052.5 of the Health and Safety Code, or an affordable rent, as defined in Section 50053 of the Health and Safety Code.

2) "Water or sewer services" means supplying service through a pipe or other constructed conveyance for a residential purpose, and does not include the sale of water for human consumption by a water supply to another water supplier for resale. As used in this section, "water service" provided by a public agency applies only to water supplied from public water systems subjected to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

B. All proposed development projects, submitted with all of the appropriate fees and documents, submitted at a time when none of the above exceptions apply, that includes housing units affordable to lower income households, will be submitted by the applicant with a cover sheet outlining the number of housing units affordable to lower income households in both a number and percentage basis.



TUOLUMNE UTILITIES DISTRICT

18885 NUGGET BLVD • P.O. BOX 3728 • SONORA, CA 95370
(209) 532-5536 • FAX (209) 536-6485

DIRECTORS

Barbara Balen
James Costello
Judy Delbon
Louise Giersch
Ralph Retherford M.D.

**NOTICE OF PUBLIC MEETING
OF THE
TUOLUMNE UTILITIES DISTRICT
REGARDING ADOPTION OF THE UPDATED
URBAN WATER MANAGEMENT PLAN**

NOTICE IS HEREBY GIVEN that a public meeting will be held by the Board of Directors of the Tuolumne Utilities District (TUD) on Tuesday, November 14, 2006 at 7:15 p.m., in the Board room at the District office at 18885 Nugget Blvd., Sonora, California, for consideration of the 2005 update of TUD's Urban Water Management Plan.

The objective of this meeting will be to inform and receive public input regarding the 2005 update to the Urban Water Management Plan. This meeting will present information about the Urban Water Management Plan for review by the public and will also provide an opportunity for the public to comment.

Information will be available for review on October 31, 2006 at the TUD office, 18885 Nugget Blvd., Sonora and on the District web site at www.tuolumneutilities.com/uwmupdate.

Dated: October 24, 2006

APPENDIX B

REGULATION NO. 12

CONSERVATION

12.01 General

It is the District's Policy to take reasonable and prudent measures to conserve all natural resources and to adopt and implement a conservation program. It is further the District's policy to take reasonable and prudent measures to conserve water and energy in the operations and development of the District.

12.02 Specific Concerns

The District in its operation shall:

1. Develop pricing structures to encourage conservation of water and energy.
2. Promote through public relations a public consciousness of the need to conserve.
3. Assist customers to optimize efficient use of water.
4. Maintain facilities to conserve water.
5. Design facilities with conservation of water and energy in mind.
6. Construct facilities to conserve or retrieve water and energy.
7. Seek to halt all illegal use of water.

12.03 Water Conservation Programs to be Activated in Phases

The District shall have the power to restrict use of District water during any shortage or other emergency, upon the making of any findings or the taking of any other actions that may be required by law, including Sections 31026-31029 of the Water Code.

12.03.1 Phase I - Ongoing Water Management

- a. Education programs including County Schools programs.
- b. Ultra low-flow toilet rebate program. Water customers of the District shall be eligible to receive a \$45.00 conservation rebate, up to a maximum of three toilets per residential customer account, and with no maximum for a commercial business, for the replacement of toilets that were designed to use in excess of 3.0 gallons per flush, with District approved low-flow models using 1.6 gallons per flush or less. Participants must register a purchase receipt for each rebate and authorize District inspection of the completed replacement before payment shall be made.
- c. Promotion of water-saving landscaping.
- d. Community education programs;
 - i. Mailings (i.e. distribute "Lawn Watering Guide")
 - ii. Demonstrations (Xeriscape Garden, Home Improvement Event)

- iii. Seminars
- iv. Video library
- v. Public speaking
- e. Requirement of low-flow fixtures in new developments.
- f. Water audit and retrofit programs.
 - I. Low flow showerhead distribution
 - ii. Water conservation kit distribution
- g. Signatory to and implementation of Best Management Practices Memorandum of Understanding.
- h. Meter and/or flow control for all customer accounts and plant production activities.
- I. Maintain tiered water rates for treated water.
- j. Prohibit wasteful use of water.
- k. Review for accuracy water measuring and/or metering devices.
- l. "Agricultural Enterprise Water Rate" customers shall be required to design, construct, operate and maintain irrigation water systems in such a manner as to contain and put to beneficial use all delivered water.
- m. Raw water "General Metered Service" accounts, in which an open flowing ditch is the point of service, shall be converted to a "General Irrigation Service" account, and the mechanical meter serving the property shall be replaced with an open flow measuring devices and water shall be billed at the appropriate rate. "General Metered Service" accounts with a point of service and meter connection from a pressurized (minimum pressure at point of service 20 psi) delivery system shall not be converted to a "General Irrigation Service" account under this action.
- n. It is desirable that all properties served by raw water measured by the miners inch have on site storage equipped with an automatic shutoff device. Minimum storage for property receiving winter raw water should equal seven (7) days of usage (300 cubic feet).

