

The Unaffordable and Destructive Twin Tunnels: Why the Santa Barbara Experience Matters



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The California Water Impact Network

November 2017





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Our Mission Statement

The California Water Impact Network is a non-profit, tax exempt California Corporation that advocates for the just and environmentally sustainable use of California's water – including in-stream flows and groundwater reserves – through research, planning, public education, media outreach, and litigation.

Purpose of this Report

1. Examine the deficiencies and financial cost of Governor Brown's proposed Twin Tunnels/CA WaterFix Project, illustrating the untenable financial burden placed on State Water Project contractors, local water agencies and its ratepayers;
2. Examine the potential quantity of water to be available and delivered with the Twin Tunnels, especially in times of drought;
3. Demonstrate the well documented cost impacts and consequences for State Water Project (SWP) participation to date, utilizing the experience of Santa Barbara County Coastal Aqueduct Project as an example of the statewide problem that will be encountered if the Twin Tunnels comes to fruition;
4. Present the projected financial cost scenarios and consequences of the Twin Tunnels project imposed on Santa Barbara County water districts and agencies.

This report was prepared by Carolee Krieger and Arve Sjovold with the assistance of Joan Wells, Aaron Budgor, Christina Speed and Georgia Strickland. The California Water Impact Network (C-WIN) obtained data on cost, usage, and fiscal indicators to evaluate the performance of the SWP. C-WIN has used public information obtained from the Central Coast Water Authority (the Santa Barbara county manager of SWP water) and its constituent water agencies for its information. Some data was obtained through requests under the California Public Records Act. Much of the data is available through CCWA and its member websites.

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Executive Summary

I. What is the Twin Tunnels/CA Waterfix project?

Governor Brown has proposed twin trans-Delta tunnels, each 40 feet in diameter, 35 miles long and buried 150 feet deep, running from the northwest Delta just south of the city of Sacramento directly to the SWP and CVP pumps at the southwest Delta. Bypassing the San Francisco Bay/Delta, they are intended to move water south “more efficiently” to corporate agricultural water districts in the western San Joaquin Valley and urban southern California water agencies who are beneficiaries of and contractors to the State Water Project (SWP) and the Central Valley Project (CVP). This includes the largest SWP contractor, the Metropolitan Water District of Southern California. There is no clear plan for financing the Tunnels. The administration and its supporters intend to build them without a vote of the people who must pay for them, the ratepayers of the State Water Project (SWP) and the Central Valley Project (CVP).

As of the date of this report, DWR has acknowledged that project planning and development is only 10% complete and that an additional 3 years and \$1.2 billion is needed to complete engineering plans. On top of what is needed to complete engineering plans, construction costs, based on preliminary project planning and development, are estimated at \$20 billion to \$38 billion, according to analysis by ECONorthwest (see Appendix A). These estimates are also highly speculative since they are based on the aforementioned 10% completed engineering estimate. The annual cost burden to the contractors will reflect the amortization of the construction costs plus annual operations and maintenance, presumably under the terms of the SWP contracts. Financing the tunnels is now problematic. Westlands Water District, one of the largest agricultural participants, has voted not to support the tunnels because of the untenable cost to its farmers. With the withdrawal of Westlands, the entire CVP participation, which was to be 45% of the entire project financing, is now in doubt.

Project proponents have not defined quantitatively any of the purported benefits in terms of expected additional water deliveries or reliability. In fact, if there is to be additional water from the project it is not certain where the new water rights will come from or where it is to be delivered. In an October 2017 report, the California State Auditor summarized, “Additionally, DWR has not completed either an economic or financial analysis to demonstrate the financial viability of WaterFix. Finally, it has not fully implemented a governance structure for the design and construction phase, and has not maintained important program management documents for WaterFix.” (See State Auditors Report, Appendix C.)

II. Impacts to Santa Barbara County

The water purveyors in Santa Barbara County are concerned about two aspects of the proposed project: additional costs to participating SWP contractors and no clear statement of benefits to be provided. **The microcosm of the Santa Barbara County Coastal Aqueduct experience serves as a red flag warning for all Southern California SWP contractors and their customers.**

Regarding affordability, the current debt burdens that followed South Coast participation in the SWP (1991) have reached a limit whereby any increases in customer water bills are met with decreases in water usage. This reduction in water demand means that the significant cost of the WaterFix Project will have the adverse effect of causing a further reduction in water demand due to the coincident debt loads. Indeed, the expected additional debt loads from the Twin Tunnels project are of such a magnitude that the question of affordability may be attended by concerns of water district solvency for some of Santa Barbara South Coast's most vulnerable districts.

Compounding water demand and affordability concerns, the conservation mandated water demand management measures under DWR's SBX7-7, provide a significant reduction in water agency dependence on use of SWP water by December 31, 2020. This translates to less delivery and dependence of SWP water to all participating SWP water contractors. Water agencies are now reviewing and implementing local water supply development projects recognizing the reliability concerns of the SWP project.

In this report we show the current problems with affordability of SWP and what the difficulties would be with the addition of the Twin Tunnels project based on current estimates of construction. In addition, we have analyzed the Sacramento River hydrology (See CVP & SWP Operations, Appendix B) to assess the likelihood of actually capturing more water with the Twin Tunnels and *to clearly show no proven improvement in SWP reliability of delivery.*

III. Conclusions

- **The Twin Tunnels project promises more debt with no additional water or increase in reliability to the participating South Coast water agencies.**
- **The combination of a) current SWP debt, b) critical infrastructure maintenance and improvement expenses and, c) the costs needed to pay for development of more local and reliable water supplies have brought South Coast water districts to their limits for absorbing new debt, even without the Twin Tunnels.**
- **SWP water deliveries have never been reliable for the South Coast, especially in droughts, and the Twin Tunnels project promises no relief from that scenario.**

Each of these conclusions follows from the detailed, quantitative analyses in the body of the report. We start with the economic challenges that the water districts presently face with the current SWP debt burdens. We have examined each of the South Coast districts budget details and how they are meeting their financial obligations. We also examined the difficulties of providing water deliveries to their customers with a strong focus on the recent drought and the failure of the SWP to deliver.

The difficulties of the SWP in providing reliable deliveries is revealed in a thorough examination of the Sacramento River hydrology (Appendix B) where it is shown that the droughts are the determining factor in why the SWP demonstrates such poor reliability. Concurrently, the Bay Delta Conservation Plan/CA WaterFix relies almost entirely on the capability of the Twin Tunnels to capture more water during wet periods. *For SWP contractors, in particular the Santa Barbara County South Coast water agencies in the Central Coast Water Authority (CCWA), there are no local SWP water storage facilities for use during wet years, which voids the value of the Twin Tunnels.*

We then examine the likely cost impacts of the proposed Twin Tunnels project, based on the meager information (The Twin Tunnels project as of this date is only 10% engineered) available on its estimated construction costs, and how those costs, when allocated to SWP contractors, will affect water district budgets.

We conclude by finding that for Santa Barbara's South Coast purveyors the cost/benefit analysis cannot justify the Tunnels construction. By analysis, the construction of the Twin Tunnels could result in vast economic hardship and financial turmoil with no added benefit for the water agencies and ratepayers. These financial resources should be applied to construction and delivery of more reliable local sources of water such as treated wastewater and desalination.

Terminology

Water issue terminology may be unfamiliar to some readers. The following are some key terms that will be used throughout the report:

Table A Allocations: “Table A Allocations” are the total annual contractual amount of water as determined by the Department of Water Resources (DWR) that may be delivered to State Water Project (SWP) contractors under the terms of a State Water Project water service contract. Fixed costs allocated to each SWP contractor must be paid every year regardless of whether any water is delivered at all.

Table A Deliveries: This amount represents what a water contractor actually receives in deliveries from the State Water Project under the contract in a given year. For the four Santa Barbara County water agencies we examine in this report, the actual annual average of Table A deliveries is 28% of allocation since state water began arriving in 1998.

Article 21, and other “surplus water”: The SWP contracts deal with three types of non-scheduled water deliveries. They are *Article 21* or “*Surplus Water*”; “*Turn-back Pool*”; and “*Carryover Water*”.

Article 21 or surplus water is non-Table A water that may be declared available in the first three months of the contract year after all current Table A demands are met, reservoir refill requirements are satisfied, and there is fresh water in the Delta.

Turn-back Pool water is Table A water that was requested but not fully delivered in the previous contract year. The contractor who has unused Table A water receives a specified rebate for relinquishing his unused amount; any other contractor may offer to buy water from Turn-back Pool sources at a specified price.

Carryover Water is Table A water for a specific contractor that was available but not fully delivered in the previous contract year and can be claimed during the first three months of a new contract year if there is a demand for it or a place to store it.

The determining factors for exploiting these accounts are adequate capacity in the aqueduct facilities that deliver the water, satisfaction of all demands by the SWP contractors for Table A water, and water availability. The test of water availability is not necessarily constrained by Delta health considerations. Availability can be met simply by certifying that there is fresh water in the Delta as if it were a lake. This has not been healthy for the Delta.

Cachuma Project: The Cachuma Project consists of the Bradbury Dam and Lake Cachuma reservoir. The project stores floodwater runoff from the Santa Ynez River in Santa Barbara County. Completed in 1958, it is managed by the Federal Bureau of Reclamation and provides water for South Coast urban and agricultural use by a series of tunnels that traverse the Santa Ynez mountain range.

Central Coast Water Authority (CCWA): Is a Joint Powers Authority (JPA) that manages Santa Barbara County’s water from the SWP.

Safe Yield: The level of water a project can deliver every year, given some small probability of short fall. “Safe Yield” is an operational concept whereby a reservoir is operated on the basis of a steady, firm annual yield calculated at a high probability to extend through the worst drought of record; the drought’s extension is determined as the interval between spills or fills. The SWP is not operated on a safe yield basis.

Effective Unit Cost: This is the cost of supply divided by the actual water delivered over a given time period, usually a year. It is a measure of the cost-effectiveness of a given source of supply.

Water Supply Reliability is the likelihood that the requested demand for delivery in a given year by a contractor can be met. It is usually stated as a probability. The prudent level of probability for each contractor depends on the availability to that contractor of other sources of water. For example, a contractor that is totally dependent on SWP water requires a very high level for SWP deliveries because shortfalls for that contractor are not easily tolerated. On the other hand, a contractor that has a year-to-year or longer-term storage carryover capability can tolerate lower levels of probability of delivery. The reliability of delivery is also limited by the availability of water to the project and the project’s ability to carry over water year-to-year in storage reservoirs. The probability of availability can be calculated by investigating the probability distributions of runoff from the hydrologic record convolved with the prescribed operations

“**SWP Reliability**” is calculated as “frequency of return” as calculated by the model CALSIM II.

Water Year: October 1 - September 31 of a given year, as opposed to Calendar Year which runs from January 1 - December 31 or fiscal year which typically runs from July 1 - June 30. By using these three different definitions, contractual operations are separated from project operations with significant consequences and give rise to contractual terms that are not necessary. (See “Article 21, and other surplus water”.

The Santa Barbara Experience

I. Introduction

The cost of the SWP has placed a heavy burden on the water purveyors of Santa Barbara County's South Coast. We have evaluated the fiscal operations of four of the most prominent water districts in that region over the past several years and will demonstrate how large, capital intensive projects, such as the construction of the Coastal Aqueduct, have a deleterious effect due to experienced varying reliability affecting those districts' operations and budgets. The necessity of raising water rates and the responses to those increases have revealed interesting insights that are pertinent to how the Twin Tunnels cost burdens might develop. Only through a detailed analysis of these districts can we establish the likely impacts of the Twin Tunnels project.

II. Overview

History of SWP and South Coast Santa Barbara County

Following a prolonged drought in 1991, the voters of Santa Barbara County approved joining the SWP and authorized bonds for the construction of a Coastal Aqueduct to connect to the primary SWP conveyance in central California. The costs of bringing SWP water to Santa Barbara County were not accurately disclosed when voters approved the project ballot measure. The ballot measure authorized bonds for the Coastal Aqueduct but did not explain the financial burden of potential costs that could be added by DWR without voter approval. Prior to the election, the state estimated the total cost to ratepayers for construction of the **Coastal Aqueduct** to its terminus in Santa Maria would be \$270 million. **Undisclosed additional costs were subsequently charged to SWP contractors** located south of the terminus for a 43-mile local aqueduct connection to Lake Cachuma, where existing conveyances bring water to the South Coast.

Based on information provided by the Central Coast Water Authority (CCWA), the total costs of construction for the coastal branch and the local branch was **\$670 million**, which is to be contrasted with the \$270 million estimate given to the voters. Santa Barbara ratepayers will have paid **\$1.76 billion**, including amortization with interest and operations and maintenance (O & M), for bringing state water to Santa Barbara. The large cost is best illustrated by Montecito, which has only 4,200 meters, but which must pay over \$6 million a year for SWP related debt whether any water is delivered or not. As will be shown, the much higher than expected construction costs for the original 1991 SWP 144 mile connecting pipeline has materially affected the affordability of the SWP for the South Coast districts.

Santa Barbara County has paid and will continue to pay extremely high



Map 1:
Proposed Twin Tunnels route

costs for minimal amounts of the SWP water, largely due to the low reliability of the SWP. **Actual delivery of SWP water between 1998 and 2015 for the four South Coast water agencies (Montecito, the City of Santa Barbara, Goleta and Carpinteria) was only 28% of full contract amounts**, despite the fact that Santa Barbara County voters were told in 1991 ballot information that the State Water Project was expected to deliver 97% of contract amounts to urban water users.

Current Cost/Benefit Analysis

The SWP has failed in delivering water to Santa Barbara's South Coast water districts and cities in a cost-effective and reliable manner. But to fully understand these impacts, they must be viewed from an historical perspective.

Prior to the 1987-1992 drought South Coast water purveyors had relatively small budgets. Water supply costs represented less than 10% of the budgets and local sources provided all the water. The drought changed everything. At the peak of the drought all South Coast water purveyors, believing in the State's projections on the reliability of the state water delivery system, voted to import state water at enormous construction costs. The South Coast is now living with the consequences of that decision; some very important lessons have been learned.

A. Costs

Due primarily to the region's connection to the SWP, South Coast water district budgets have increased substantially. Upon emerging from the 1987-92 drought, the water districts were immediately faced with increasing cost burdens from the construction of the Coastal Aqueduct and the local aqueduct necessary for the importation of state water. Rates had to be maintained at high levels, and raised in many cases. When the drought ended and mandatory conservation and restrictions were lifted, demand remained depressed due to the high water rates that were still in effect and some instilled conservation habits. Before the drought, water use was not necessarily sensitive to water costs, but now the higher costs have caused demand to decrease. Increased rates are met with commensurate decreases in customer water demand such that the districts have resorted to large increases in the fixed charges for water service.

By way of example, the budget for the Montecito Water District went from \$1 million in the early 90's before deliveries of state water to \$14 million in 2016. For 2017, the budget is \$21 million, an extraordinary increase of 50%, as Montecito tries to catch up on needed repairs to old infrastructure

B. Potential Benefits

*Because of its inherent unreliability, there are **no benefits** redounding from the importation of state water, especially during droughts. Because*

severe droughts are often statewide phenomena, state water deliveries typically are curtailed at the very time they are needed most on the South Coast. The recent drought demonstrates the unexpected and unplanned water delivery and reliability failure exceedingly well.

There has been one benefit of the Coastal Branch tie-in to the SWP: *water demand has decreased* due to the cost impacts of the project on water agencies and ratepayers. Before the 1987-1992 drought, normal water demand in the City of Santa Barbara was about 16,500 acre-feet per year. The 1987-1992 post-drought new normal water demand was 13,500 acre-feet 3,000 acre-feet less due to customer conservation and increasing customer water rates. The most recent and ongoing drought, beginning in 2013, continues to affect South Coast water demand. This reduction in customer demand is tied directly to the unreliability of SWP annual allocations and deliveries and the increasing cost of water to rate payers as districts seek development of a local, more reliable, water supply.

The additional cost to agencies and ratepayers from the construction of the Twin Tunnels will have a negative effect on water supply and demand given the unreliability of delivery, lack of new water sources, and higher rates required to cover costs plus more stringent conservation measures.

C. Impact of Paper Water

There is a third category beyond cost and benefit analysis that deserves just as much attention in the way it impacts local water districts, and that is “Paper Water”.

Paper water is simply the difference between the original expected amount of water to be delivered and the amounts actually delivered. In other words, it is water that exists only in state or federal documents, not in California’s rivers. The CVP and the SWP water rights are essentially “clouded titles” for water in the Sacramento and San Joaquin Rivers and their tributaries. The SWP was predicated on damming the state’s North Coast Rivers with their waters to be delivered to the Delta for export. These streams ultimately were declared off limits due to Wild and Scenic designations in the 1970s. Five million acre feet of water from the North Coast never made it to the CVP and SWP, but DWR distributed contracts for export from the Delta as though the water was in the pipeline. Because of the way the CVP and SWP contracts are structured and the way the project is operated, all CVP and SWP contractors have to deal with paper water.

1. Paper Water and Delta Operations

The SWP is not operated on a “safe yield” basis and instead relies on a “run-of-the-river” operation. This requires the SWP to make a prediction early in the water year of the expected deliveries, a process, which in addition to the normal prediction errors, is fraught with systematic errors. As shown in Appendix B, CVP & SWP Operations, the indicators

used by the SWP to guide its operations and predictions are not accurate. Furthermore, the major tool used by SWP, CALSIM II, to calculate the likelihood of certain levels of delivery is inaccurate and highly biased. The CALSIM II model has never been properly calibrated nor peer reviewed. The deliveries received in Santa Barbara County have been significantly below the estimates provided by the SWP and the CALSIM II model.

Paper water and Delta operations cause significant harmful impacts on the environment and thus secondary impacts on SWP contractors. **The surplus water categories in the SWP contract, Article 21, Carry-over, and Turn-back pool, are not real surpluses, but are created solely within the structure of the contract.** These three categories are used to justify export pumping from the Delta in January, February, and March, irrespective of the environmental condition of the Delta. Water that is pumped in this manner, and which cannot be justified as surplus to the environmental needs, is indeed one of the most pernicious effects of paper water. It is arguably one of the prime causes of the Pelagic Organism Decline that was much discussed a decade ago. To demonstrate that these three categories are truly paper water, a shift of the SWP contracts and SWP operations to a water year would obviate these categories.

2. Paper Water Impact at the Local Level

The problem for local water districts is two-fold. For water supply planning a district needs a confident estimate of the amount of water it can expect; an average delivery amount will not do, especially if that district has no year-to-year storage to help equalize and offset delivery variances. A shortfall in delivery against the expectation means that the water agency must search for supplemental water on the spot market at exorbitant prices. This was and is the situation on the South Coast during the continuing drought. The “reliability” estimates from the SWP were of little use in these circumstances because of their reliance on CALSIM II, a flawed modeling system.

The second impact of paper water deals with the local districts’ use of expected deliveries in the planning and development process. The long-term water supply plans of water districts are used to determine the numbers of new hook-ups that can be allowed. If those water supply plans are based on unrealistic expectations of deliveries, it is difficult to manage growth and provide sustainable water supplies. And in cases where a District wishes to sell off some of its SWP allocation, because of paper water, it is difficult to assign a value to the transaction and the amount of real water that can be relied on in the transfer. This is a continual difficulty on the South Coast and paper water is at the heart of these difficulties.

3. Underlying Problem of Paper Water

The paper water problem is directly attributable to the fact that the State

Water Resources Control Board has never actually quantified the amount of consumptive water available in the Delta watershed. C-WIN spent three years gathering this information through Public Records Act requests and Freedom of Information Act requests and found that consumptive water rights claims are at least 5 ½ times more than available supply (see C-WIN Quantification Report, Appendix D). In 2014, a UC Davis study corroborated this work. (see UC Davis Quantification Report, Appendix E).

Real Water v Paper Water

River Basin	Annual Flows	Water Rights***	Ratio
Sacramento River Basin*	21.6 MAF	120.5 MAF	5.58
San Joaquin River Basin**	6.2 MAF	32.7 MAF	5.28
Trinity R. Basin*****	1.283 MAF	8.725 MAF	6.70

Even this rough accounting is not a fair picture. Every competent hydrologist knows that it is not cost-effective to try and capture all the run-off, which using the annual average implies. Instead perhaps only 50 to 60 percent is feasible. If so it is this lesser value that must be used by the SWRCB to allocate water to rightful users. But an even more stringent criterion would be the amounts of water available in dry years. As shown in Appendix B, the dry group years constitute a separate group from the wet years. Therefore, the water rights that should be granted should provide for reliable amounts to rightful users of water with the consequence that wet years would make available amounts for use much higher than the dry group would indicate.

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The “surplus” water categories in the SWP, *Article 21 water*, *Carry-Over water* and *Turn-Back-Pool water*, are not real surpluses. They are created solely within the structure of the contract. These three categories of so called surplus water are used to justify export pumping from the Delta in January, February and March, irrespective of the environmental condition of the Delta. Water that is pumped in this manner, and which cannot be justified as surplus to the environmental needs, is indeed one of the most pernicious effects of paper water. It is arguably one of the prime causes of the Pelagic Organism Decline that was much discussed

a decade ago. To demonstrate that these three categories are truly paper water, a shift of the SWP contracts and SWP operations to a water year would obviate these categories. Water ratepayers and taxpayers should not be expected to expend billions of dollars for a system that will provide no extra water, and could actually result in reduced deliveries.

Finally, acknowledging the existence of paper water is critical to understanding why long term projections of SWP deliveries are problematic. *If Wild and Scenic River protections remain in place, senior water rights are honored and water quality standards are met, there will be little if any “surplus” water available for export south of the Delta.* This is especially critical during drought. The junior water rights of the SWP contractors would make it legally difficult to operate such a conveyance system. Further, the Bay/Delta Conservation Plan (BDCP) and the Twin Tunnels would reduce Bay/Delta outflows, conflicting with the SWRCB’s 2010 Bay/Delta outflow recommendations, which were developed to protect the health of the Bay/Delta and determine the flows necessary for the recovery of listed fish populations.



Lake Cachuma during current drought

III. Geographic Area Covered by the Report

This report clarifies the cost of State Water Project water to four urban and suburban water districts and their customer service areas along the foothills and coastal plain of Santa Barbara County.

These water districts include:

- City of Santa Barbara
- Montecito Water District
- Carpinteria Valley Water District
- Goleta Water District

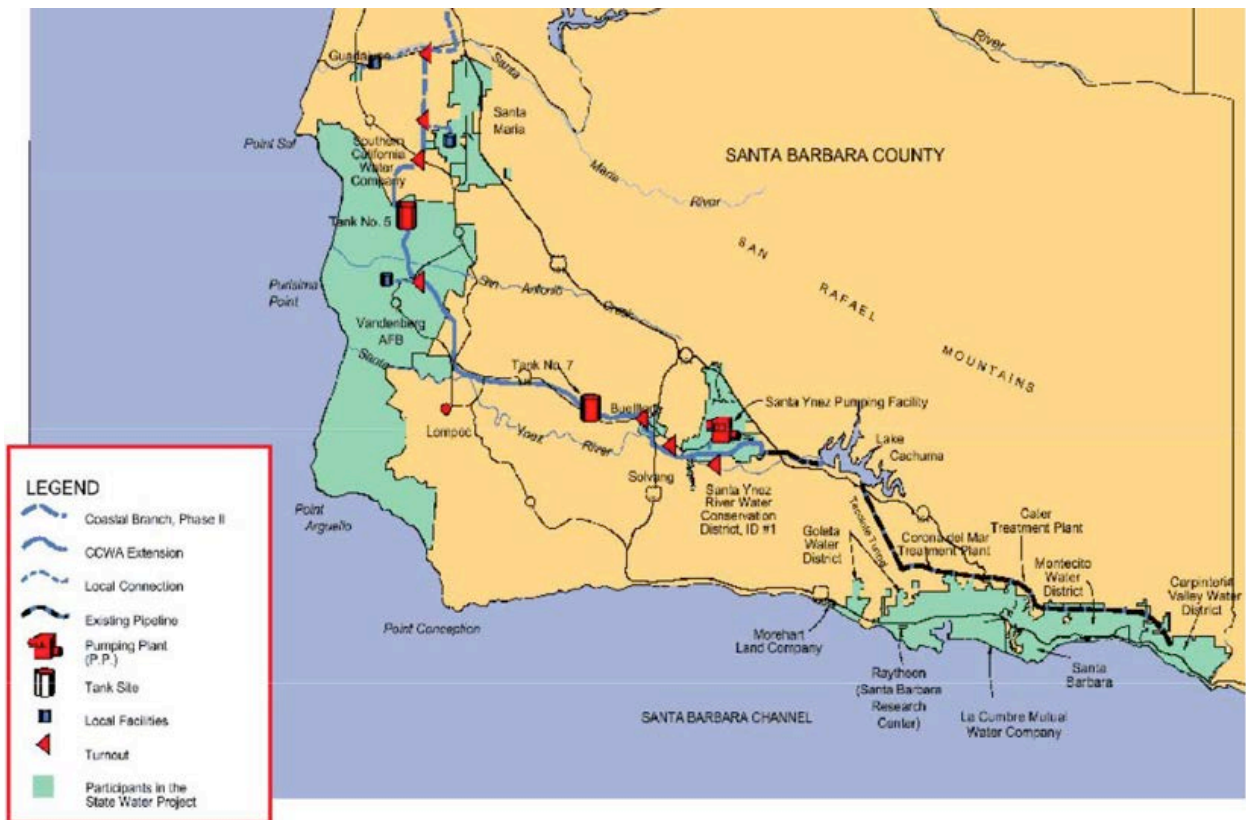
These four water districts and cities are among the major customers in Santa Barbara County for water delivered by the State Water Project's California Aqueduct. They are located on the littoral plain of the south coast of Santa Barbara County along Highway 101. SWP water originates at Lake Oroville and travels down the Feather River to the Delta. When water is pumped from the Bay-Delta estuary, it must travel 330 miles south through the California Aqueduct traversing the western San Joaquin Valley to the State-owned Coastal Branch Aqueduct. The Coastal Branch Aqueduct terminates at the Santa Maria River. (See Map 2 on following page.)





Map 2:
 Water Agencies of the Central Coast Water Authority; Coastal Branch Aqueduct, and the Local Aqueduct in Santa Barbara County. Map courtesy of CCWA

From the Santa Maria River, the water enters the Central Coast Water Authority's local pipeline to Lake Cachuma in Santa Barbara County. Map 3 portrays the route of the local aqueduct, and the location of the districts that receive SWP water.



Map 3:
Central Coast Water Authority pipeline. Map courtesy of CCWA

The transport of state water in Santa Barbara County occurs under the administration of the Central Coast Water Authority (CCWA), which manages the water under a Joint Powers Agreement with the County of Santa Barbara. The County of Santa Barbara holds the SWP contract with the Department of Water Resources.

The primary reason for focusing on the water agencies analyzed in this report is their location at the terminus of the Coastal Aqueduct and the CCWA local pipeline. The cost burdens faced by the South Coast water districts for their shares of the local aqueduct are nearly equal to the cost of their shares in the SWP Coastal Aqueduct.

Table 1 presents a summary profile of the cities and water agencies that are included in the scope of this report.

Table 1:
Summary Profile of Four Santa Barbara County Water Districts

	Goleta Water District	City of Santa Barbara	Montecito Water District	Carpinteria Valley Water District
Population (DWR est. tool)	86,946	91,416	14,000	15,141
Single Family Accounts	13,342	16,920	4,204	3,078
MF Res Accounts	1,578	6,126	74	314
Total Water Budget Fiscal Year 2011	\$24,646,996	\$34,600,000	\$13,545,136	\$11,147,539
Residential Deliveries 2010 (AF)	6,115	8,755	3,794	1,354
Table A Allocations (AF)	4,500	3,000	3,000	2,000
2010 SWP Deliveries (AF)	813	541	541	363

As can be seen in Table 1, SWP deliveries are small fractions of Table A Allocations and small fractions of deliveries.

Note that this material shown above excludes some Santa Barbara County contractors from detailed analysis as explained below.

- The City of Santa Maria is located close to the terminus of the Coastal Branch Aqueduct and faces none of the costs of financing, construction, operation, and maintenance for delivery of water to Lake Cachuma. Consequently, Santa Maria's water importation burdens are not equivalent to those borne by the South Coast districts. The difference is due to the significant costs of the local aqueduct, which is intended to serve districts downstream from Santa Maria. *However, due to Santa Maria's large allocation of Table A water, it represents a special case when it comes to the assessment of impacts due to the Twin Tunnels. These impacts are addressed later in this report.*
- Vandenberg Air Force Base is excluded from this analysis because it is a federal military installation and is not a voting CCWA member. It will be able to pay the costs of its SWP water supply that is provided to Santa Barbara County.
- Other voting members of the Central Coast Water Authority were excluded from the analysis in this report because they had small Table A Allocations. C-WIN chose a threshold of 1,000 acre-feet of Table A Allocation for determining a voting member exclusion from this report. Voting members excluded under this criterion included the City of Buellton, the City of Guadalupe, Solvang, and the Santa Ynez Water Conservation Improvement District #1.
- Because information from private corporations is not available under the Public Records Act, non-voting members such as Raytheon, Morehart Land Company, Southern California Water

Company, and La Cumbre Mutual Water Company are not included here.

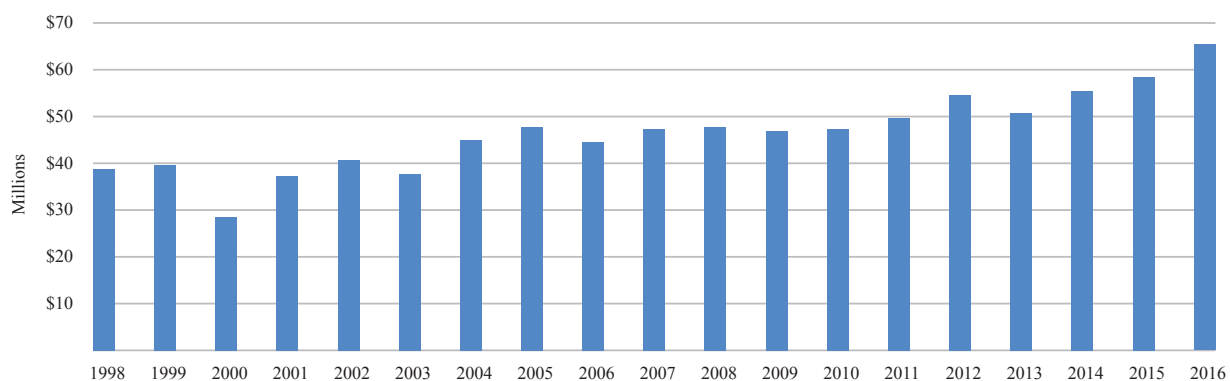
IV. Costs to Santa Barbara County of SWP Water

In 1991, the voters in each of the various water districts of Santa Barbara County approved a ballot measure to construct 144 miles of the Coastal Branch Aqueduct in order to connect Santa Barbara County water purveyors to the State Water Project. The aggregate vote was 66% for and 34% against. In 1979 voters in a single countywide ballot defeated a similar measure by a vote of 72% to 28%. The 1991 election ballot material prepared by the State and SWP proponents told Santa Barbara County voters that the costs for a Santa Barbara hook-up to the SWP would be **\$270 million**. The actual construction costs for the Coastal Branch Aqueduct to Santa Maria came in at just under **\$500 million**. What was not told the voters was the necessity of building the local aqueduct from Santa Maria to Lake Cachuma, the storage facility for Santa Barbara contractors south of Santa Maria. The addition of the local aqueduct construction costs brought the **total construction costs to \$670 million**. The local aqueduct construction had to be financed at a much higher interest rate than the Coastal Branch. Because the South Coast Districts are at the end of the local pipeline their proportionate costs are much higher. The consequences of this higher cost, together with the higher interest rate, causes the South Coast water districts' payments for the local aqueduct to be nearly equal to that of their Coastal aqueduct costs!

Water agencies face two key challenges as they continue providing SWP water to the suburban and urban communities along the Santa Barbara Coastal Plain: 1) rising State Water Project costs, and 2) an obligation to pay – whether any water is delivered or not.

Santa Barbara County water districts cumulatively paid more than \$893 million for all project costs (capital, financing, power, operations and maintenance) between July 1, 1997 and June 30, 2016; further, costs continue to escalate annually. Figure 1 shows the trend of total annual costs to all the CCWA water districts receiving state water (including local aqueduct charges) from completion of construction to 2016. This figure shows increasing costs, even though Santa Barbara County water districts have not added any new projects. These recent increases most likely reflect the resources that DWR has dedicated to the ongoing planning for the BDCP/CA WaterFix and the Twin Tunnels. These costs are buried in the invoices for the SWP that are sent to the SWP contractors.

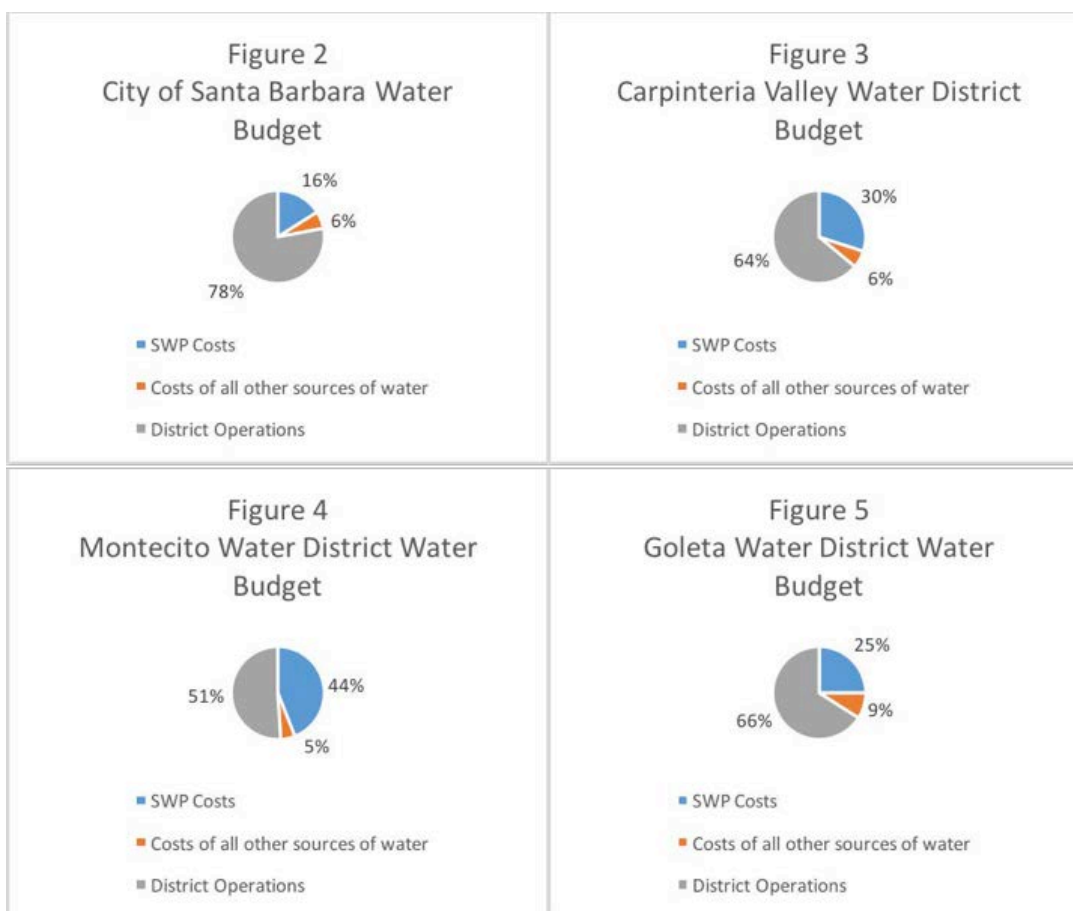
Fig. 1:
Annual Payments by Santa Barbara County to Water Agencies



Source: CCWA Budgets

Based on district budgets and financial information supplied by CCWA, C-WIN has calculated the proportion of CCWA's annual budget for repayment of SWP capital and operating charges, as well as operations and maintenance charges for delivery of SWP water. Figures 2 through 5 show the percentage of water district budgets allocated to SWP costs for each of the four South Coast districts averaged over the years 2012 to 2015.

Fig.'s 2-5: District Water Budgets



Impact on Local Water Districts: The high costs imposed by the SWP on the South Coast districts exact a severe penalty to district priorities. For example, a report by the Santa Barbara County 2006-07 Grand Jury noted that the Carpinteria Valley Water District is paying half of its \$10 million/year budget for non-operational expenses, i.e., those primarily related to purchase and delivery of SWP water (this includes some other non-SWP costs as well).

The opening paragraph of this Grand Jury Report states as follows:

*“The Carpinteria Valley Water District (CVWD) has delivered an essential product but has experienced the need for an exceptional amount of facility maintenance and upgrades. This has resulted in outstanding loans of \$33.8 million against a total operating budget of less than \$5 million per year. Coupled with the expense of a State Water option, **which it does not need and uses little**, the district is strapped with nonoperational yearly expenses, which exceed \$5 million. Total annual expenses therefore exceed \$10 million, giving rise to high water rates.”*

Montecito’s 2012-13 Adopted Budget states that 45% (\$4,995,100) of its

operating budget and 39% of its total budget is required to pay for its SWP costs. **In 2014 all SWP contractors received only 5% of their Table A allocations of State Water** but had to pay the full costs of the construction debt.

Many other Santa Barbara County water districts also are suffering from the high cost of SWP water. Repayment of SWP debt, along with SWP ongoing operation and maintenance costs, comprise the dominant costs for each water agency. Yet the volume of water these districts draw from the SWP in normal and wetter years is minimal compared to other available local sources such as the Cachuma Project. The high cost for the SWP debt, combined with reduced water sales, strains district budgets, compromises district ability to maintain adequate reserves, perform system upgrades, and needed repairs. As a result, maintenance and upgrades are backlogged or must be paid out of dwindling reserve funds. C-WIN believes districts' defaults on SWP payments are a real threat for many of these districts.

Debt Requirements Looming: In some cases, water districts are struggling to maintain the lenders' required bond coverage covenant of 125%. For instance, for fiscal year 2012-2013, Montecito had a bond coverage ratio of only 115%. During fiscal year 2009-2010, Goleta had a bond coverage ratio of only 120%.



Santa Barbara County during current drought

V. SWP Reliability and Effective Unit Costs

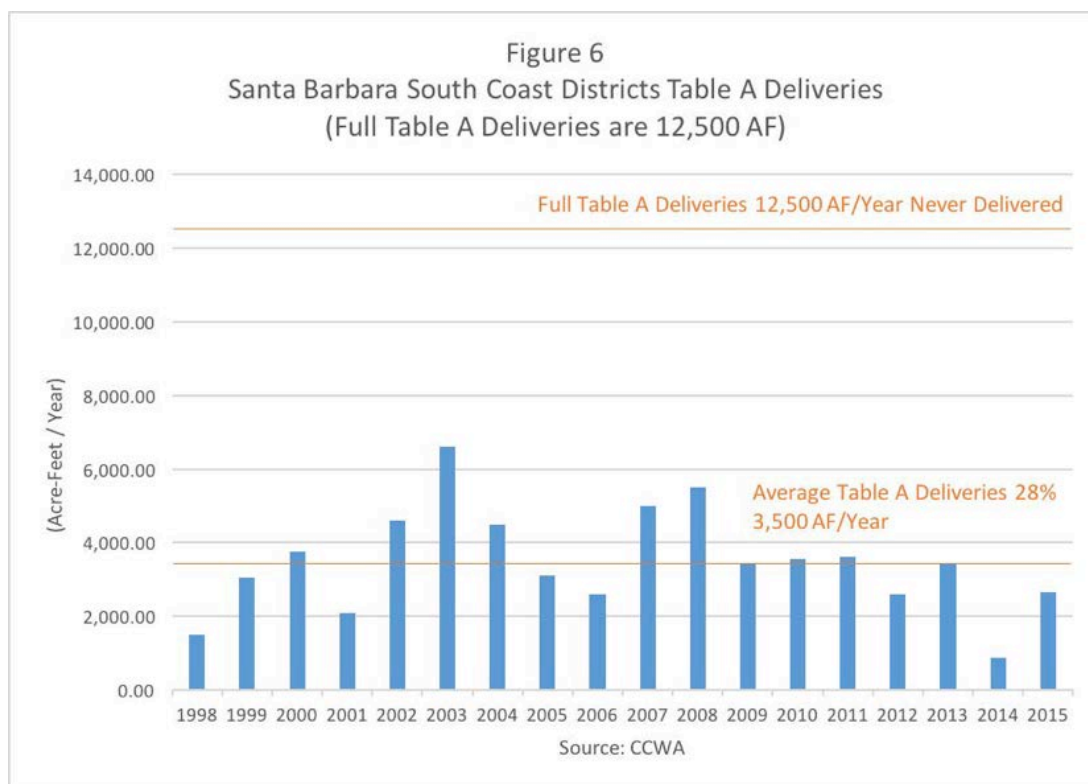
Reliability

Before the 1991 election, voters were promised that the SWP contracts would be “97% reliable”, meaning 97% of Table A water could be delivered. This promise has never been fulfilled.

However, it was made clear by all the supporting districts that SWP water was sought as a supplemental source to existing local sources, a supply that would be utilized during extreme droughts when local sources proved to be insufficient. This established a requirement for reliability quite different than that characterized as average delivery capability over a long period of time. The assurance of state water in time of need constitutes the best measure of reliability. This assurance is probably best met by operating the SWP on the basis of **safe yield**, which is that level the project can deliver every year given some small probability of shortfall. The SWP is **not** operated on this basis, and can therefore never meet the requirements for a reliable supplemental water source as intended by Santa Barbara County’s water districts.