12.03.2 Phase II - Conservation Measures During Low Water Years

Immediately upon the completion of the February snow survey of the South Fork of the Stanislaus River a forecast of anticipated annual yield will be undertaken and rated as a percent of normal. When such forecast, or any subsequent survey, projects a water runoff yielding less than 50% of normal the District Board of Directors shall find that a threat of an emergency or shortage exists and the following measures shall be implemented:

System Wide

1. Determine system reduction goals (a function of projected runoff weighed against previous years usage) and update as conditions warrant.
2. Increase public awareness:

District to hold additional landscape and irrigation seminars; prepare radio announcements, newspaper articles and ads; expand school program for classes beyond third grade; and send notices to Tuolumne County teachers, school boards, local businesses, restaurants, community service groups, Chamber of Commerce, Board of Supervisors, Board of Realtors, Building Department, etc., stressing the need to conserve water and request methods of support.
3. Both raw and treated water metered customers, (where water is sold by the cubic foot) shall be required to restrict outside water usage between the period 12 noon and 7 p.m. and shall restrict usage to alternating days. Those accounts with a property address ending in an even number shall confine their outside usage to Tuesday, Thursday, and Saturday; those with an odd number shall confine their outside usage to Wednesday, Friday, and Sunday. There shall be no restriction on Monday.
4. Fire hydrant flow testing is prohibited.
5. Restaurants shall serve water only upon customer request.

Treated Water Accounts

1. Voluntary reduction in usage:

District to mail special notices to all water customers advising of low water year, stressing District's alternating outside water usage policy and requesting a reduction in individual water use. Notice to include information on conservation methods.
2. Contact high water users:

District to send notices to high water use customers and initiate a water usage audit.
3. Monitor and police outside water use:

District to educate the public to recognize and remedy excessive water use and waste.
4. Household use:

Customers should obtain conservation kits from the District and should request assistance from the District and local plumbing supply companies on availability of low-use fixtures.
5. Outside use:

Customers shall eliminate water runoff; use drip or spot irrigation methods; shut off faucet when hose is not in actual use; modify existing

watering schedule and request assistance from Master Gardeners and local nurseries to promote low water use (native) plants.

Raw Water Accounts - Mandatory Reductions

1. Notice of reduction:

District to mail special notices to all raw water customers advising of low water year and identifying reduction requirements predicated upon previous years usage. Reductions shall be predicated on type of account.

2. Agricultural enterprise water rate accounts:

All "Agricultural Enterprise Water Rate" accounts shall be reduced by a minimum of 1.25 times the System Wide Reduction Goal. The maximum reduction under this section shall not exceed fifty percent (50%) of previous years delivery. All interruptible accounts shall be reduced by a factor of fifty percent (50%).

3. Postponing irrigation season:

Irrigation season shall be postponed, provided Lyons Reservoir is not spilling or projected to spill, to begin on earlier than May 1st and last no longer than September 31st.

Industrial and Commercial

1. Customers shall reduce consumption to the lowest possible amount which would allow continued operation. Conservation measures to be taken shall be established on an individual basis by the District.

2. District to send notices to high water use customers and initiate a water usage audit.

Resale Service - Treated and Raw Water

1. District to mail notices advising of low water year and requesting a reduction in individual water use. Notice to include copy of District's Conservation Policy along with a request to implement similar action.

2. Resaler shall restrict all outside water usage within his area of service to alternating days in a manner consistent with the policy established herein.

12.03.3 Phase III - Critical Years - Restricting Use of Potable Water

The Board of Directors shall implement Phase III if voluntary and mandatory measures within Phase II fail to achieve projected goals.

District shall proclaim through resolution that a state of emergency exists and shall remain in effect until projected water availability exceeds projected demand for both the short and long term period.