Figure 6 shows that over the past 18 years, the four South Coast districts received approximately 28% of their Table A allocation. **2014 was a very dry year for the entire state. The official SWP allocation of 5% is a clear demonstration that the SWP is coming up very short in the years it is needed most.**

Fig. 6: Table A Deliveries



The availability of state water under present operational rules is limited year-to-year by the amount of runoff experienced in each year. C-WIN has examined the 98-year hydrologic record of the Sacramento River and **found that statistically, present operations can only provide a small fraction of Table A amounts during droughts.** DWR has never performed a proper analysis to determine a truly reliable level of delivery. Without such analysis, it is fruitless to propose structural solutions to the Delta's problems, given that precipitation is the main limiting factor. (See CVP & SWP Operations, Appendix B, for details on mischaracterizations of Sacramento River hydrology by DWR.)

Origin of SWP Supply Problems

The SWP's difficulties in delivering full Table A allocations can be traced to the origin of the project, which dates to the late 1950's. The full statewide Table A amounts were developed in the 1950's and 1960's, and were based on potential new sources anticipated from further damming of California's North Coast rivers. Federal and State Wild and Scenic River designations for most North Coast rivers closed the door on these projections. The State Water Project also planned to build a Peripheral Canal to move water through the Delta. The bond measure to fund the Peripheral Canal was voted down by California voters in 1982, in large part due to the potential environmental devastation to the Bay/Delta.

Without the availability of these sources, there is no likelihood of meeting Table A amounts.

Two independent analyses of northern California watersheds have concluded that consumptive water rights claims are over 5-times more than the available water supply. The California Water Impact Network (C-WIN) published its results of a three-year study in 2012 (Appendix D). The University of California Davis analysis reached the same conclusion in a paper published in 2014 (Appendix E), stating that “inaccurate and incomplete accounting of water rights has made the state ill-equipped to satisfy growing societal demands for water supply reliability and healthy ecosystems.”

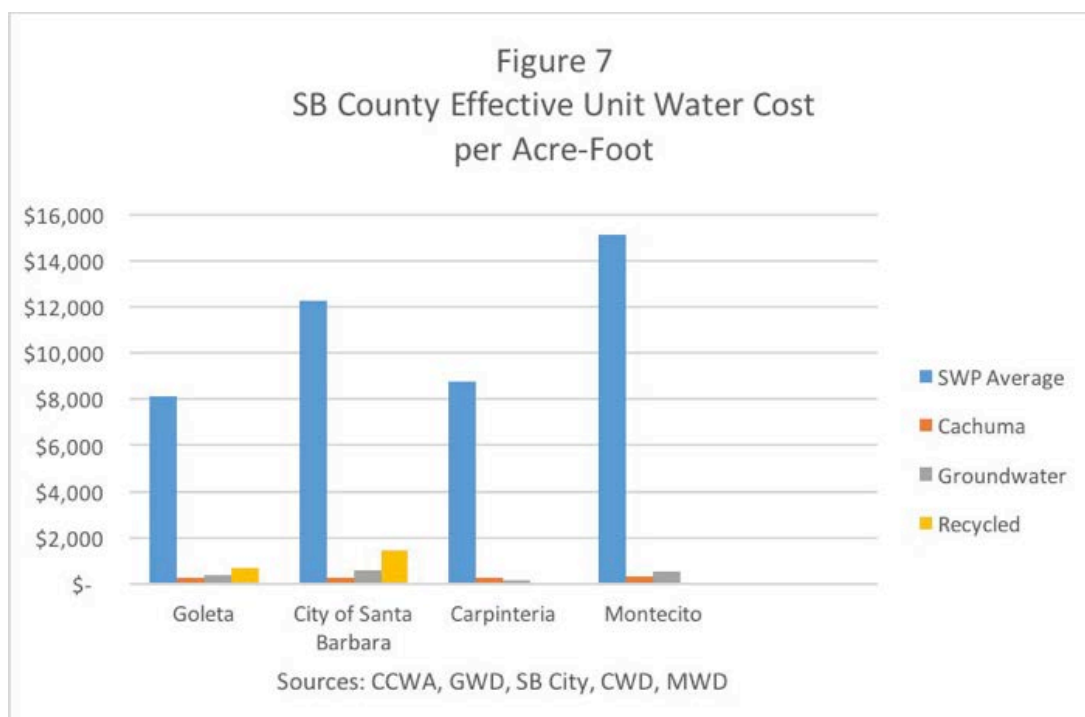
Effective Unit Costs

The effective unit (acre-foot) costs of SWP water are highly variable and have led to costs considerably higher than those estimated for the 1991 ballot measure. This is because the water agencies must pay the fixed costs for the amount of water contracted, regardless of the amount delivered annually. Even if no SWP water is delivered these fixed costs must be paid.

C-WIN has determined that CCWA’s estimated unit costs for SWP water on a per acre-foot basis are often greatly understated because CCWA bases cost estimates on full delivery of Table A Allocation amounts that have been shown to be a fictitious delivery amount. As shown in Figure 6 on the previous page, full Table A Allocations have **never** been delivered by the SWP and are unlikely to ever be delivered because of limited availability in times of drought and lack of need during wet years when the water is available!

Figure 7, on the following page, shows the **effective unit water cost** per acre foot for SWP water; *the cost of supply divided by the actual water delivered*. This is based on information from the four water agencies. Figure 7 compares the effective unit costs of state water against the effective unit cost of local sources for each of the four South Coast districts. In this figure, average costs over the last 5 years for SWP and local sources are presented. This is another way of showing the impact of a costly and unreliable project. Figure 7 shows that SWP costs significantly outweigh the costs of local water sources.

Fig. 7: Effective Unit Water Cost



	SWP Average	Worst year, 2014 SWP Drought	Avg. Cachuma	Avg. Groundwater	Avg. Recycled
Goleta	\$8,150AF	\$21,500AF	\$240AF	\$376AF	\$707AF
City of Santa Barbara	\$12,299AF	\$28,200AF	\$240AF	\$610AF	\$1,450AF
Carpinteria	\$8,800AF	\$19,800AF	\$240AF	\$144AF	
Montecito	\$15,132AF	\$30,600AF	\$310AF	\$516AF	

Table 2 demonstrates the singular effects of SWP costs and deliveries by calculating the *effective unit costs of SWP deliveries* focusing only on those costs that are the fundamental allocations of Table A made by DWR at the beginning of each new contract year. Accordingly, no deliveries associated with the Article 21 surplus water, Turn-back Pool water, or Carryover water are included in delivered Table A allocations. Similarly, all the costs that are included in the CCWA invoices for such deliveries have been deducted from the invoiced costs. Also excluded are deliveries of and costs for supplemental purchased water.

On this basis Table 2 confirms the very high effective unit costs and exposes the extraordinary high costs during droughts when deliveries are curtailed. It is important to note that the costs and deliveries shown in Table 2 are more representative of SWP contract scenarios as they stood in 1991, when votes were taken. Since 1991, the SWP contract has been significantly amended to provide a far more liberal interpretation of non-Table A types of water and the established requirements for

buying and selling water among SWP and non-SWP contractors. Further the amended SWP contract eliminated the urban preference for Table A deliveries, a primary factor causing lower deliveries during drought years and consequent high unit costs. The **urban preference** required water for people before agriculture in times of drought. This safeguard was eliminated by the Monterey Amendments to the SWP contracts in 1995. C-WIN is currently contesting these Amendments in court.

Table 2: SWP Effective Unit Costs

City of SB	Delivery (AF/yr)	Total Cost (\$M)	Effective Unit Cost (\$/AF)
2010	541	4.31	\$7,970
2011	773	4.71	\$6,090
2012	703	4.77	\$6,735
2013	339	4.24	\$12,500
2014	165	4.81	\$28,200
2015	0	4.66	(NWD)

Montecito	Delivery (AF/yr)	Total Cost (\$M)	Effective Unit Cost (\$/AF)
2010	500	4.91	\$9,800
2011	218	4.86	\$22,300
2012	0	4.45	(NWD)
2013	1155	5.27	\$4,560
2014	165	5.06	\$30,600
2015	660	5.56	\$8,400

Goleta	Delivery (AF/yr)	Total Cost (\$M)	Effective Unit Cost (\$/AF)
2010	1103	3.75	\$3,400
2011	1126	6.63	\$5,900
2012	972	7.24	\$7,400
2013	1433	6.5	\$4,500
2014	373	8.03	\$21,500
2015	1592	9.83	\$6,200

Carpinteria	Delivery (AF/yr)	Total Cost (\$M)	Effective Unit Cost (\$/AF)
2010	492	3.22	\$6,500
2011	501	3.23	\$6,400
2012	433	3.03	\$7,000
2013	500	3.66	\$6,600
2014	110	3.08	\$19,800
2015	450	3.01	\$6,500

In the years of no SWP water deliveries, each district is still required to pay millions of dollars for its share of the revenue bonds.

Impact on Ratepayers

Retail water agencies are responsible for delivering water directly to homes and business customers. As nonprofit governmental institutions, they must by law recover their costs through their revenue-generating operations. They typically have two means of doing this: charging customers for the water they directly consume (“water rates”) and charging customers for the meters that provide access to water and measures their consumption at the street. The latter is commonly referred to as the “fixed service charge.”

Montecito is an example of the severity of the budget shortfalls experienced when water sales drastically decrease. In 2014 Montecito determined it had less than a year left of water from traditional sources and instituted a drastic rationing plan. Severe penalties were imposed for going over allocations. Raising rates and fixed service charges along with monetary penalties were still not enough to cover operations and debt, so Montecito levied an additional drought surcharge. Montecito’s revenue from fines, levies and fixed charges is greater than revenue from water sales. This is not a sustainable way to run a water district.

Single Family Residential Rate Structures

C-WIN investigated retail water costs for an average single-family residential customer by obtaining data from updated Urban Water Management Plans (UWMP) and current district fee schedules for the four water agencies of the Santa Barbara coastal plain.

All four water districts have responded similarly in their efforts to increase revenues following high SWP costs. Prior to the 1987-1992 drought, unit rates and service charges were substantially lower as were the consequent water bills of the customers. However, these rates are not as high as would be indicated by the effective unit costs of SWP deliveries. That is due to the fact that the bulk of delivered retail water is supplied by much lower-cost sources such as Lake Cachuma. Nonetheless, customer bills are several times higher than before the drought. For example, in 1991 (before South Coast districts incurred state water debt), Montecito’s Water District’s annual budget was \$1 million. Today, with SWP debt, it is \$14 million. The current drought promises further rate increases due to the need to procure supplemental purchased water because SWP water isn’t there. These additional sources must be purchased on the spot market at prevailing prices, which are much higher than the variable costs of SWP water.

Balancing of Water Rates for Large and Small Users

The Santa Barbara County Grand Jury Report on the Carpinteria Valley Water District noted “...a serious imbalance in the monthly service charges between small and large meters ... resulting in small water user costs that ... are 2 ½ times the going rates in the general area.” The subtext here: it is particularly difficult for Carpinteria to increase rates to provide sufficient revenues. Carpinteria has a substantial agricultural sector that constitutes a significant fraction of its retail water deliveries. If rates for agriculture are raised too high many of the farmers will activate private wells that can be operated at lesser cost. This results in lost revenue to the district leaving the residential sector to bear a disproportionately higher load.

In Montecito the district has instituted a parcel fee that is applied to developed and undeveloped parcels alike. This has helped raise needed revenues. Santa Maria has folded its waste water operation into the water department to constitute a single enterprise fund to help meet its obligations. *The need for increased revenues has brought about many creative cost/management solutions to balance revenues with obligations, of which the single most important factor is SWP charges.*



The Impact of the Twin Tunnels

Presently, the Twin Tunnels are in the very early stages of definition as a project. Much planning and preliminary engineering work is yet to be done to define a project from which competent cost estimates can be made. Similarly, very little has been made public as to how this project is to operate, who will be participating and how it will be financed (see State Auditors Report, Appendix C.)

Currently, the State Water Project (SWP) and the Central Valley Project (CVP) contractors have spent **\$280 million** on planning to date, and estimate it will cost an additional **\$1.2 billion** to get the project “shovel ready” with 90% of the required engineering still to be completed. These costs are paid proportionately by South Coast Contractors. CCWA’s local contractors appear to be paying large amounts of money for the planning and engineering of the tunnels.

Given the available information on the project, C-WIN has documented the estimated cost of construction of the Twin Tunnels. Santa Barbara County’s annual payment with interest and principle on these construction costs will range from **\$7.7 million/yr.** to **\$46.4 million/yr.** The South Coast districts’ share will range from **\$2 million/yr.** to almost **\$15 million/yr.** These estimates are based on a 55/45 division in costs between the State Water Project (SWP) and the Central Valley Project (CVP). Since recent developments indicate that the CVP will likely not participate in the financing, estimates have been made on this assumption as well.

The California Auditor has released the results of a study on planning, financing, and management of the Twin Tunnels and has found serious departures from legally required management practices. The Auditor’s report is attached here as Appendix C. In summary the report shows the serious paucity of information upon which to base project estimates and a management strategy. Furthermore, the report points out that the current project manager does not have the legal technical requirements and education background to lead the project.

If Santa Barbara County is forced to participate in the construction of the Twin Tunnels, its SWP expenditures will increase significantly at a minimum. The resultant increases in retail water costs will burden Santa Barbara County customers without any assurance that additional water supplies will be forthcoming. This increased cost burden will depress demand even further.

I. Estimated Costs and Allocations to SB County Water Districts

Given the shaky basis described in Appendix C, the Auditor’s Report, the available information was used to make some preliminary estimates and cost impacts of the Twin Tunnels.

In 2012, BDCP/CA WaterFix cost estimates for the Tunnels were \$17.2 billion for construction. This is a gross underestimate because cost estimates have not been updated to reflect the construction timeline and do not include the potential for cost overruns. Such overruns are all too common for large construction projects, and can occur for a variety of reasons. The Coastal Branch Phase II Aqueduct, the most recent project built by DWR, which serves Santa Barbara and San Luis Obispo counties, is a classic example of an engineering project with significant cost overruns.

With only 10% of the engineering completed, the construction costs for the tunnels range from an estimate of **\$20.6 billion** (DWR) to **\$38 billion** (ECONorthwest). The \$20.6 billion number represents DWR's \$17.2 billion estimate escalated to the expected period of construction, while the \$38 billion is based on an independent analysis obtained by the consulting firm ECONorthwest, also escalated to the expected period of construction. (See ECONorthwest Report, Appendix A).

In order to calculate the annual costs that would accrue from selling bonds to finance these construction costs, several assumptions have been made. First, an interest rate of 6.1% was used as the bond financing rate. How the annual bond financing costs would be paid is still uncertain.

The proposed project would be built under the authority of the SWP contracts. Under those contracts, the Twin Tunnels financing costs likely would be part of Delta water cost. On this basis, each contractor's proportionate share would be equivalent to its proportionate share of Table A allocations.

The tunnel project was originally conceived to provide for both CVP and SWP deliveries across the Delta, with the CVP responsible for just less than half the costs. Almost all CVP deliveries south of the Delta are for agriculture and about one-fourth of SWP deliveries are for agriculture. Agribusiness contractors are unsure they can sustain such a financial burden. They would prefer that the urban contractors assume a larger share. There is no obvious objective basis within the SWP to make such a shift between agriculture and urban beneficiaries but we have assumed an allocation based on each contractor's proportionate share of SWP construction costs to date. Since urban SWP contractors typically lie at the ends of the various branches of the SWP, they assume proportionately larger shares of construction costs than proportions based on Table A allocations.

Santa Barbara County Water District contractual cost share of Table A Delta water is approximately 1.1 % of the financed total. If the allocation is based on proportionate shares of SWP construction costs, the Santa Barbara County share of financing costs is approximately 3.4 %. These two values were used in estimating the impacts on Santa Barbara County SWP contractors. The costs are allocated further within Santa Barbara to CCWA members (the water agencies) on the basis of their proportionate shares of Table A water.

The impact analysis also addresses the possibility that the CVP would decline to participate in the tunnels project, which provides a high value limit. In Tables 4 and 5, the designation “55/45” represents shares of the total costs allocated to the SWP and CVP; “100/0” indicates the total burden allocated to the SWP.

Table 4 shows the estimated share that would be allocated to the Santa Barbara County Flood Control and Water Conservation District (SBCFCWCD), the entity that holds Santa Barbara’s SWP contract. Tables 5 and 6 show the shares further allocated to CCWA participants. Invoices to the SBCFCWCD will show only a single additional charge for the County’s share of the Twin Tunnels financing costs. These will be passed on to the CCWA participants based on proportionate shares of Table A amounts.

Table 4:
Annual Costs Allocated to SBCFCWCD (CCWA), \$Million/yr.

SB Co. % Allocation	SWP/CVP Share			
	Low (55/45)	Low (100/0)	High (55/45)	High (100/0)
1.1%	7.7	14	15	27.3
3.4%	23.4	43.3	46.4	84.3

Table 5:
Annual Costs to CCWA Participants (Participant Budget Impacts), \$Million/yr.

SB Co. % Allocation	SWP/CVP Share			
	Low (55/45)	High (55/45)	Low (55/45)	High (55/45)
	at 3.4%	at 3.4%	at 1.1%	at 1.1%
Montecito	1.71	3.4	.56	1.1
SB City	1.71	3.4	.56	1.1
Carpinteria	1.14	2.27	.38	.74
Goleta	2.57	5.10	.84	1.65
Santa Maria	9.36	18.5	3.04	6.00

As a state water contractor, Santa Barbara County will be required to make all payments necessary to recover its portion of the state’s bond costs for constructing and operating the Twin Tunnels project. Tables 4, 5, and 6 demonstrate these impacts will significantly impact Santa Barbara County and CCWA participants. Participation will likely result in even greater water rate increases to cover the costs of a project that will likely not provide additional water supplies.

Steadily increasing water rates already have spurred fierce resistance from local ratepayers. The additional financial burden

of the Twin Tunnels may result in ratepayer revolts through local elections or remedies provided by Proposition 218 to challenge fee increases. The statement from the 2006-07 Santa Barbara County Grand Jury Report on the Carpinteria Valley Water District is thus relevant to all County water agencies:

“Coupled with the expense of State Water option, which it does not need and uses little, the district is strapped with non-operational yearly expenses which exceed \$5 million... giving rise to high water rates.”

II. Budgetary Impacts

The cost allocations presented in Table 5 are examined from the perspective of water district budgets. This represents the impacts of the proposed Twin Tunnels. The following pie charts, one set for each district plus a set for Santa Maria, show the proportions of budgets that would be allocated to the SWP and the Twin Tunnels for each district under the assumptions of high and low construction costs. The pie charts in figures 8A-12B use the year 2014 as a baseline for all the costs not accounted by the SWP and the Twin Tunnels. These impacts reflect the degree of exposure for each district based on SWP Table A allocation relative to non-SWP sources of supply.

Fig.’s 8A - 12B: Estimated Budget Impacts by Region

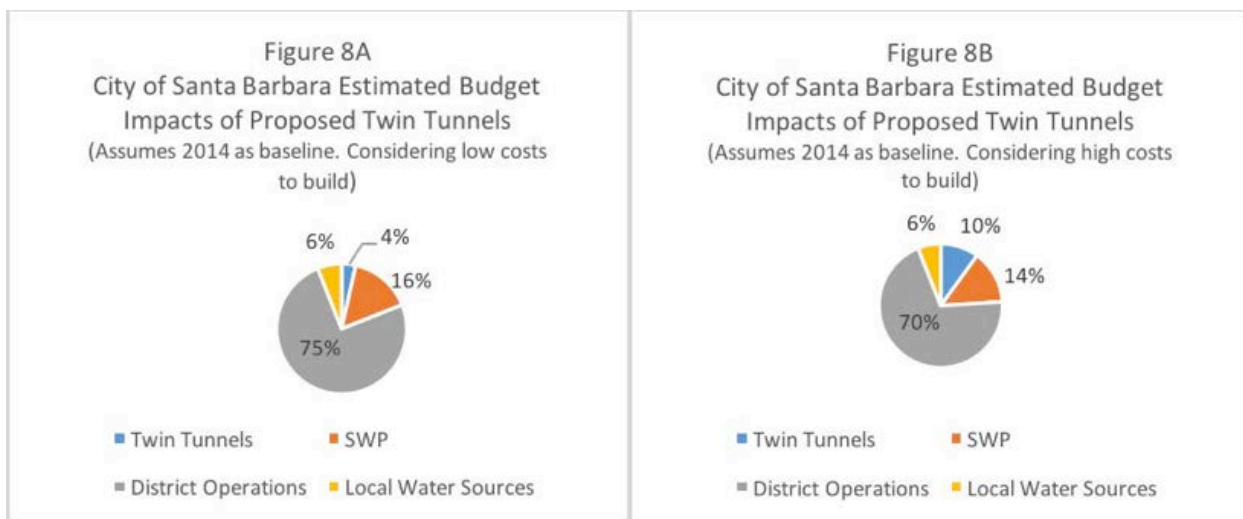


Figure 9A
 Carpinteria Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering low costs to build)

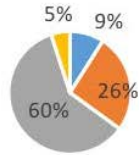


Figure 9B
 Carpinteria Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering high costs to build)

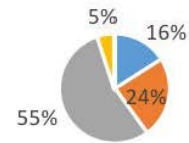


Figure 10A
 Montecito Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering low costs to build)

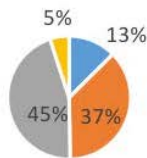


Figure 10B
 Montecito Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering high costs to build)

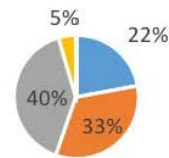


Figure 11A
 Goleta Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering low costs to build)

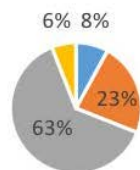


Figure 11B
 Goleta Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering high costs to build)

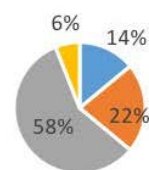


Figure 12A
 Santa Maria Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering low costs to build)

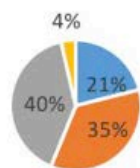
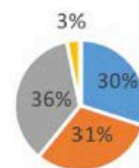


Figure 12B
 Santa Maria Estimated Budget Impacts of Proposed Twin Tunnels
 (Assumes 2014 as baseline. Considering high costs to build)



■ Twin Tunnels ■ SWP
■ District Operations ■ Local Water Sources

■ Twin Tunnels ■ SWP
■ District Operations ■ Local Water Sources

Santa Maria has a large Table A allocation and therefore will have a very large allocation of Twin Tunnels cost. Figures 12A and 12B show the degree of exposure.

Without the CVP

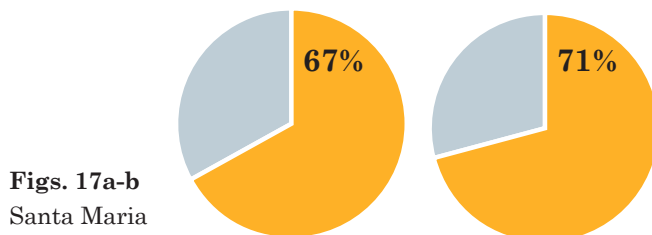
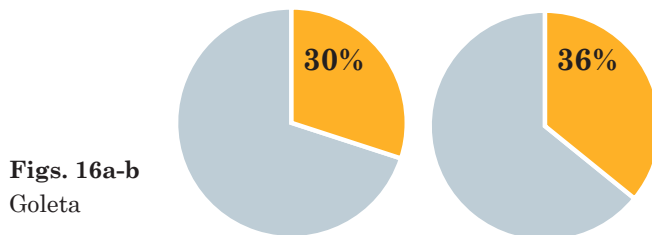
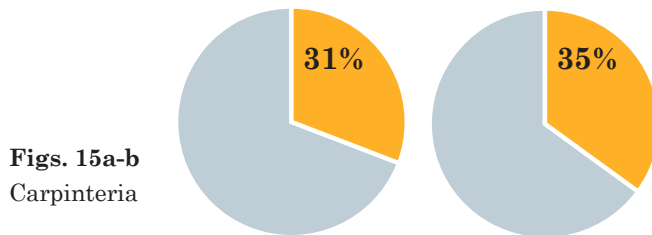
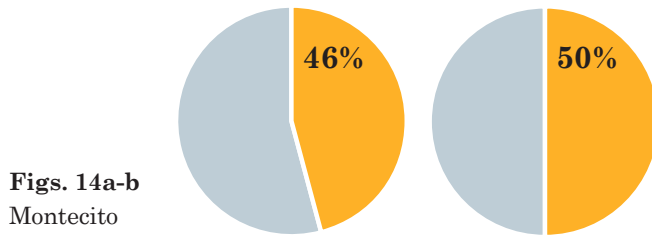
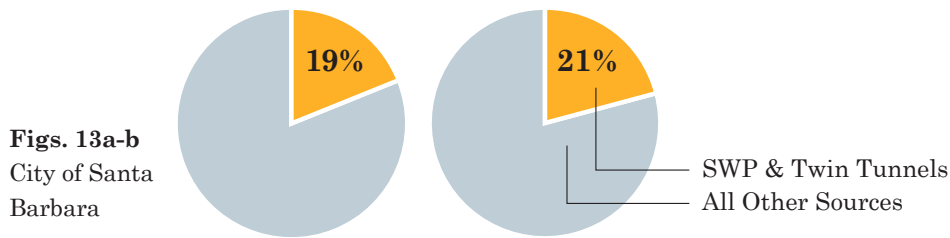
The pie charts above all depict the cases with the assumption that the CVP would be shouldering 45% of the total burden. With recent developments it now seems that the CVP will not be participating. Accordingly, Table 6 has been prepared to show the cost burdens that local water districts would be required to share under various assumptions of project costs, high or low, and the percentage allocation at the State level, 1.1% or 3.4%, with the CVP not participating.

Figures 13A&B, 14A&B, 15A&B, 16A&B, and 17A&B, are pie charts depicting the share of each selected water district budget the combined SWP and Twin Tunnels will require. The pie charts only depict the case of the 1.1% allocation at the State level since we regarded the 3.4% case as too extreme in its impacts. (The 3.4%, high estimate just for the Twin Tunnels for Santa Maria exceeds its current water budget.)

Table 6:
Allocation of Annual Costs to CCWA Participants SWP Assumes
100% of Financial Burden of Project \$Million/year

SB County Allocation	3.4%		1.1%	
	Low	High	Low	High
Montecito	3.14	6.11	1.05	1.98
SB City	3.14	6.11	1.05	1.98
Carpinteria	2.09	4.05	0.67	1.31
Goleta	7.14	13.9	2.31	4.50
Santa Maria	16.9	33.0	5.5	10.1

Figs. 13-17: Share of Water District Budgets



Cost Estimating Risk

The estimates provided above are based on the analyses of ECONorthwest as presented in Appendix A. Those analyses in turn are based on the best available information from project proponents: Bay Delta Conservation Plan (BDCP), DWR studies, and input from SWP contractors. That information is speculative at best. Detailed investigations of tunneling to support competent engineering designs, which is a first order cost driver

for the project, have not yet been completed. Without such designs it is unlikely that initial cost estimates are very accurate. The financing plan originally articulated in the March 12, 2012, BDCP, “Economic Benefits and Financing Strategies” has been used by ECONorthwest to develop the cost impacts of the project (Appendix A).

The BDCP/WaterFix estimated a 10 to 12-year construction period; that means 10 to 12 years of construction costs are accumulated before any tangible water delivery benefits are produced. The financing strategy proposes to capitalize only two years of the bond interest accumulated over the construction period; project participants are expected to cover the major fraction of the bond financing during the construction period. These costs are considerable. According to the spreadsheets prepared by ECONorthwest, these un-capitalized interest costs, when allocated to the SBCFCWCD, accumulate to \$45 M and \$135 M for the low case at 1.1% and 3.4% respectively. Correspondingly, the amounts for the high case are \$99 M and \$308 M. These amounts equate to 20% to 24% of the estimated project costs without capitalized interest. Accordingly, all the values presented in Tables 4 and 5 would be increased by these percentages if it is determined that construction interest should be fully capitalized. The project participants, the SWP contractors, should make this determination. It should also be a concern for the bond issuers and the bond buyers.

III. Twin Tunnels Potential Benefits

If there are any benefits to the Twin Tunnels project they must be measured by its likelihood of improving the delivery of the SWP and CVP water, its stated purpose.

According to the analysis in Appendix B, at least half of the years in the 100-year record of the Sacramento River watershed will be dry. Of those years, half are too dry to confidently allow much, if any, export. In the other half of the dry years, if we account for senior water rights in the Delta and Sacramento Valley and provide for sufficient outflow to maintain Delta health, it is very unlikely that the dry group exports can exceed 2 million acre-feet. During droughts, 4-5 dry years can occur in sequences; therefore, the project must be operated to provide a reliable yield under these circumstances; in effect a safe yield operation. **Because the Twin Tunnels proposes only to capture excess flows during wet years, it can make no claim to improve reliability.**

Project proponents claim the Twin Tunnels will improve the State’s ability to capture and store the excess run-off that occurs in wet years. Wet years comprise 44% of the 100-year run-off record as shown in Appendix B; however, the Twin Tunnels project involves no new storage. Project supporters claim ground water basins in the San Joaquin Valley can be used to store significant amounts of water. But these basins are neither SWP nor CVP facilities. **Storing water there would amount to a privatization of project waters resulting in probable legal**

challenges.

The SWP did acquire a large ground water basin in Kern County for the specific purpose of improving SWP deliveries as part of their contractual obligations. But this basin ultimately was transferred to the Kern Water Bank Authority, a quasi-public district controlled by a non-SWP party. Water from this basin has been sold to water districts at monopoly prices though the current drought. If the SWP had continued to own and operate the basin, the costs of the water through the drought would be governed by SWP contractual pricing. It is this aspect of the Twin Tunnels project that is most disquieting. **It potentially allows the privatization of large amounts of project water with no guarantee of price limitations of any sort. Without a complementary SWP storage element south of the Delta, the Twin Tunnels provide no benefit to SWP contractors.**

Since there is **no public storage component south of the Delta** as part of the project, it is inconceivable that the Tunnels will deliver any new water. It could provide the capability to continue deliveries of SWP and CVP water south in the event of possible levee failures due to earthquakes, although the integrity of the delivery system itself may be jeopardized by such an event. Its merits as a hedge against climate change and consequent sea level rise are even less certain.

C-WIN sees no benefits for Santa Barbara County water users from the Twin Tunnels, only drawbacks.



Conclusions

C-WIN has documented the fundamental problems associated with the importation and distribution of SWP water. These findings have shown the ominous fiscal consequences for Santa Barbara County generally and for the South Coast water districts specifically: The City of Santa Barbara, Goleta, Carpinteria and Montecito. Costs estimated for construction of Governor Brown's Twin Tunnel/ CA WaterFix would add to the burden forcing these agencies even closer to insolvency. Meanwhile ratepayers are responding to the price elasticity of supply and demand by using less water, resulting in declining district revenue. C-WIN believes these conclusions should be a warning to other SWP contractors.

Costs

For Water Districts:

- Presently, significant portions of water district budgets must be dedicated to the fixed costs of State Water Project delivery infrastructure and expenses.
- The four South Coast water districts addressed in this report presently have great difficulty with cost recovery, and the consequent drawdown of cash reserves signals that they face continuing dangerous deficits.
- All the districts in this study experience high effective unit costs for SWP water; this applies to normal years, but spikes during drought years when water supplies decrease.
- The Twin Tunnels will add significantly to these present burdens with no prospect of commensurate benefits.

For Both Ratepayers and Water Districts:

- Agencies have increased water rates substantially and local customers and ratepayers will see continued escalation in water rates to cover ongoing State Water Project costs. The Twin Tunnel cost burden will add to financial difficulties. To recover all costs and rebuild reserves without going into additional debt, the water agencies will need to continue increasing monthly water service (i.e., fixed access) charges.
- Higher water rates and drought awareness have increased water conservation; this reduces revenue, incentivizing larger water users to turn to private sources, e.g. wells.
- Water districts are paying high fixed and operational costs for state water they either don't take, or take in small amounts. In times of

need, such as the recent drought, state water is either unavailable or available only in deeply reduced allocations. The Twin Tunnels rely on paper water.

Approval and construction of the Twin Tunnels is not inevitable. This report finds that the extra costs of the project will produce significant budgetary impacts and no benefit.

It is too late for Santa Barbara County and its water agencies to withdraw from the burdensome financial obligations that they have incurred by connecting to the State Water Project. However, it is not too late to withdraw from the Bay-Delta Conservation Plan/CA WaterFix/Twin Tunnels and any subsequent plan to construct tunnels under or around the Sacramento-San Joaquin Bay Delta. Santa Barbara County needs its financial resources to explore and create alternative water conservation projects and new local water resources such as desalination.



Appendix A

California WaterFix: Potential Costs to Santa Barbara County
ECONorthwest Report



APPENDIX A

California WaterFix:

Potential Costs to Santa Barbara County

July 2016

Prepared for:
California Water Impact Network

FINAL REPORT

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Acknowledgments

For over 40 years ECONorthwest has helped its clients make sound decisions based on rigorous economic, planning, and financial analysis. For more information about ECONorthwest: www.econw.com.

Kristin Lee and Ralph Mastromonaco prepared this report to California Water Impact Network with additional assistance from ECONorthwest staff and others. That assistance notwithstanding, ECONorthwest is responsible for the content of this report.

The staff at ECONorthwest prepared this report based on their general knowledge of water resource economics, and on information derived from government agencies, private statistical services, the reports of others, interviews of individuals, or other sources believed to be reliable. ECONorthwest has not independently verified the accuracy of all such information, and makes no representation regarding its accuracy or completeness. Any statements nonfactual in nature constitute the authors' current opinions, which may change as more information becomes available.

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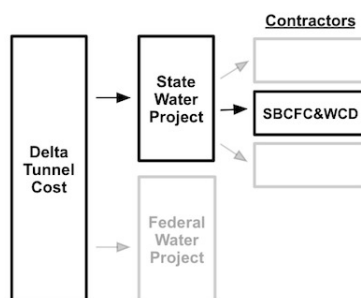
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Introduction

In this report we summarize our analysis of the potential costs of the California WaterFix project to Santa Barbara County Flood Control and Water Conservation District (SBCFC&WCD). Our study has two primary scenarios: a low-cost scenario and a high-cost scenario. For each of these scenarios, we conduct several analyses using alternative assumptions about (1) how the costs of the WaterFix project would be allocated between the State and Federal Water Projects and (2) how the costs allocated to the State Water Project would be distributed among the 29 contractors (including SBCFC&WCD) participating in the State Water Project. (See Figure 1 below).

Figure 1. Flow of Costs of the Bay-Delta Conveyance Structure to Santa Barbara County Flood Control and Water Conservation District



Source: ECONorthwest

I. Cost of California WaterFix Project

In this section we describe our calculations of the cost of building and operating the California WaterFix project. We base our calculations on publicly available information about the project's costs.

The costs of the project would be paid, at least in part, by the State Water Project (SWP). The SWP would, in turn, pass the costs along to the 29 contractors that participate in the SWP. Ultimately, ratepayers, including those in Santa Barbara County, would bear the burden of paying for the project.

Given the preliminary nature of the available cost information, we conducted our analysis using two primary scenarios: a low-cost scenario and a high-cost scenario, as we describe below and in Table 1.

A. Low-Cost Scenario (Excluding Finance Charges)

Information from the California Natural Resources Agency (CNR) released in June 2016 identifies the estimated cost of the California WaterFix project. According to CNR, the project's design, construction, O&M, and related mitigation cost is an estimated \$17.1 billion (in 2014 dollars).¹ We use this estimated cost in the low-cost scenario. Additional detail about the construction and mitigation costs (but not the O&M costs) is included in a January 2016 agreement between the Department of Water Resources and the Conveyance Project Coordination Agency.² We gleaned additional information about the costs by reviewing the cost data, and underlying documentation, for the previous proposals.³

We adjusted the costs to account for likely inflation of costs between the time of the cost estimate, 2014, and the estimated year construction would begin. For the design and construction costs, we also account for inflation during the 10-year construction period. For purposes of our analysis, we inflate the \$17.1 billion in costs (in 2014 dollars) by applying an annual inflation rate of 2 percent, which is the same inflation rate used in previous analyses of the BDCP.⁴ As Table 1 shows, the result is \$20.3 billion (in 2017 dollars).

B. High-Cost Scenario (Excluding Finance Charges)

To address the uncertainty associated with the cost estimates, we use a high-cost estimate with double the design and construction costs of the low-cost estimate. As Table 1 shows, we use the same mitigation and O&M costs as in the low-cost estimate. Cost overruns on large construction projects are not uncommon. In its analysis of the costs of the WaterFix project, the San Diego Water Authority also used a high-cost estimate that was twice the size of the low-cost estimate to help capture the uncertainty associated with the cost estimates.⁵ For purposes of this analysis, we use a high-cost estimate of \$38.2 billion (in 2017 dollars).

¹ California Natural Resources Agency. 2016. "Fast Facts." June. Accessed at <http://www.californiawaterfix.com/>.

² State of California, Department of Water Resources and Conveyance Project Coordination Agency. 2016. "Agreement Regarding Construction of Conveyance Project Between the Department of Water Resources and the Conveyance Project Coordination Agency." January. Accessed at <http://www.californiawaterfix.com/resources/design-and-construction-enterprise/>.

³ See, for example, California Department of Water Resources. 2013. *Bay Delta Conservation Plan. Public Draft. November*. Sacramento, CA. Prepared by ICF International (ICF 00343.12). Sacramento, CA; and California Department of Water Resources. 2012. *Bay Delta Conservation Plan. Administrative Draft. November*. Sacramento, CA. Prepared by ICF International. Sacramento, CA.

⁴ Ibid.

⁵ San Diego County Water Authority. 2015. "Bay Delta Conservation Plan/California WaterFix: Potential Cost Impact to the Water Authority." December.

Table 1. California WaterFix: Low-Cost and High-Cost Scenarios without Financing Costs

		Design & Construction	Mitigation	O&M	Finance Costs	Total
Low-Cost Scenario	2014 \$	\$14.9 billion	\$796 million	\$1.4 billion	Not included	\$17.1 billion
	2017 \$	\$17.9 billion	\$845 million	\$1.49 billion	Not included	\$20.3 billion
High-Cost Scenario	2017 \$	\$35.8 billion	\$845 million	\$1.49 billion	Not included	\$38.2 billion

Source: "Low Cost Scenario" data are from CNR "Fast Facts"
 "High Cost Scenario" data are based on calculations by ECONorthwest.
 Note: all dollar values are undiscounted.

II. Financing California WaterFix

The most recent publicly available information about the WaterFix project does not include details on how the project would be financed. For purposes of this analysis, we assume the project would be financed similar to the financing plan outlined for the project in the Bay Delta Conservation Plan (BDCP).⁶ According to this plan, four revenue bonds would be used to finance the design and construction elements of the project.⁷ Each bond would fund a portion of these costs over time. All of the bonds would have a period of capitalized interest and a 40-year pay-back period, with interest rates ranging from 6.132 to 6.135 percent.⁸

⁶ See, for example, California Department of Water Resources. 2013. *Bay Delta Conservation Plan. Public Draft. November*. Sacramento, CA. Prepared by ICF International (ICF 00343.12). Sacramento, CA; California Department of Water Resources. 2012. *Bay Delta Conservation Plan. Administrative Draft. November*. Sacramento, CA. Prepared by ICF International. Sacramento, CA; and Southern California Water Committee and The PFM Group. 2012. *Bay Delta Conservation Plan: Economic Benefits and Financing Strategies*. March.

⁷ As we understand, these bonds would be issued by DWR. Financing costs would be different if the contractors had to issue separate bonds for their shares.

⁸ These interest rates represent the "all in true interest cost." See, for example, California Department of Water Resources. 2013. *Bay Delta Conservation Plan. Public Draft. November*. Sacramento, CA. Prepared by ICF International (ICF 00343.12). Sacramento, CA; and California Department of Water Resources. 2012. *Bay Delta Conservation Plan. Administrative Draft. November*. Sacramento, CA. Prepared by ICF International. Sacramento, CA.

Table 2. Overall Costs of California WaterFix, with Finance Costs Included

	Design & Construction	Mitigation	O&M	Finance Costs	Total	Annual Cost
Low-Cost Scenario	\$17.9 billion	\$845 million	\$1.49 billion	\$30.5 billion	\$50.8 billion	\$1.27 billion
High-Cost Scenario	\$35.8 billion	\$845 million	\$1.49 billion	\$61.1 billion	\$99.2 billion	\$2.48 billion

Source: ECONorthwest.

Table 2 shows the financing costs associated with the two cost scenarios. Adding the costs of financing brings the overall cost of the low-cost scenario to \$50.8 billion and the high-cost scenario to \$99.2 billion. It also shows, for budgeting purposes, the peak annual costs associated with payments on the bonds and the mitigation and O&M costs. See the Appendix for more detailed tables of results.

III. Allocation of Costs Between State and Federal Water Projects

In this section we calculate the share of the overall WaterFix costs that would be allocated to the State Water Project (SWP). This is the first step in identifying the potential costs that the SBCFC&WCD would bear.

Based on the information we have reviewed, we assume that the State and Federal Water Projects would share the costs of California WaterFix.⁹ Although the split between the state and federal projects has not been determined, there is precedent for a 55/45 cost share ratio (the SWP would pay 55 percent of the cost, and the federal project would pay 45 percent of the cost).¹⁰ Therefore, for one set of calculations, we assume the SWP would be allocated 55 percent of the overall cost. We also run a second set of calculations using an assumption that the SWP would pay 100 percent of the cost.