System Wide - In Addition to those Measures Contained within Phase II

1. Curtail to life maintenance the watering of lawns, gardens and any other irrigation. Individual plants or trees must be irrigated by the use of buckets or other containers. Water use which results in water running onto driveways, gutters, streets, adjoining property, and/or any other water runoff is prohibited. Unattended water is prohibited.
2. Washing of cars, boats, trailers, or other vehicles by hose or by use of water directly from faucets or outlets connected to the public water supply is prohibited.
3. Washing of sidewalks, walkways, driveways, patios, parking lots, tennis courts or other hard-surfaced areas, including commercial establishments, by hose or by use of water from faucets or other outlets connected to the public water supply is prohibited.
4. New construction service applications shall be granted upon condition that water shall be used only for interior purposes and landscaping shall be delayed until repeal of Phase III restrictions.
5. Use of water in decorative fountains, pools, recreational ponds and the like shall be limited to the minimum necessary to preserve aquatic life if present.
6. Sewer flushing, dust control, earth compaction, and other construction use of potable water is prohibited.
7. Filling of new or existing swimming pools is prohibited.

Treated Water Accounts

1. Implement Emergency Water Delivery Rate Schedule predicated upon current established rates:
 - I. A life line rate shall be established covering the first 500 cubic feet of water usage per month. The cost per cubic foot within the life line rate shall remain at the lowest bracket of the then current rate schedule.
 - ii. Water consumption charges shall be based upon actual water used per month times the rate factors below.
 - iii. Life Line Rate

established rate	First 500 cu ft.	Current lowest tier price of
	next 500 cu ft.	1.25 times life line rate
	next 500 cu ft.	1.50 times life line rate
	next 3,000 cu ft.	1.75 times life line rate
	over 4,500 cu ft.	2.00 times life line rate

Raw Water Accounts

1. All raw water accounts with the exception of "Agricultural Enterprise Water Rate" accounts shall be reduced to an amount equal to the "System Wide Reduction Goal".

2. "Agricultural Enterprise Water Rate" accounts shall be reduced by the greater of: a.) two (2) times the System Wide Reduction Goal or b.) by fifty percent (50%).
3. All interruptible accounts shall be reduced to sustained maintenance quantities.

Resale Service - Treated and Raw Water

Mandatory reduction in percent of usage equal to District's reduction goal.

12.04 Enforcement

In addition to, and/or exercise of, any and all lawful remedies, violations of this section shall result in the following penalties:

First Violation:

Written warning from District that further violation will result in possible water restrictions and imposing of fines.

Second Violation:

Customers water service shall be restricted by a device installed by the District for a period of thirty days and the device will be removed upon payment of a \$200.00 penalty.

Third Violation:

Customers water service shall be restricted to life line or life sustaining rates by a device installed by the District. The device shall remain in place until the Board of Directors repeals the state of emergency or threat of emergency or shortage and upon payment of \$500.00 penalty.

12.05 Variances

Variances may be granted from any of the above regulations upon application in writing stating in detail the circumstances meriting special consideration. Appeals of decisions by the General Manager may be taken to the Board of Directors.

12.06 Low Water Use Plumbing Fixtures Required

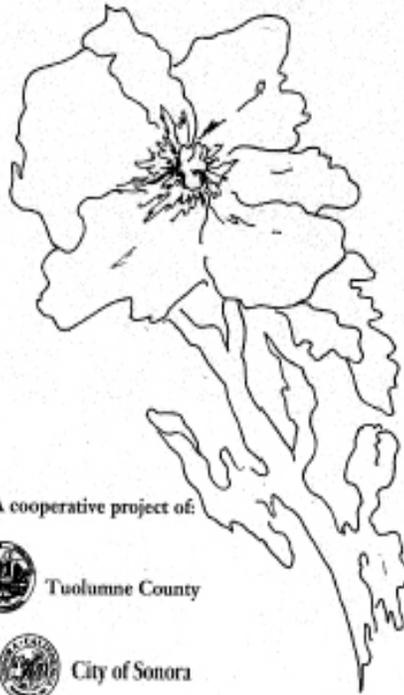
All applicants for new water service connections for new construction shall be required to furnish proof of installation in residential, commercial and/or industrial buildings, ultra low flow toilets with a maximum tank size or flush capacity of 1.6 gallons and shower heads with a maximum flow capacity of 3 gallons per minute.

12.07 Water Conserving Landscape Requirements

All applicants for new or amended water service connections for governmental, public, commercial or industrial premises shall be required to utilize California native plant materials or approved low water demand plant materials in landscaping designs.

Tuolumne County Library

Xeriscape Garden



A cooperative project of:



Tuolumne County



City of Sonora



Tuolumne Regional Water District

Water Conservation

-- Ways to be water wise



TUOLUMNE UTILITIES DISTRICT
P.O. BOX 3728 • 13144 MONO WAY
SONORA, CALIFORNIA 95370
209/532-5536 • FAX 209/532-0693

WATER



**Here
Today**



Gone Tomorrow?