⁹ According to the California Natural Resources Agency, "state/federal funding" may also cover an unidentified portion of the \$1.4 billion O&M. See California Natural Resources Agency. 2016. "Fast Facts." June. Accessed at <http://www.californiawaterfix.com/>.

¹⁰ California Department of Water Resources. 2013. *Bay Delta Conservation Plan. Public Draft. November*. Sacramento, CA. Prepared by ICF International (ICF 00343.12). Sacramento, CA. See also, San Diego County Water Authority. 2015. "Bay Delta Conservation Plan/California WaterFix: Potential Cost Impact to the Water Authority." December.

Table 3. State Water Project Share of California WaterFix Costs

	SWP Share	Total
Low-Cost Scenario	55	\$27.9 billion
	100	\$50.8 billion
High-Cost Scenario	55	\$54.6 billion
	100	\$99.2 billion

Source: ECONorthwest.

Table 3 shows that the SWP would bear \$27.9 billion to \$99.2 billion of costs for the project, depending on how the cost estimates would be allocated between the State and Federal Water Projects.

IV. Allocation of Costs to State Water Contractors

In this section we calculate the potential costs that the Santa Barbara County Flood Control and Water Conservation District (SBCFC&WCD) would bear. We assume that the State Water Project would pass the WaterFix costs onto its 29 contractors, including SBCFC&WCD.

For this part of the analysis, we allocated the costs in two different ways. First, we allocated the costs based on SBCFC&WCD's share of the water allotment from the State Water Project. We used the "Table A" maximum amount. SBCFC&WCD has a maximum volume of 45,486 acre-feet, which is 1.1 percent of the total maximum volume of the State Water Project.¹¹ Therefore, one set of our calculations is based on allocating 1.1 percent of the SWP's WaterFix costs to SBCFC&WCD.

Second, we used a different allocation of costs, based on SBCFC&WCD's share of total payments to the SWP. According to the latest data available, SBCFC&WCD payments account for 3.4 percent of the total payments to the SWP through 2013.¹² Therefore, a second set of our calculations is based on allocating 3.4 percent of the SWP's WaterFix costs to SBCFC&WCD.

¹¹ California Department of Water Resources. 2016. "California State Water Project Contractors: Maximum Table A Amounts." January. Accessed at www.water.ca.gov/swpao.

¹² California Department of Water Resources. 2015. *Management of the California State Water Project*. Bulletin 132-14. November.

Table 4. Allocation of Costs to SBCFC&WCD

SBCFC&WCD Share:	SWP 55/45		SWP 100	
	1.1%	3.4%	1.1%	3.4%
Low-Cost Scenario	\$304 million	\$554 million	\$944 million	\$1.7 billion
High-Cost Scenario	\$595 million	\$1.08 billion	\$1.84 billion	\$3.35 billion

Source: ECONorthwest.

Table 4 shows SBCFC&WCD's shares of the California WaterFix costs. The results range from \$304 million to \$3.35 billion using the different allocation assumptions for the SWP allocations and, in turn, for the SBCFC&WCD allocations.

Summary

This analysis provides a range of results identifying SBCFC&WCD's potential share of the costs of the California WaterFix project over a 10-year construction period and 40 years of operations.

Based on the low-cost scenario of \$50.8 billion in overall costs, SBCFC&WCD would bear costs ranging from \$304 million to \$1.7 billion depending on how the costs are allocated to the SWP and to SBCFC&WCD.

Based on the high-cost scenario of \$99.2 billion in overall costs, SBCFC&WCD would bear costs ranging from \$595 million to \$3.35 billion depending on how the costs are allocated to the SWP and to SBCFC&WCD.¹³

¹³ See the Appendix for more detailed tables of results.

Appendix: Detailed Tables

Appendix B

SWP & CVP Operations, the Indices That Govern Them and Their Validity

by Arve Sjøvold



SWP AND CVP OPERATIONS, THE INDICES THAT GOVERN THEM AND THEIR VALIDITY

By: Arve R. Sjovold
February 29, 2016

INTRODUCTION

In State Water Resources Control Board Decision 1485, an index was promulgated for the classifying of water year types. This index provides varied tables, and sets of values for a variety of Delta protection standards. No supporting analysis was cited to show how and why this index, and its, water year type derivative were established. The Water Year Index is specified by the following formula:

$$\text{INDEX} = 0.4 * X + 0.3 * Y + 0.3 * Z$$

Where: X = Current water year's April-July
Sacramento Valley unimpaired run-off
Y = Current water year's October-March
Sacramento Valley unimpaired run-off
Z = Previous water year's index

ARL
ARL
ARL

Once an index has been calculated, its value is used to determine one of five water year types: Wet, Above Normal, Below Normal, Dry, and Critical. This water year type designation is then used to set a multitude of water quality and flow standards throughout the Delta. Variations on this type of designation (e.g. the Shasta Index, American River Index, and the Trinity River Index) are also used in a multitude of operational and flow release standards for reservoirs throughout the Sacramento Basin. All of these indexes are used as well in the CALSIM II model.

D-1485 also specifies that when it is too early in the water year to have observations in hand for April-July and October-March, run-off forecast values should be based on "normal" precipitation for the unknown parts of the water year. "Normal" precipitation is not precisely defined, nor is it specified how it is to be used to calculate a value for run-off.

It is clear from a careful examination of the requirements of D-1485 that water year type is a very important parameter in managing the water resources of the Delta. Because of that high level of importance, it is fair to question both the reliability of this index and the wisdom of using it to manage the operation of the SWP and CVP.

SACRAMENTO BASIN HYDROLOGY

It is clear that the Water Year Index is profoundly dependent on the characteristics of the Sacramento Basin Hydrology. The three most important derivatives of that hydrology - particularly in regard to forecast reliability - are run-off flows for April-July and October-March, the reliance of the previous year's Water Year Index, and the notion of "normal" precipitation. If we take the statement "normal" precipitation to mean "normal" run-off, then we may perform some analyses to address these important characteristics.

A careful, quantitative examination of Sacramento Basin Hydrology was performed using the 4-river index as a surrogate for total Sacramento Basin run-off. Figure B-1 is a graph of the run-off history based on the 4-river index. A rudimentary look at the distribution of annual run-off from the 98-year record shows that the data divides into distinct groups; a drier year group comprising 56% of the years and a wet year group comprising 44% of the years as shown in figure B-2. Very few years are found near the average or "normal" value, in fact, the average value is at the relative minimum between the drier group and the wet group. Each of these groups does exhibit characteristics of a more normal distribution when taken separately.

Mean	12.18	25.55
Standard Deviation	3.27	4.65
Std. Error of Mean	.441	.709

The standard t-test between means showed less than a 1% chance that the means of these two distributions came from a single population.

VALIDITY OF INDEXES

The water year index formula comprises three terms, two dealing with the current water year run-off and the third being a weighted run-off of the previous year's water year index. We investigated the validity and reliability of the three terms as predictors of the current water characteristics.

Influence of Previous Water Year

To test the validity of using the previous year's water year index, we determined if there was any significant serial correlation between successive years within the 98-year record of annual run-off. The serial correlation co-efficient [R] was found to be 0.084, which indicates no significant serial correlation, even though drought sequences of up to 5 years and wet sequences of several years were noted. (The probability that there was a real correlation was much less than 1%). The persistence of wet and dry sequences probably reflects shifts in the jet stream that may be stable for several years before shifting. This, in turn reflects typical Pacific, synoptic weather patterns. With such an insignificant correlation co-efficient we must conclude there is very little chance that a previous year's run-off has any effect on predicting the run-off of a successive year. *This conclusion requires that the last term in the formula for water year index must be eliminated from the equation.* If we eliminate the last term in the equation there is little need to use any weighting coefficients because the remaining two terms comprise all but about 4% of the expected total run-off for the current water year. The remaining task is to estimate run-off for the unknown months to come.

Forecasting Future Months of the Water Year

The ability to forecast run-off accurately for future months depends on the information at hand. Upon entering a new water year, there is very little information available, especially given the fact that data from the previous water year is not relevant. There is potential information in the measurements of snow pack but snow in the Sierra Nevada and southern Cascades only begins to accumulate in late winter and early spring. The only factual information early in the water year is the current measure of run-off, which in the fall is extremely low. Since the distribution of annual run-off really comprises two independent distributions, it is virtually impossible to designate in which domain, dry or wet, the coming water year falls.

Each of these distributions has its own "normal" begging the question: which one should be chosen for forecasting purposes? D-1485 states that when a forecast value is needed for the formulation it should be based on the value for normal precipitation. *We have shown that there is no "grand normal" for run-off.* (Usually the average or mean value is meant by this term); it is therefore very likely that there is no such thing as a "grand normal" for precipitation. Precipitation data exhibits extreme variation, and because the physical relationship between precipitation and run-off is not linear and is dependent on such parameters as antecedent moisture in the soil, precipitation is probably not a good choice for basing a forecast.

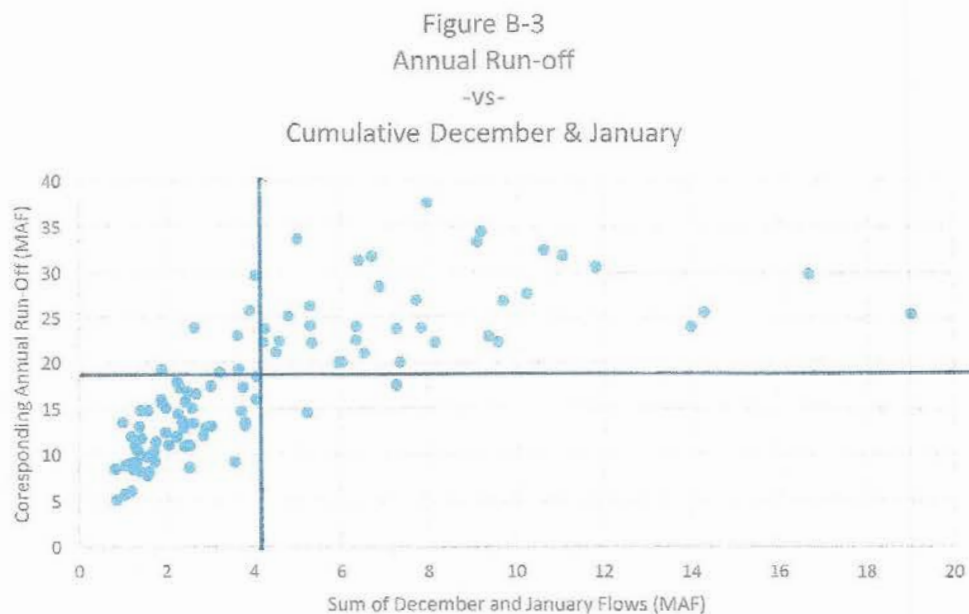
The most prudent choice is to assume that the coming water year will be dry until there is sufficient data to state otherwise. Assuming that the coming water year will be wet runs a 56% or higher chance of being wrong, hardly a prudent assumption given the importance of obtaining a reliable supply from the SWP. If the average for the dry group is chosen for the initial forecast there will be roughly a 25% chance of over-estimating the subsequent run-off. Prudence would dictate that perhaps a 5% chance of such a mistake would be tolerable. At a 5% chance the basis for the forecast would produce annual run-off in the range of 7-8 MAF. In terms of the 4-river index; actual run-off would be 20% to 25% higher. In effect, *a forecast*

range this low would likely cause a suspension in SWP and CVP operations for the first few months of the new water year, though some export might be possible if there is reservoir storage to support it in these early months.

How soon in the water year can it be stated with some confidence how the water year will play out? October and November produce little to no excess run-off. The first month with the potential for large run-off is December followed by an even more likely run-off in January, February, March, April, and May when snow melt really begins in earnest (and possibly June) are the main run-off producers. Therefore, we must look at the earliest run-off months for an indicator.

An investigation was begun to find early indicators to assess the likelihood of a dry or wet future water year. We first examined whether the run-off of December alone would suffice. Our findings were inconclusive. The same DWR data base from which the annual run-off data was used to generate the graph in Figure 1, also contains the record of monthly run-offs which was used in this investigation. That was inconclusive. We then examined the sum of December and January run-off, and we found that the sum of December and January could reliably predict if the coming water year would be dry. A maximum threshold of 3.9 MAF for the sum would capture all but 2 of 55 dry years, which indicates a less than 5% chance of error. That same threshold also falsely designated 6 of 43 wet years as dry. However, that error is not critical since the unfolding water year could easily allow positive corrections in operations.

A scatter plot of the map of total annual run-off versus the sum of January and December run-off is presented in Figure B-3 on the following page. Axes are drawn vertically at a value of 3.9 and horizontally at the grand average of total run-off, creating four quadrants labeled dry winter-wet spring, wet winter-wet spring, wet winter-dry spring, and dry winter-dry spring. Most of the data points are found in either the dry winter-dry spring or wet winter-wet spring designations, which effectively constitute the dry and wet groups used in our analysis. The lack of data points in the other two quadrants confirms that these two groups are distinct. The figure also shows the few data points not in the populated quadrants, demonstrating the low likelihood of error in using the 3.9 MAF locus as a decision basis for declaring a dry winter-dry spring in the early part of the water year.



With further examination of the dry group distribution, we found a bounding locus that contains the entire dry group set except for two points. The equation of this locus is:

$$\text{RUN-OFF} = 2.877 * \text{DEC-JAN} + 2.67$$

Where: RUN-OFF = minimum annual run-off, MAF

DEC-JAN = sum of December and January run-off, MAF

provided DEC-JAN is less than or equal to 3.9 MAF

This equation provides a minimum run-off for the dry group with only about a 5% chance of a lower run-off. With this equation, prudent SWP operations can be devised for the months past January until subsequent run-off data can supersede it. It may be possible to find additional bounding equations to guide SWP operations, assuming December and January data are already known. This process may be repeated for successive months and should converge on the actual run-off by the end of the run-off season.

The analyses above establish several constraints in developing prudent SWP operations:

- 1) No reliance can be placed on a previous water year's run-off in forecasting run-off for a given water year.
- 2) If run-off through January for a given water year is low (less than 3.9 MAF) it is very likely that the remainder of the water year will be low.
- 3) There is no meaningful value in referring to the grand average of the hydrologic record as "normal". The record indicates strongly that there are two distinct groups that cluster below and above the grand average, each with its characteristic average or normal value.
- 4) The equation for calculating the Water Year Index is without merit; the same applies to its derivative, Water Year Type.

POTENTIAL EFFECTS ON SWP OPERATIONS

Winter Pumping

Because low winter run-off through January indicates the very strong likelihood of a dry year overall, winter pumping through January should be minimal if not altogether suspended until further run-off data shows that pumping can be done without jeopardizing the reliability of future deliveries or threatening Delta health. The prudent level of pumping from the Delta during such low periods of winter run-off remains to be investigated.

Overall Project Yield

Since dry years predominate the record, and no confident statement can be made at the beginning of a water year concerning expected project yield, the project yield should be base-lined on the amount that can be reliably exported given the expectation that the ensuing water year will be dry. *This finding necessarily will lead to an export level that is much lower than the current value of 4.1 MAF.* The project can now be studied to determine the amounts of surplus water that can be safely delivered until winter run-off is sufficient to conclude that the total water year will be wet. This implies that the safe level of export will be continuously evaluated as the water year progresses.

Reservoir Operations

Because the designations of water year type are based on a calculated water year index which has been shown to have no validity, *all reservoir operations must be re-examined to determine prudent levels of release*

and storage.

SWRCB Regulations and Constraints

Because so many of the regulations and constraints that have been promulgated by the SWRCB are based on the flawed water year type, *all such regulations and constraints must be re-visited.*

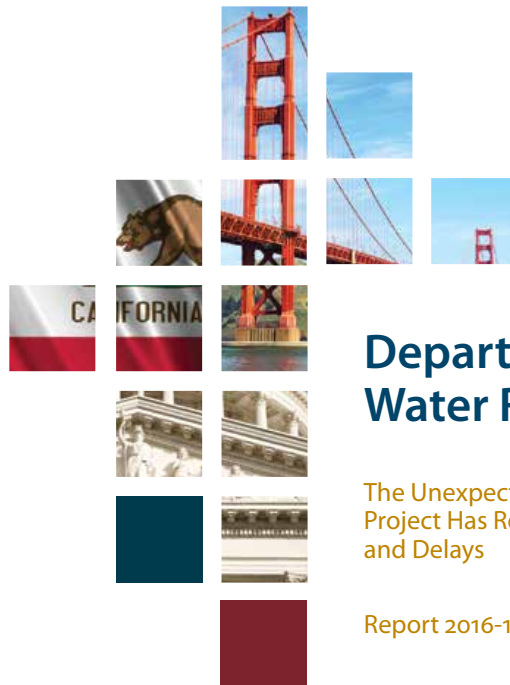
A handwritten signature in blue ink that reads "Arve R. Sjøvold". The signature is written in a cursive style with a large, sweeping initial 'A'.

Arve R. Sjøvold graduated with a B.A. in Physics from the University of California, Berkeley in 1956. For 41 years he specialized in operations research and systems analysis as a Research Scientist. He retired in 1996 from Tecolote Research Inc. in Santa Barbara, CA as Chief Cost Scientist

Appendix C

The Unexpected Complexity of the California WaterFix Project has Resulted in Significant Cost Increases and Delays
California State Auditors Report





Department of Water Resources

The Unexpected Complexity of the California WaterFix Project Has Resulted in Significant Cost Increases and Delays

Report 2016-132





CALIFORNIA STATE AUDITOR

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Elaine M. Howle State Auditor
Doug Cordiner Chief Deputy

October 5, 2017

2016-132

The Governor of California
 President pro Tempore of the Senate
 Speaker of the Assembly
 State Capitol
 Sacramento, California 95814

Dear Governor and Legislative Leaders:

As requested by the Joint Legislative Audit Committee, the California State Auditor presents this audit report concerning the Department of Water Resources' (DWR) management of the planning efforts for the California WaterFix Project (WaterFix). WaterFix is intended to address environmental and water supply reliability issues related to pumping water from the Sacramento-San Joaquin Delta (the Delta). Planning began in 2006 on the development of the Bay Delta Conservation Plan (BDCP), which consisted of several measures or activities for restoring the Delta and improving water reliability. Subsequently, in 2008 DWR initiated the Delta Habitat Conservation and Conveyance Program (conservation and conveyance program) to evaluate how to implement the BDCP and alternatives to it, including evaluating the environmental impacts and completing preliminary engineering work. Through the evaluation effort, DWR identified one of the alternatives—WaterFix—as its preferred approach. This report concludes that the planning phase experienced significant cost increases and schedule delays because of the scale and unexpected complexity of the project. For example, costs of the conservation and conveyance program's efforts to evaluate and plan for the potential implementation of the BDCP and its alternatives, which eventually included WaterFix, increased significantly. As of June 2017, the planning costs had reached \$280 million.

We also found that DWR did not follow state law when it replaced the program manager for the conservation and conveyance program. Specifically, DWR selected the Hallmark Group (Hallmark) to provide program management services without advertising a request for qualifications, and DWR could not demonstrate that it ever evaluated Hallmark's qualifications for this role. The cost of DWR's current contract with Hallmark has tripled from \$4.1 million to \$13.8 million.

Additionally, DWR has not completed either an economic or financial analysis to demonstrate the financial viability of WaterFix. Finally, it has not fully implemented a governance structure for the design and construction phase, and has not maintained important program management documents for WaterFix.

Respectfully submitted,

ELAINE M. HOWLE, CPA
 State Auditor

Selected Abbreviations Used in This Report

A&E	architectural and engineering
BDCP	Bay Delta Conservation Plan
DWR	Department of Water Resources
EIR	environmental impact report
EIS	environmental impact statement
NEPA	National Environmental Policy Act
URS	URS Corporation

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SUMMARY

The California WaterFix Project (WaterFix) is intended to address environmental and water supply reliability issues related to pumping water from the Sacramento-San Joaquin Delta (the Delta). The Department of Water Resources (DWR) began collaborating with state and federal entities as well as local water agencies (water contractors) in 2006 to develop an approach to restoring the Delta and improving water reliability, referred to as the Bay Delta Conservation Plan (BDCP). In conjunction with developing the BDCP, DWR also initiated the Delta Habitat Conservation and Conveyance Program (conservation and conveyance program) to evaluate how to implement the BDCP, which included considering alternatives to the BDCP, performing preliminary design, and assessing environmental impacts. Through this evaluation, DWR identified one of the alternatives—referred to as WaterFix—as its preferred approach. WaterFix focuses on the construction of a new water conveyance facility to improve water reliability and separates the large-scale Delta restoration effort originally included in the BDCP into a separate program called California EcoRestore. Water contractors of the State Water Project and the Central Valley Project, and the U.S. Bureau of Reclamation have primarily funded the project planning efforts that began with the BDCP and that have now shifted to WaterFix. This audit report concludes the following:

Because of the unexpected complexity of the project, the planning phase has experienced significant cost increases and schedule delays.

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The cost and timeline for preparing the BDCP increased because of the scale and unanticipated complexity of the project. In addition, costs of the conservation and conveyance program's efforts to evaluate and plan for the potential implementation of the BDCP and its alternatives, which eventually included WaterFix, also significantly increased. As of the end of June 2017, planning phase costs had reached approximately \$280 million.

DWR did not select appropriately its current program manager for the conservation and conveyance program.

Page 23

DWR did not follow state law when it replaced the program manager for the conservation and conveyance program. Additionally, DWR did not accurately value its initial contract with the new program manager—the Hallmark Group (Hallmark)—or ensure that it received fair and reasonable pricing for one of Hallmark's subcontractors.

DWR needs to take certain steps to better prepare for the transition of WaterFix to the design and construction phase.

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DWR has not completed either an economic or a financial analysis to demonstrate the financial viability of WaterFix. Furthermore, DWR has not fully implemented a governance structure for the design and construction phase of WaterFix. Moreover, DWR has not maintained important program management documents for WaterFix.

Other Areas We Reviewed

To address the audit objectives approved by the Joint Legislative Audit Committee, we also reviewed whether the State allocated any money from its General Fund to pay for the planning and design costs of WaterFix. We reviewed budget acts from 2006 through 2016 and found that the State did not allocate any General Fund money for the planning and design of the project. We also analyzed DWR accounting data, reviewed its 2008 management plan for the project, and interviewed relevant staff, and found that DWR did not use any General Fund money to fund the planning and design for the project.

Summary of Recommendations

Legislature

To improve management of large and complex infrastructure projects, the Legislature should enact legislation requiring agencies to publicly report significant changes in the cost or schedule of such projects if they are expected to exceed their established budgets by 10 percent or schedules by 12 months.

DWR

To better manage large infrastructure projects, DWR should develop and implement a project-reporting policy requiring its management staff to document and justify decisions to proceed with such projects if they are expected to exceed their established budgets by 10 percent or schedules by 12 months. DWR should make these documented decisions and justifications publicly available and submit them to the California Natural Resources Agency for review and approval.

To fully comply with state contracting law, DWR should ensure that it competitively selects architectural and engineering consultants based on demonstrated competence and professional qualifications. In addition, DWR should document in the contract file its evaluation of the competence and professional qualifications of all contractors and any subcontractors that are added to the contract subsequent to the competitive selection process. Further, DWR should ensure that it retains adequate documentation in its contract files to support that contract prices are fair and reasonable.

To ensure that DWR manages WaterFix in an effective manner, DWR should complete both the economic analysis and financial analysis for WaterFix and make them publicly available as soon as possible.

To prepare for the potential approval of WaterFix and to ensure that the project is managed properly during the design and construction phase, DWR should do the following:

- Develop an appropriate governance structure so that it is prepared to oversee the design and construction of WaterFix in the event it is ultimately approved.
- Develop and update when necessary the associated program management plan for the design and construction phase of the project.

Agency Comments

DWR generally agrees with our findings and recommendations, although it disagrees with our conclusion that DWR did not follow state law in selecting the program manager. DWR also did not agree with our recommendation that it develop and implement a project reporting policy.

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INTRODUCTION

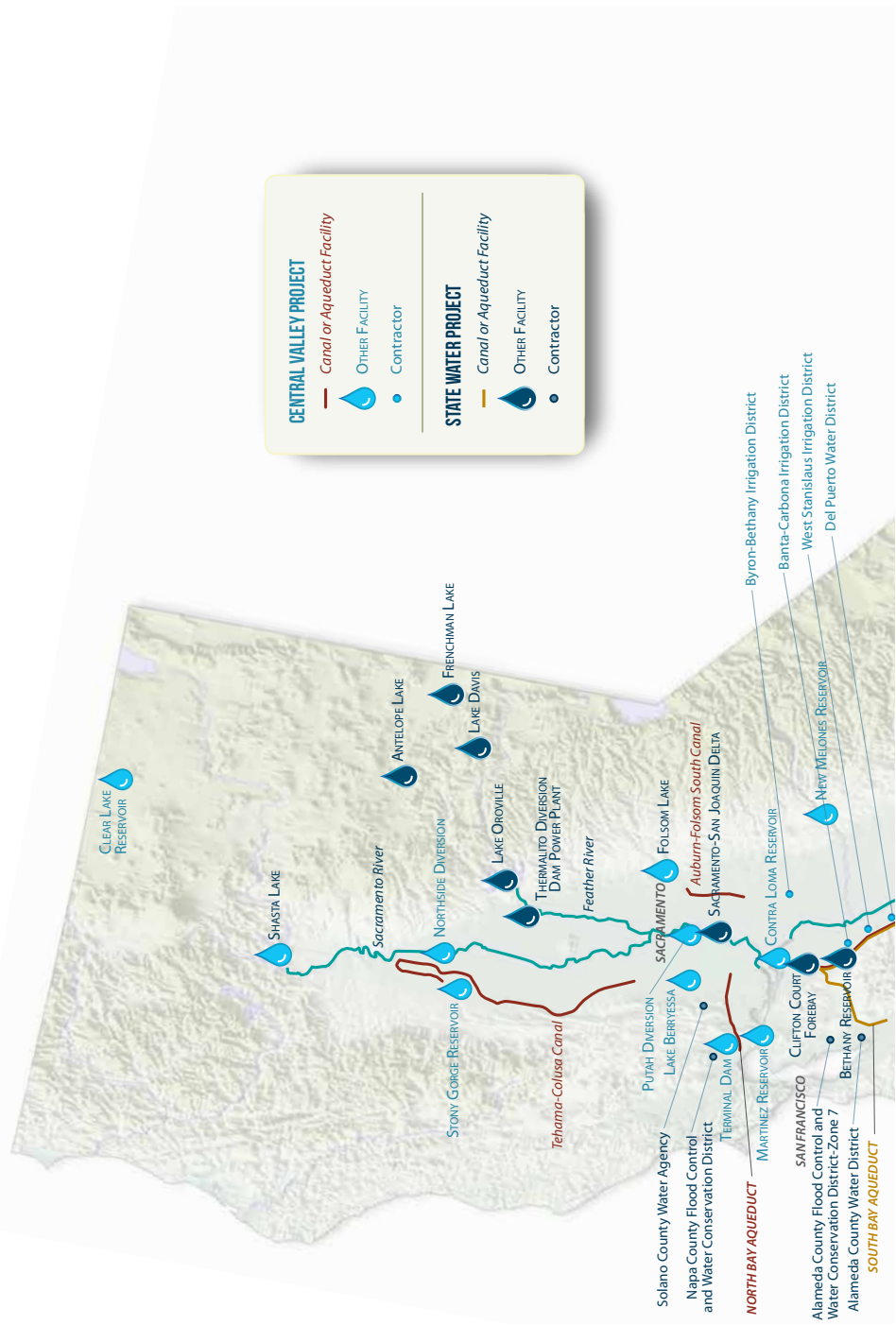
Background

The Department of Water Resources (DWR) and other entities are developing the California WaterFix Project (WaterFix) in response to concerns about the impact of exporting water through pumps in the southern part of the Sacramento-San Joaquin Delta (the Delta). The pumping causes *reverse flows* in that it essentially pulls water upstream, adversely affecting endangered fish species by pulling them toward the pumps. To reduce these adverse effects, regulators have reduced water exports, which has in turn created a negative economic impact on communities and farms that depend on water from the Delta. The water from the Delta is mainly transported by two systems of water infrastructure: the State Water Project and the Central Valley Project. DWR is responsible for the construction, maintenance, and operation of State Water Project facilities while the U.S. Bureau of Reclamation (Reclamation) is generally responsible for Central Valley Project facilities. Local water agencies (water contractors) contract for water deliveries from these two systems. Figure 1 on the following pages presents the locations of certain State Water Project and Central Valley Project facilities, and of their respective water contractors that have participated in funding the planning phase that has culminated in WaterFix.

Development of the Bay Delta Conservation Plan

Planning efforts to address these environmental and economic concerns about the Delta began in 2006. We refer to all of the planning efforts from 2006 to the present as the *planning phase*. This phase would eventually include two overlapping efforts: development of the Bay Delta Conservation Plan (BDCP) and evaluation of how to implement it and other alternatives, including the environmental impacts and preliminary engineering. This evaluation effort was called the Delta Habitat Conservation and Conveyance Program (conservation and conveyance program). Figure 2 on page 9 describes the two planning efforts and the participants. The BDCP consisted of several conservation measures or activities that were intended to accomplish two goals: helping conserve native fish and wildlife species in the Delta and improving water reliability and quality. The BDCP was also expected to reduce future risks to water supplies conveyed through the Delta from earthquakes, levee failure, and climate change. The first conservation measure was the construction of a new conveyance (or water transportation) facility with new intakes on the Sacramento River in the north Delta to reduce the use of the pumps in the south Delta so as to minimize the reverse flows.

Figure 1
Water Contractors That Contributed to the Conservation and Conveyance Program and Their Key Facilities





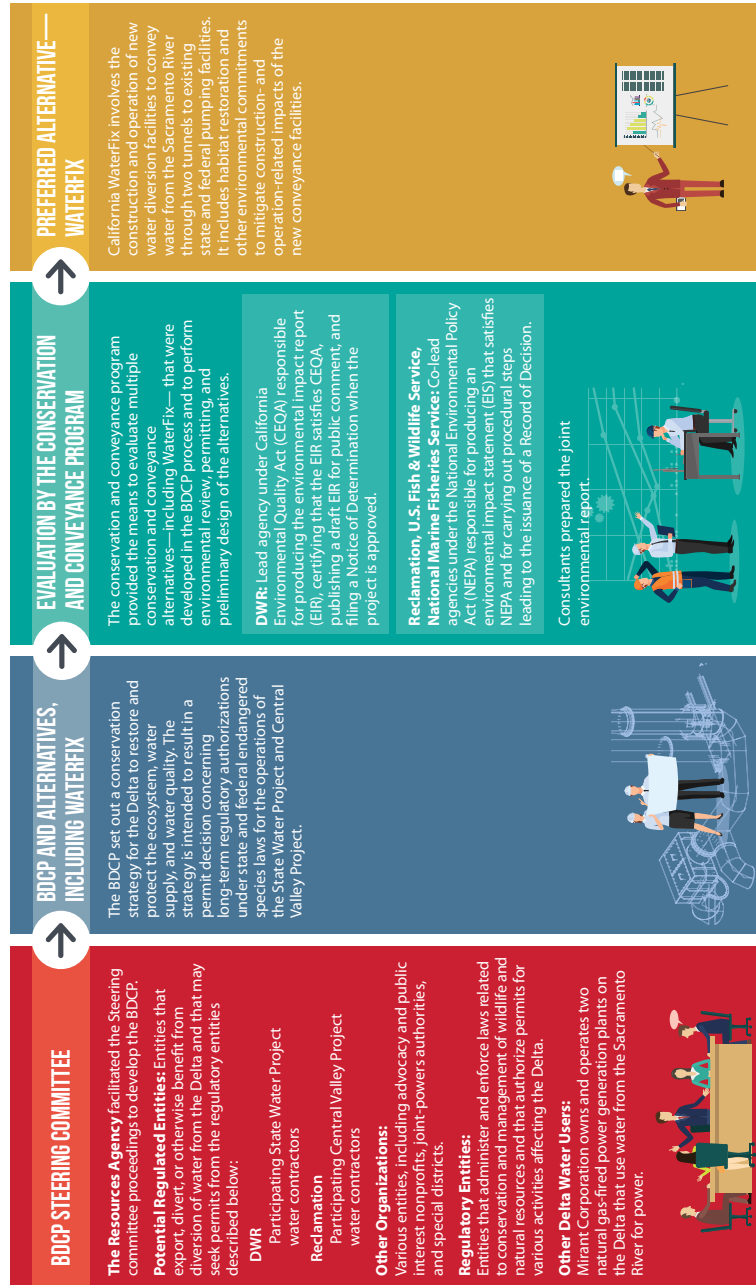
Sources: California State Auditor's analysis of DWR and Reclamation documents.
* Santa Clara Valley Water District contracts with both the State Water Project and Central Valley Project.

The BDCP was intended to be the basis for obtaining 50-year permits under the federal Endangered Species Act and California Endangered Species Act that would create a stable regulatory framework for operations of the State Water Project and Central Valley Project. Specifically, the permits would provide long-term assurance that regulators would not require additional commitments of or place additional restrictions on the use of land, water, or other natural resources, nor would they require financial compensation—without the consent of the parties to the BDCP—as long as the BDCP was being implemented appropriately. The permits would also allow state and federal entities to engage in the activities included in the BDCP, which fell into the following categories:

- New water facilities construction, operation, and maintenance.
- Operation and maintenance of State Water Project facilities.
- Nonproject diversions of water.
- Habitat restoration, enhancement, and management.
- Monitoring activities.
- Research.

Multiple entities have voluntarily participated in the planning phase. These parties entered into a planning agreement that defined goals and objectives for the planning phase. The planning agreement also established a steering committee as the principal forum for discussing policy and strategy issues pertaining to the BDCP. The California Natural Resources Agency (Resources Agency) facilitated the steering committee and Figure 2 shows the other entities that constituted the committee. The steering committee, through a finance subcommittee, also developed the funding structure and budget for developing the BDCP.

Figure 2
WaterFix Planning Efforts and Participants



Sources: 2009 BDCP Planning Agreement, Conservation and Conveyance Program Memorandum of Agreement (MOA), Amended MOA, and www.californiawaterfix.com.

Transition From the BDCP to a New Approach Called *WaterFix*

The next planning effort began in 2008 when the Governor directed the Resources Agency to expedite completion of the BDCP and directed DWR to proceed with the environmental analysis of four Delta conveyance alternatives. To provide the means for evaluating and planning for the possible construction and implementation of these alternative conveyance facilities and habitat restoration projects, DWR initiated the conservation and conveyance program. This program was responsible for evaluating the BDCP and many other alternatives, which eventually included *WaterFix*. The conservation and conveyance program was composed of a team responsible for the following activities:

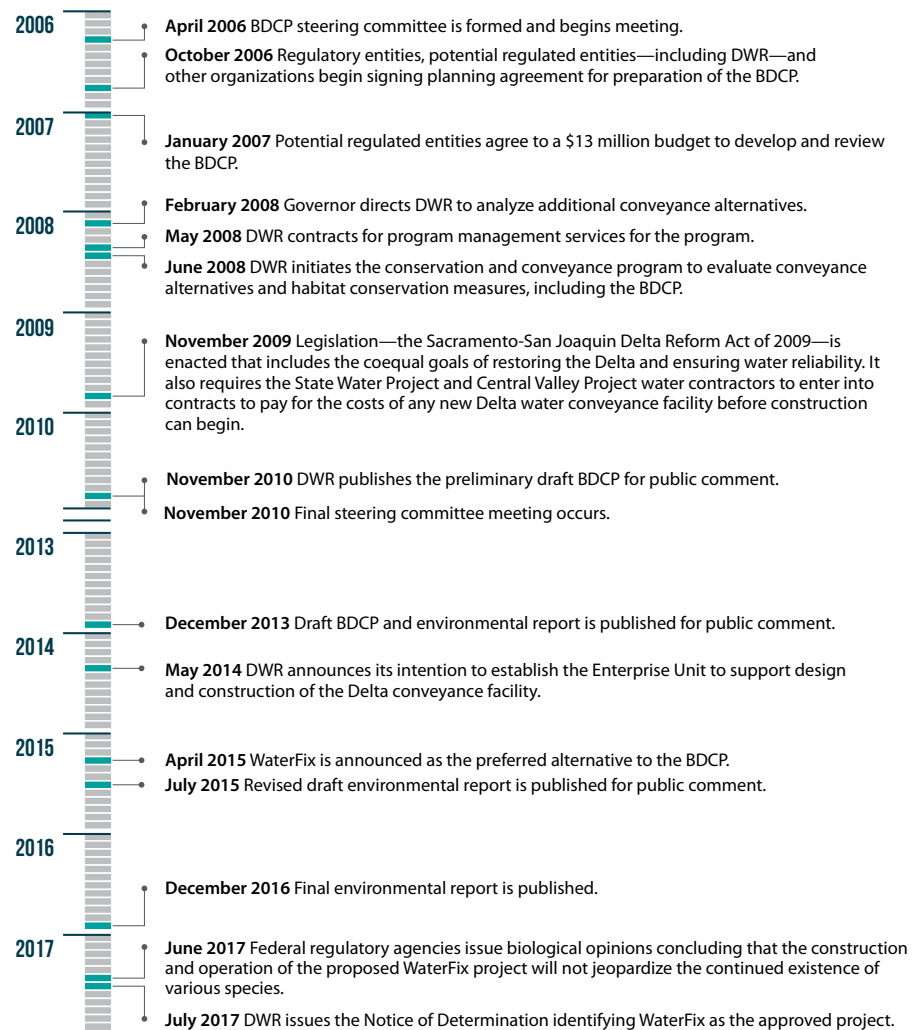
- Examining conveyance alternatives.
- Performing cost analyses.
- Formulating schedules.
- Selecting preferred alternatives.
- Obtaining the required environmental permitting and documentation.
- Obtaining property rights.
- Completing preliminary design.
- Completing final design and construction.

DWR initially contracted with an engineering firm to provide program management services and engineering support services for the conservation and conveyance program. Figure 3 shows a timeline of the key developments in the planning phase.

However, DWR and Reclamation revised their approach to improving reliability of water deliveries and protecting the Delta based on comments they received from the public and regulatory agencies during the environmental review process. In December 2013, DWR and Reclamation published a draft environmental impact document for the BDCP. The California Environmental Quality Act requires lead agencies to create an EIR to provide public disclosure of the environmental impacts of a proposed project. The report must identify all significant environmental effects, the mitigation measures proposed to minimize those effects, and alternatives to the project. The NEPA has similar requirements for an EIS. As the lead agencies, DWR, Reclamation, U.S. Fish & Wildlife Service, and the National Marine

Fisheries Service developed the joint environmental impact report/ environmental impact statement (environmental report) presenting the environmental impacts of the BDCP and alternatives to it.

Figure 3
Timeline of Key Developments in the BDCP and WaterFix Planning Process



Sources: DWR planning documents, state law, Governor's letter to the Senate in February 2008.

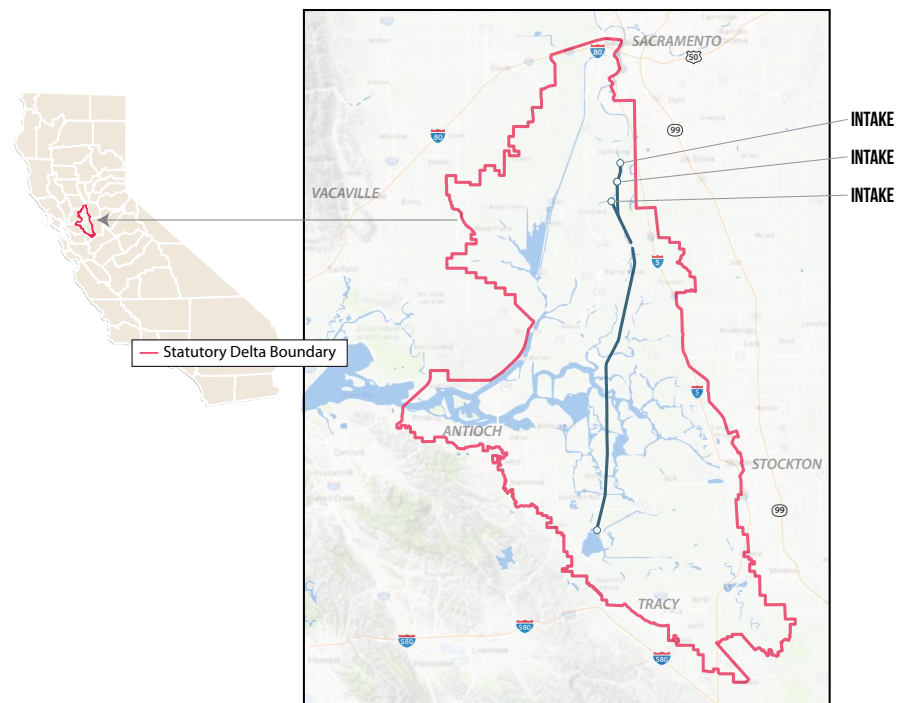
Following its publication of the draft environmental report in December 2013, DWR reported receiving numerous comments. These comments suggested that because of the uncertainty of the effects of climate change and the long-term effectiveness of habitat restoration in recovering fish populations, DWR should pursue a shorter permit term than the 50-year term the BDCP sought. Other comments suggested that the proposed conveyance facilities should be separated from the habitat restoration components of the BDCP. To address these concerns, DWR and Reclamation subsequently analyzed additional alternatives that would seek shorter-term permits and include only limited amounts of habitat restoration. They identified one of these alternatives, WaterFix, as the preferred alternative to the BDCP. WaterFix essentially separates the water conveyance effort from the large-scale Delta conservation effort.

As shown in Figure 4, WaterFix consists of three new intakes north of the Delta and other water conveyance facilities to address the reverse flow problem. However, WaterFix limits habitat restoration only to mitigating the construction-and operations-related impacts of the new facilities. A separate program, California EcoRestore, would provide restoration efforts for species conservation independent of the facility upgrades. Unlike the BDCP, WaterFix does not seek a permit like the 50-year permit discussed previously, and it does not provide the assurance that regulators will not restrict water and land use.

To give the public an opportunity to comment on the additional alternatives, DWR and Reclamation published in July 2015 a revised draft environmental report that presents WaterFix as the preferred alternative. Again, the public provided numerous comments. In December 2016, DWR and Reclamation published the final environmental report, which incorporates changes from the additional public comments. DWR initially estimated that in spring 2017, Reclamation would issue its *Record of Decision* stating which alternative it had chosen to pursue, the alternatives it had considered, and whether all practicable means to avoid or minimize environmental harm had been adopted. However, Reclamation has not issued the Record of Decision. The director of DWR nevertheless stated that in the meantime DWR will continue moving forward with WaterFix planning efforts, including permitting and regulatory efforts. On July 21, 2017, DWR issued a Notice of Determination that identified WaterFix as the approved project and indicated that the project will have a significant effect on the environment, an EIR was prepared, and a mitigation monitoring plan was adopted. In addition to these approvals, several regulatory and permitting processes are ongoing and must be completed before construction of WaterFix can move forward, including hearings by the State Water Resources Control Board

regarding water rights and water quality that are expected to last until sometime in 2018. We refer to the overall activities that span the BDCP and WaterFix as the *project*.

Figure 4
WaterFix Proposed Project Location



Source: DWR's final EIR, figures 1-1, 3-9, and 3-10.

Funding for the Planning Phase Has Come From a Number of Sources

Generally, the State Water Project's water contractors pay the costs for its construction, replacement, and maintenance and operations. However, because the planning phase for the BDCP and WaterFix has been a voluntary collaboration among several state and federal entities to improve water supply reliability and to restore ecosystem health in the Delta, Reclamation and some Central Valley Project water contractors also contributed funding. As we stated in the Summary, DWR did not use any General Fund money to fund

the planning of the project. DWR did not fully track the various contributions made toward the costs of preparing the BDCP, as we explain more fully later. These costs consisted of two categories—the costs attributable to fishery agencies¹ for their work related to the development and review of the BDCP, and other costs related to preparing the BDCP, including contracted consultant costs. The \$6 million cost for the first category was split evenly between DWR and Reclamation over two years. For the second category, three entities agreed to share the consultant costs and other related costs: DWR; San Luis & Delta Mendota Water Authority (the Authority)—a joint-powers authority that represents certain Central Valley Project water contractors; and Mirant—a corporation that owns and operates power generation plants on the Delta.² The costs for the second category have reached approximately \$54 million. Although documentation is limited, DWR explained that it included charges for its share of the BDCP costs in the State Water Project water contractors' annual statements. The Authority collected funds for its portion of the costs from its member agencies.

Participating State Water Project and Central Valley Project water contractors agreed to share the planning costs for the conservation and conveyance program equally between the two groups. DWR established a specific account to track these contributions. As noted previously, participation in the funding was voluntary, and any participating water contractor could withdraw upon 30-days notice; however, doing so would require the remaining participating water contractors to make up for the lost contributions. Figure 5 shows the amounts and proportional share each entity contributed. Figure 5 also shows that Reclamation, Metropolitan Water District of Southern California (Metropolitan), the Authority, and Kern County Water Agency (Kern) together contributed roughly 82 percent of the total planning funds through June 2017.

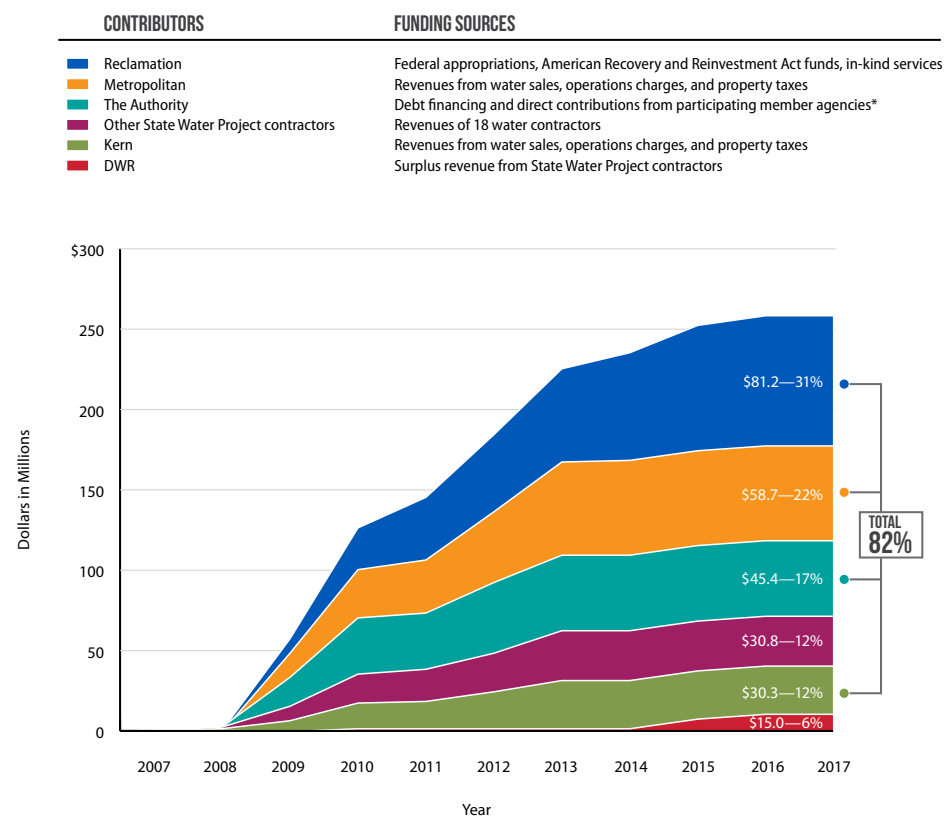
To collect the State Water Project share, DWR entered individual funding agreements with the 20 State Water Project contractors that decided to participate. Contributions were proportionate to each participating contractor's water allocation from the State Water Project. For example, Metropolitan and Kern receive the two largest allocations of water from the State Water Project; therefore, they contributed the largest portions of the State Water

¹ *Fishery agencies* refers to the California Department of Fish and Game, the U.S. Fish & Wildlife Service, and the National Marine Fisheries Service.

² Initially in January 2007, Mirant Corporation agreed to contribute 10 percent of the approved consultant costs and DWR and the Authority agreed to split the remainder equally. Two years later, the parties agreed to cap Mirant Corporation's contributions at the lesser of 10 percent or \$300,000 per 12-month period.

Project's share of costs. Their contributions generally came from their revenues, which are largely composed of proceeds from water sales, user charges, and property taxes.

Figure 5
Four Entities Contributed Most of the Funding for the Conservation and Conveyance Program
January 2008 Through June 2017



Source: California State Auditor's analysis of DWR accounting data.

* The Authority contributed a total of \$47.1 million in funds from debt financing and direct contributions from participating member agencies toward the planning phase, \$2.1 million of which was used to meet its BDCP funding obligations. In June 2017, it contributed another approximately \$400,000.

The Authority and Reclamation contributed the Central Valley Project share of costs for the conservation and conveyance program. The Authority contributed \$45.4 million and used debt financing for 95 percent of its contribution, with the principal and interest required to be paid from water system revenues generated by 17 Central Valley Project water contractors that decided to participate.³ The remaining 5 percent, or roughly \$2.3 million, was contributed directly by another five water contractors. Reclamation contributed \$81.2 million in federal funds and in-kind services, such as program management, legal services, and preliminary engineering.

³ Westlands Water District agreed to pay 100 percent of the principal and interest on the debt. The Authority reimburses Westlands Water District for a portion of such debt service payments from amounts the Authority receives from the 16 other participating Central Valley Project water contractors.

Because of the Unexpected Complexity of the Project, the Planning Phase Has Experienced Significant Cost Increases and Schedule Delays

Key Points

- The costs and timeline for preparing the BDCP increased because of the scale and unexpected complexity of the project.
- The costs to evaluate and plan for the potential implementation of the BDCP and its alternatives, which eventually included WaterFix, also increased.

The Costs and the Timeline for Preparing the BDCP Increased Because of the Unexpected Complexity of the Project

In a June 2006 steering committee meeting, the finance subcommittee presented a \$13 million budget for preparation of the BDCP, which included budgeted consultant costs for completing all tasks except public outreach. The budget consisted of \$6 million to provide for the participation of fishery agencies and \$7 million for consultant costs and other costs related to the BDCP. As stated in the Introduction, fishery agency costs were to be split evenly between DWR and Reclamation and the consultant and other costs were to be split among DWR, the Authority, and Mirant Corporation. Following the establishment of the budget, DWR entered into a \$1.6 million contract with Alameda County Flood Control and Water Conservation District Zone 7 (Zone 7) to cover its share of consultant costs for December 2006 through June 2008. The contract states that Zone 7 possessed special expertise related to the unique environmental compliance process that would guide the BDCP process. The scope of work in the contract included engaging the services of a BDCP consultant, the preparation of the BDCP, and the services of Zone 7 to manage the contract with the BDCP consultant. However, the parties subsequently discovered that the \$1.6 million budgeted over the 19-month term of the contract was insufficient to allow the consultant to successfully complete the BDCP. The parties first amended the contract in June 2008 to add an additional year, extending the term through June 30, 2009. In the spring of 2009, the parties agreed to amend the contract a second time, increasing the contract by \$3.5 million and the term by another two years, thus extending the contract through June 30, 2011. The parties amended the contract a third time in March 2010 to increase the contract by another \$2.6 million. These three amendments collectively increased the cost of this contract from \$1.6 million to \$7.7 million, nearly five times the original amount, and they extended its term by three years. DWR's financial records indicate that it spent \$7.5 million on this contract, and according to the chief of its enterprise accounting branch, the funding for these payments came from State Water Project contractors. However, DWR did not fully track BDCP funding or spending. Documentation provided by the Authority indicates that it contributed \$5.2 million toward these costs, but we do not have any data on Mirant Corporation's share of BDCP costs.

According to contract documents justifying the amendments, the BDCP was being developed with a greater level of stakeholder involvement than was customary in most conservation plans; consequently, development of the plan was proving to be more complicated, time-consuming, and expensive than originally anticipated. For example, the justification included in DWR's second amendment to its contract with Zone 7 states that the BDCP process called for a more extensive independent science advisory effort—the process of including independent scientific input to assist with plan development—than is typically the case with conservation plans, and this effort increased the cost of preparing the conservation strategy beyond the original estimate.

.....

Development of the plan was proving to be more complicated, time-consuming, and expensive than originally anticipated.

.....

The science advisors for the project also recommended expanding the scope of the plan to include a larger share of terrestrial species and habitat, and this recommendation further increased projected costs. The cost increase contained in the third contract amendment was primarily due to the decision to have the BDCP consultant take on portions of the EIR that were not originally included in the scope of work. Specifically, according to the contract documents justifying this amendment, the parties decided that part of the environmental impact evaluation could be conducted most efficiently by the same consultants that were preparing the BDCP.

The organizational and decision-making structure of the BDCP effort presented another challenge to the timely and efficient completion of the plan. In particular, the documented justifications for the second and third contract amendments explained that the time and cost of preparing the BDCP increased substantially because the BDCP consultant, while designing the plan, engaged directly with the steering committee, which consisted of several dozen members representing state and federal water and resource agencies, water contractors, and other organizations—a unique departure from the customary process in which a consultant team primarily develops the conservation plan elements that are then endorsed by a single advisory committee. For example, according to the justification for the second amendment, the consultant spent a significant amount of time and resources developing a report that evaluated conservation strategy options, but it subsequently

received requests from members of the steering committee that required the consultant to develop and model various operational scenarios repeatedly, and these efforts were costly and time-consuming. However, the justification for the contract amendment also defended the time-consuming stakeholder process, stating that it would help ensure the plan's stability and likelihood of implementation. Nevertheless, the project's costs increased significantly.

Although Zone 7 stopped managing the BDCP consultant in July 2010, costs for preparing the BDCP continued to increase when DWR entered into a direct contract with the consultant to continue preparing the BDCP. This new contract ultimately increased the BDCP costs by \$41.4 million. Specifically, in June 2010, DWR and the consultant signed a two-year, \$11 million contract for tasks such as completing working drafts of the BDCP chapters, obtaining public feedback on the BDCP, and finalizing the BDCP. By the time DWR and Reclamation released the draft BDCP for public review and comment in December 2013, the contract had been amended several times increasing the maximum amount payable under the contract by a total of \$20 million, in part because of unanticipated modifications to the project that resulted in the need for multiple revisions to the plan. After publishing the draft BDCP in December 2013, DWR further amended the contract three more times, increasing the contract amount by an additional \$10.4 million.

.....

The cost of preparing the BDCP rose to approximately \$60 million.

.....

These amendments cited the need for additional time and funds because of changes in the public draft of the BDCP resulting from a new permitting approach; the addition of three new alternatives to be analyzed, reviewed, and incorporated into the BDCP; and an extended public comment period. Notwithstanding, we estimate that the cost of preparing the BDCP rose to approximately \$60 million.

Costs to Evaluate and Plan for the Potential Implementation of the BDCP and Other Alternatives Also Significantly Increased

DWR has so far spent roughly \$260 million to evaluate and plan for the possible construction of alternative conveyance facilities and habitat restoration projects, including those that constitute

the BDCP and, subsequently, WaterFix. In March 2009, DWR estimated the initial budget for these activities to be \$140 million, including the costs of management, planning, administration, preliminary engineering, and environmental services. The budget was to cover the conservation and conveyance program's evaluation and planning efforts starting in 2008 until its expected completion in 2010. Conservation and conveyance program funds were also used to pay for the \$41.4 million direct contract that DWR entered into with the BDCP consultant, as mentioned previously.

However, DWR subsequently reassessed the scope, technical needs, and schedule for the conservation and conveyance program's evaluation and planning efforts, which led to a substantial cost increase. Consequently, in October 2010, the steering committee discussed the need for an additional \$100 million—a 71 percent increase to the initial budget of \$140 million—to continue the planning process. In 2012 DWR signed agreements with water contractors for the supplemental funding of \$100 million to pay the “actual” remaining costs of the planning phase. These supplemental funding agreements extended the term of the planning process through December 2014. A document prepared by the former chief of DWR's division of engineering indicates that the \$100 million was intended to fund remaining environmental and engineering activities as well as a contingency reserve. With the \$100 million in supplemental funding, the total budget for the conservation and conveyance program's evaluation and planning efforts had increased to \$240 million.

DWR ultimately exhausted the \$240 million budget and contributed \$15 million in surplus revenue in 2015 and 2016 to fund additional planning costs. Reclamation and the Authority also together contributed an additional \$6.8 million. Through June 2017, total contributions exceeded the planning phase budget by more than \$21 million. Moreover, as of June 2017, DWR had spent 99 percent of the \$261 million contributed to fund the conservation and conveyance program. As described previously, although DWR officials filed the Notice of Determination in July 2017, Reclamation has not filed the Record of Decision. Nevertheless, DWR officials stated that no additional funds would be needed to complete the planning phase for WaterFix, as approved.

As discussed in the Introduction, DWR has entered into water supply contracts with State Water Project contractors. Pursuant to these contracts, DWR collects payments from the contractors to recover all water supply-related costs. DWR deposits this revenue in a special account. The text box shows the purposes for which this revenue can be used. According to DWR, surplus revenue is available to DWR to fund the acquisition and construction of the State Water Project, including WaterFix planning activities that are

a necessary precursor to construction. When we researched the \$15 million of surplus revenues that DWR used to fund project planning costs in 2015 and 2016, we discovered that the account in which DWR collects the revenues had an available cash balance that had grown from \$10.7 million in December 2013 to \$286 million by the end of April 2017. Furthermore, DWR projects the balance will increase to \$293 million by the end of December 2017. According to DWRs' chief of the State Water Project Analysis Office, a major factor contributing to the increase in the balance of this fund has been the decrease in outstanding debt resulting from the repayment of a California Water Fund loan and general obligation bonds initially used to finance the State Water Project. He further stated that DWR holds monthly meetings with the state water contractors, at their request, to provide transparency of State Water Project activities and financial information regarding State Water Project costs and revenues, including the surplus revenue balance. We reviewed the agenda and minutes for the June 2017 meeting and found that DWR disclosed the \$286 million surplus to the state water contractors. Finally, the chief stated that these funds are available to pay for new State Water Project facilities, including WaterFix. However, DWR has not developed any concrete plans for how it will use this growing surplus revenue balance.

Purposes and Priorities for Using State Water Project Revenue as Described in State Law

All revenues the State derives from the State Water Resources Development System (also known as the State Water Project)—including those from the sale, delivery, or use of water or power—shall be used annually only for the following purposes and in the following order:

1. The payment of the reasonable costs of annual maintenance and operation of the State Water Resources Development System and the replacement of any of its parts.
2. The annual payment of the principal and interest on the bonds issued in accordance with the Water Code.
3. Reimbursement to the California Water Fund for funds used for State Water Resources Development System construction.*
4. Any surplus revenues in each year not required for the purposes specified in this chapter of the law shall be appropriated to the department for acquisition and construction of the State Water Resources Development System.

Source: Water Code, Section 12937 (b).

* Priority 3 is no longer active because DWR has reimbursed all funds it used from the California Water Fund.

Recommendations

Legislature

To improve management of large and complex infrastructure projects, the Legislature should enact legislation requiring agencies to publicly report significant changes in the cost or schedule of such projects if they are expected to exceed their established budgets by 10 percent or schedules by 12 months.

DWR

To better manage large infrastructure projects, DWR should develop and implement a project-reporting policy requiring its management staff to document and justify decisions to proceed with such projects if they are expected to exceed their established

budgets by 10 percent or schedules by 12 months. DWR should make these documented decisions and justifications publicly available and submit them to the Resources Agency for review and approval.

To ensure it makes appropriate use of its growing surplus revenue balance, DWR should develop a detailed plan describing how it intends to use these funds.

DWR Did Not Select Appropriately Its Current Program Manager for the Conservation and Conveyance Program

Key Points

- DWR did not follow state law when it replaced the program manager for the conservation and conveyance program.
- DWR did not accurately value its initial contract with the new program manager—the Hallmark Group (Hallmark)—or ensure that it received fair and reasonable pricing for one of Hallmark’s subcontractors.

DWR Did Not Follow Proper Procedures in Replacing the Program Manager for the Conservation and Conveyance Program

Although DWR initially used a robust selection process that was in line with both the letter and spirit of state contracting law to select its first program manager, it later used other methods to select a replacement program manager, and these methods did not follow the competitive process required under the law. State law requires state agencies that are contracting for architectural and engineering services to select contractors based on demonstrated competence and professional qualifications. The architectural and engineering (A&E) contract process seeks the most highly qualified contractor; the agency then negotiates with that contractor a price that is fair and reasonable although not necessarily the lowest price. Additionally, based on the services DWR identified in the Scope of Work section of its request for qualifications and its contract with URS Corporation (URS)—its original choice to provide program management services—DWR was contracting for specific services that are consistent with *construction project management*, which a licensed engineer or general contractor must perform, as state law requires.

In May 2008, DWR used a competitive process to engage a consultant to provide program management services and engineering support services, as required by state contracting law and its own regulations. DWR followed the process detailed in the text box to select URS as the most qualified firm to support the

DWR’s Process for Selecting Its Initial Program Manager

- Developed a request for qualifications that established the criteria for selecting the program manager, including relevant education; possession of a valid California professional engineer license; experience in the planning, managing, and overseeing of large water resources infrastructure; strategic program development; project management; and experience in environmental compliance and engineering and construction.
- Published the request for qualifications in the State Contracts Registry and a relevant professional publication.
- Held a mandatory meeting attended by approximately 55 individuals representing numerous interested firms. The meeting included a detailed question-and-answer session to clarify requirements and expectations.
- Received statements of qualifications from two interested firms.
- Interviewed the two responding firms.
- Used a defined scoring rubric to score the qualifications and interview responses of the two responding firms based on criteria defined in the request for qualifications.
- Negotiated with the highest-scoring firm for a cost that was deemed fair and reasonable.
- Awarded the contract to the most highly qualified responding firm.

Sources: DWR’s request for qualifications and various other DWR documents.

conservation and conveyance program team’s efforts. In its response to the request for qualifications, URS identified the individual who would serve as program manager and presented his qualifications, detailed in Table 1, as part of the larger competitive process. DWR then negotiated with URS for a contract worth up to \$60 million and with a term from May 2008 through December 2015.

Table 1
Hallmark’s Program Manager Does Not Appear to Possess the Qualifications That DWR Required When It Selected URS

REQUIREMENTS AND SELECTION CRITERIA FROM DWR’S REQUEST FOR QUALIFICATIONS	URS – PROGRAM MANAGER	HALLMARK – PROGRAM MANAGER
Possession of a valid professional engineering license	Yes	No
Relevant education	M.S./B.S. Civil Engineering Rutgers University	B.S. Economics North Carolina State University
Demonstrated competence and relevant experience of the program manager in the planning of large water resources infrastructure projects	<ul style="list-style-type: none"> Project Director, MWD Isolated Facility, Metropolitan Water District of Southern California, Sacramento County, California Project Manager and Sponsor, Lake Perris Dam Seismic Evaluation and Dam Replacement Options, State of California Department of Water Resources, 2006 Senior Reviewer, Swift No. 2 Hydroelectric Project, Cowlitz County PUD, Cougar, Washington, 2006 	None included in information provided to DWR or on Hallmark’s website.
Demonstrated competence and relevant experience of the firm in the planning of large water resources infrastructure projects, strategic program development, project management, environmental compliance, engineering, and construction	<p>Managed programs ranging from those costing hundreds of millions of dollars to those costing more than \$19 billion in construction value, including the following:</p> <ul style="list-style-type: none"> \$3.4 billion San Francisco Transbay Terminal Program \$5.5 billion California Prison Health Care Receivership Program <p>Developed and implemented public and stakeholder coordination strategies to address the outreach issues associated with these complex programs.</p>	<p>Managed construction for several projects including the following:</p> <ul style="list-style-type: none"> \$500 million UC Merced Campus \$33 million UC Davis MIND Institute \$120 million Bay Area Housing Project \$3.5 million Silicon Laboratories facility

Sources: DWR’s request for qualifications (RFQ NO. 10023878), URS’s statement of qualifications, Hallmark’s website (<http://hgcpm.com/>), and contract documentation.

However, not long after awarding the contract, DWR directed URS to replace its program manager with the president of Hallmark without DWR’s demonstrating that Hallmark was qualified to provide these services or had the required professional license. Specifically, 13 months after awarding the contract to URS, DWR issued a notice of disapproval that removed the individual URS had designated as the program manager apparently because he was not working full-time on the project. A clause in DWR’s contract with URS allowed DWR to disapprove “the assignments or the continuing assignment of specific contractor personnel, subcontractors and subcontractor personnel.” However, the contract did not indicate a specific process by which the disapproved personnel should be replaced. Because of the size, cost,

complexity, and significance to the State of WaterFix, we expected DWR to require URS to provide an equally qualified replacement; alternatively, DWR could have used a competitive process to select a replacement program manager based on the criteria it had established in the original request for qualifications. Instead, in an August 2009 amendment to its contract with URS, DWR replaced the program manager by directing URS to engage Hallmark as a subcontractor to provide the program management services.

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The contract did not indicate a specific process by which the disapproved personnel should be replaced.

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By directing URS to engage Hallmark as a subcontractor in this manner, DWR did not select a firm that met the requirements of the request for qualifications, DWR's regulations, or state law. Our review of the Hallmark contract file found no indication of how DWR identified Hallmark as the replacement program manager nor any evidence that DWR evaluated Hallmark's qualifications for this role. DWR asserted that Metropolitan recommended Hallmark based on Metropolitan's previous experience working with the firm. However, the general manager of Metropolitan told us that although he did recommend Hallmark, Metropolitan had not previously worked with the firm. Furthermore, when we asked him why he recommended Hallmark, he indicated that he was given the name by a third party but could not recall who that third party was. He also said that Metropolitan and other water contractors interviewed other individuals but determined Hallmark was the firm it would recommend to DWR; however, he was unable to provide us with any documentation of those interviews or how the water contractors arrived at their conclusion to recommend Hallmark. We were also unable to ascertain why Metropolitan was interviewing candidates on behalf of DWR.

DWR officials stated that DWR made its own independent assessment of Hallmark's qualifications, and it based its selection on Hallmark's successful program management experience in other programs. We subsequently talked to the former director of DWR who was involved in the selection of Hallmark. He recalled that Hallmark's efforts on the University of California, Merced campus project brought Hallmark to the attention of the water contractors because Hallmark was largely given credit for managing the engineering contractors on that project. He also indicated that he thought the initial recommendation for Hallmark came from the

general managers of Metropolitan and Westlands Water District. He stated that the water contractors believed that Hallmark could provide additional cost controls over the project. Nonetheless, DWR was unable to provide us with documentation of any assessments or with any other records supporting the selection of Hallmark.

Therefore, we performed a high-level comparison of the qualifications of Hallmark and URS and found that Hallmark does not appear to possess the technical credentials or experience on relevant projects that DWR required when it engaged URS. In the initial request for qualifications, DWR identified the following as necessary qualifications of the program manager:

- Relevant education.
- Possession of a valid professional engineering license.
- Experience in the planning, managing, and oversight of large water resources infrastructure.
- Experience in strategic program development.
- Experience in project management and environmental compliance.
- Experience in engineering and construction.

In selecting Hallmark, DWR disregarded many of the qualifications required for the original program manager. Table 1 on page 24 shows that Hallmark lacked a licensed engineer required by law for construction project managers and had no demonstrable experience planning large water resources infrastructure projects. Further, DWR was unable to provide some of the information listed in Table 1 regarding Hallmark's qualifications. Instead, we searched Hallmark's website and other public sources to obtain more information about the firm's qualifications.

DWR explained that after one year working with URS, it became clear that demonstrated program management skills were needed rather than a strict focus on engineering. Although DWR officials cited Hallmark's successful program management experience in other programs as a reason for the selection, staff members in its A&E contracting unit (contracting unit) raised concerns over Hallmark's apparent lack of qualifications.

Additionally, an employee at DWR with knowledge of the A&E contracting process also raised concerns over Hallmark's qualifications. The employee indicated that Hallmark's president,

who is the program manager, had no architecture, engineering, or environmental services experience—only a degree in economics—as the allegations in the text box indicates. DWR’s internal auditors conducted an investigation into these allegations and concluded that DWR entered into the contract with Hallmark without using a request for qualifications. However, the internal auditors also stated that determining whether DWR’s entering into that contract without such a request violated state contracting law was a legal question that the investigation could not answer. DWR’s legal counsel subsequently reviewed the issues and found that DWR’s approach was legal; however, DWR’s counsel based its opinion in part on an unsupported assertion that DWR had determined that Hallmark was qualified.

In directing URS to subcontract with Hallmark, DWR also failed to follow the selection process that state law and DWR’s own regulations require, potentially resulting in DWR not receiving the best value for the contracted services. Although DWR asserted that subcontracting the program management services was appropriate and legal, the relationship established between URS and Hallmark does not appear to be a contractor-subcontractor arrangement. In a traditional contractor-subcontractor relationship, we would expect to see several conditions, including the following: the contractor is responsible for the subcontractor’s work products, the contractor determines payment to the subcontractor, and the contractor is legally responsible for the work of the subcontractor. However, the provisions DWR added to the contract with URS in the amendment to bring Hallmark on as a subcontractor clearly demonstrate that URS was not overseeing Hallmark’s work products, it was not determining payment to Hallmark, and it was not legally responsible for Hallmark’s work. Specifically, the language in the contract amendment that added Hallmark stated the following:

- “Hallmark will be reporting directly to and receive direction from DWR.”
- “DWR shall make the sole and final determination as to the payment to Hallmark of any and all amounts invoiced by Hallmark.”

Excerpts From Allegations Against DWR About Selection of Hallmark as Program Manager

“The first activity that I believe violates the code and one that we routinely allow is letting contract managers direct contractors to add a specific sub to an existing contract. Put simply, the contract manager wants a specific contractor not currently under contract to perform some type of work allowed under the existing contract. Direct the prime to add the firm you want and have them do the work. No pesky RFQ, no SOQ review, no silly determining if the new folks are actually the most qualified, no allowing other firms to apply for the work, no following the code. The practice has become so prevalent, we’re actually starting to address it in our additional payment provisions where we allow a higher markup on subs we direct the contractor to add. This looks surprisingly like a bribe to keep them quiet.”

“Possibly the most egregious example of this [letting contract managers direct contractors to add a specific sub to an existing contract] is when a former DOE Division Chief, directed the Washington Division of URS (‘URS-WD’) to engage the president of Hallmark Group, Inc. (‘Hallmark’), to fill the position of Program Manager by subcontracting with Hallmark for this purpose” (46-8104, Amendment 1). Subsequently the PM services were removed entirely from the 8104 scope of work (Amendment 6) and Hallmark Group was issued its own contract (46-9986). No RFQ was issued; the new contract’s scope of work says simply that 8104 ‘was being administratively separated into two contracts.’ According to his LinkedIn profile, Hallmark Group, provides ‘[m]anagement of large capital programs on behalf of government and institutional entities.’ No architecture, no engineering, no environmental services. He has a degree in economics. The ‘E’ in A&E does not stand for economics. The new contract was later tripled in size.”

Source: DWR employee emails.

- “DWR shall provide written notice to URS of those portions of Hallmark’s invoice that are approved for payment.”
- “URS’s liability to DWR in any manner arising out of or in connection with any act, omission, negligence or any other aspect of [Hallmark’s program manager] or Hallmark’s performance that is the subject of the amendment shall be strictly limited to whatever damages or other relief URS actually obtains from [Hallmark’s program manager] or Hallmark.”

In summary, the process DWR used to award the “subcontract” without demonstrating that Hallmark had the required qualifications and professional license is contrary to the letter and spirit of the law, which is intended to create competition to ensure that the State obtains a competent and qualified contractor at a fair and reasonable price.

The ultimate result of this subcontract is that DWR later awarded Hallmark its own contract, also without a competitive process. Specifically, in 2013 DWR removed the program management services component from the URS contract and entered into a new direct contract with Hallmark through what DWR termed an *administrative separation*, known also as an *assignment*.⁴ The contract documentation justified DWR’s choice not to use a competitive process by referencing the fact that URS had been selected through a request for qualifications. However, this justification is inapplicable given that Hallmark was never identified nor included in URS’s response to the request for qualifications. DWR officials told us that Hallmark had been functioning as program manager for three years and thus had demonstrated its qualifications. Nevertheless, as shown in Table 1 on page 24, Hallmark did not have the necessary qualifications to fill the program manager role in the first place based on DWR’s original request for qualifications.

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DWR later awarded Hallmark its own contract, also without a competitive process.

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We question DWR’s rationale for assigning the contract to Hallmark. When we asked DWR about the administrative separation and assignment of the program management services to Hallmark, DWR officials stated that it did so to increase workflow efficiencies. They also stated that its staff had experienced frustration going through URS to

⁴ *Assignment* is the legal term for transferring the rights and obligations of a contract from one entity to another.

work with Hallmark, because of the additional layer of administrative processes. They did not believe paying URS the 5 percent subcontractor markup for work Hallmark performed was cost-effective. According to DWR officials, the assignment provided its staff with direct access to the program manager while simultaneously saving the program significant costs. However, we question that reasoning because DWR created the difficulties in the first place by not awarding competitively a new contract for program management services, which would have provided its staff direct access to the selected program manager, following its notice of disapproval of URS's program manager in July 2009. In addition, we are not convinced that DWR is saving money through the assignment because Hallmark has had to subcontract many of the program management functions, and DWR is generally paying a markup of 5 percent for invoices to Hallmark for overseeing those subcontractors.

DWR Did Not Accurately Value Its Initial Contract With Hallmark or Ensure That It Received Fair and Reasonable Pricing for one of Hallmark's Subcontractors

DWR did not establish accurately the cost of the Hallmark contract before awarding it, resulting in an increase in the expense of the original contract award. When it awarded the contract to Hallmark, DWR did not ensure that the funding would cover adequately the services required for the duration of the contract; instead it simply transferred \$4.1 million from the original URS budget to the new Hallmark contract. Although DWR awarded the contract for \$4.1 million, it did not base this amount on accurate historical monthly costs or the correct term of the contract. Instead, DWR incorrectly used a contract term of 12 months to calculate the contract amount even though the contract itself was drafted for a term of 37 months. DWR also did not take into account the additional services that Hallmark's subcontractors were performing under the contract.

Hallmark has had to subcontract many of the program management functions and DWR is generally paying a markup of 5 percent.

Consequently, just seven months after awarding the contract, DWR amended it, increasing the budget by \$7.3 million to cover the contract's full term. DWR amended the contract three additional times to extend the term through December 2017 and to increase the total cost by \$2.4 million. As of July 2017, the amount of the Hallmark contract had increased to a total of \$13.8 million.

In addition, DWR paid for an important work product without ensuring that the price was fair and reasonable or that the work product was finalized. Specifically, in October 2012 DWR issued a deliverables paid task order to engage McKinsey & Company (McKinsey), a subcontractor to Hallmark, for \$2.69 million, to develop the governance structure for the design and construction phase of the project, but DWR did not justify adequately the cost or ensure that it received a final work product.⁵ DWR regulations require it to estimate the value of services to be provided based on fees paid for similar services or based on a market survey. However, DWR staff in the contracting unit raised concerns about whether the cost of this task order was fair and reasonable because Hallmark did not present price comparisons or market rates for similar work. Although the task order stated that the price negotiated for McKinsey was fair and reasonable, it provided no analysis or support for the price, and we do not believe it complied with DWR's regulations that require a fair and reasonable price be provided based on fees paid for similar services or on a market survey.

DWR's contracting unit staff stated that they did not feel an email from Hallmark was sufficient justification for a fair and reasonable price because Hallmark did not provide either comparable prices or a market survey. The DWR contracting staff also were concerned that Hallmark's email did not specify how Hallmark determined whether the price was reasonable because the email simply stated that the dollar amount "is worth it because McKinsey has such a great track record", without specifying the dollar amount. However, DWR could not provide any documentation showing that the contracting unit staff's concerns were ever addressed. Consequently, we don't believe that DWR had adequate assurance that Hallmark's price for this \$2.69 million deliverable was "fair and reasonable." Additionally, despite paying \$2.69 million for this task order, DWR never made sure the consultant finalized the governance structure documents. DWR stated within the task order that these documents were due in January 2013, and according to DWR officials, DWR received draft documents but did not receive final governance structure documents. We discuss the status of the governance structure in more detail later in the next section.

⁵ Deliverables paid task orders are task orders for which the contractor receives payment based on completion of the deliverable or work product. This differs from regular task orders for which the contractor is paid a specified rate for time spent on the task.

Recommendations

To fully comply with state contracting law, DWR should ensure that it competitively selects architectural and engineering consultants based on demonstrated competence and professional qualifications. In addition, DWR should document in the contract file its evaluation of the competence and professional qualifications of all contractors and any subcontractors that are added to the contract subsequent to the competitive selection process.

To ensure that only qualified subcontractors are added to contracts after the initial award is made, DWR should make sure that contractors select their own subcontractors and that DWR subsequently approves the selection after it verifies their qualifications.

DWR should ensure that it retains adequate documentation in its contract files to support that contract prices are fair and reasonable and all deliverables are received.

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DWR Needs to Take Certain Steps to Better Prepare for the Transition of WaterFix to the Design and Construction Phase

Key Points

- DWR has not completed either an economic or a financial analysis to demonstrate the financial viability of the project.
- DWR has not implemented a governance structure for the design and construction phase of WaterFix.
- DWR has not maintained important program management documents for WaterFix.

DWR Has Not Completed Needed Analyses That Would Demonstrate the Financial Viability of WaterFix

Despite DWR's own policy stating that an economic analysis is a critical element of the planning process, DWR has not yet finalized one for WaterFix, although it released an incomplete draft economic analysis in 2016.

The text box defines the critical questions about the project that this analysis and a financial analysis are intended to answer. In October 2012, DWR issued a task order for a subcontractor, the Brattle Group, to perform an economic analysis that would measure the benefits and costs of the BDCP from a statewide perspective. Over the next 31 months, DWR budgeted \$434,000 for the economic analysis. According to the various task order amendments, development of this analysis was a lengthy process that included various scope changes and input from a variety of stakeholders including Reclamation, the fishery agencies, public water agencies, and Delta agricultural interests. In addition, the economic analysis was revised several times to address feedback from stakeholders, changes in the project's costs and footprint, and revisions to the draft BDCP. Then in May 2015, DWR canceled the remaining work on the BDCP economic analysis because the project transitioned from the BDCP to WaterFix, as described in the Introduction.

Questions That Economic and Financial Analyses Answer

ECONOMIC ANALYSIS	FINANCIAL ANALYSIS
Answers the questions:	Answers the questions:
Should the project be built at all?	Who benefits from the project?
Should it be built now?	Who will repay the costs?
Should it be built to a different configuration or size?	Can the beneficiaries meet repayment obligations?
Will it have a net positive social value for Californians regardless of who receives the benefits and who pays the costs?	Will the beneficiaries be better off financially after they meet repayment obligations?

Source: DWR's Economic Analysis Guidebook.

In June 2015, DWR directed the Brott Group to instead develop an economic analysis for WaterFix, for which it had allocated an additional \$356,000. DWR made public a November 2015 incomplete draft of the WaterFix economic analysis in response to a Public Records Act request in September 2016. However, DWR has not finalized the economic analysis report. According to DWR officials, the economic analysis could not be finalized because DWR determined it was not possible to complete an accurate cost-benefit analysis until understanding which agencies will be participating in and funding the project and at what level. DWR officials further stated that the project will have varying economic benefits for each of the funding agencies, based on their unique situation including access to alternative water supplies and type of water users. DWR officials stated that once individual water agencies define their level of participation through their various public board processes, DWR will incorporate that information into a final cost-benefit analysis.

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DWR has not finalized the economic analysis report.

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We believe that it is essential for DWR to complete the economic analysis report as soon as it determines the extent to which individual water agencies will participate in funding the design and construction of WaterFix.

DWR also has not completed a financial analysis for WaterFix. The financial analysis answers critical questions about the project, which the previous text box lists. In 2012 DWR contracted with the consulting firm Public Finance Management through Hallmark, and in 2013 DWR initiated a task order for Public Finance Management to support the completion of a financial analysis for the project. The scope of work in the task order was organized to generate key deliverables, with the general objectives of reaching agreement on fair and affordable cost allocations and establishing reliable financing for implementation of the project. The task order acknowledged that these deliverables would require the collective effort of DWR, Reclamation, and state and federal water contractors, with the consultant providing support. As of July 2017, DWR data show that it has paid Public Finance Management \$276,000 for its efforts.

However, according to DWR officials, no final decisions on cost allocations or interim financing have been made because discussions with state and federal water contractors are still ongoing. DWR officials further explained that the final financial analysis report

cannot be prepared until the contractors desiring to participate in WaterFix are identified. They also stated that DWR's contractor—Public Finance Management—modeled a wide range of financing options for WaterFix that were shared with water contractor boards. According to DWR officials, once individual agencies decide to participate, the financing will be tailored to meet each agency's needs.

The financial analysis is critical in determining whether water contractors are willing and able to pay for the construction of WaterFix. The Delta Reform Act of 2009 states that construction of a new Delta conveyance facility (such as WaterFix) shall not be initiated until the water contractors that contract to receive water from the State Water Project and Central Valley Project have made arrangements or entered into contracts to pay for two things: (1) the costs of the environmental review, planning, design, construction, and mitigation required for the construction, operation, and maintenance of any new Delta water conveyance facility and (2) the full mitigation of property tax or assessments levied for land used in the construction, location, mitigation, or operation of new Delta conveyance facilities. The financial analysis is intended to provide a business case that the project is beneficial, financial modeling to analyze the cost of the project and the debt service associated with financing the project, and an acceptable cost-allocation methodology.

DWR Has Not Fully Implemented a Governance Structure for Managing the Design and Construction Phase of WaterFix

Although DWR contracted with a consultant to develop a governance structure for the design and construction phase of the project, it has not fully implemented such a structure. Originally, in 2008, DWR intended the role of the program manager to include overseeing the entire project, from planning through construction. However, in the first nine months of 2012, DWR management, Hallmark, and the State Water Project water contractors attempted with limited success to create a new governance structure that would address issues of organizational design and governance, the roles and responsibilities of the stakeholders in the decision-making process, and guidance on project implementation. In an October 2012 task order, DWR stated that such a governance structure would be unique and immensely important. At the same time, DWR contracted with McKinsey to develop a governance structure that would create a new way for DWR to work with the public water agencies. DWR used McKinsey's draft work product as input for the development of the Design and Construction Enterprise Unit (Enterprise Unit), which DWR publicly announced as the governance structure for the project in 2014.

Program Management Documents

Program Management Plan

A dynamic document maintained by the program manager throughout the life of the program providing a scope of work, schedule, and cost estimates. It also includes the following:

- Staffing requirements.
- Funding sources.
- Reporting relationships.
- Participant roles and responsibilities.
- Monitoring, change control, and reporting policies and procedures.
- Critique of project successes and recommendations for improvements (upon completion of the project).

Funding Statement

Also called the *program component statement*, this is the authorizing document for funding a program and is the key monitoring and control document. It is a dynamic document maintained by the program manager throughout the life of the program. It includes the following:

- Specific funding sources for the estimated, budgeted, and proposed years.
- Explanation of any changes between the budgeted year and the proposed year.

Charter

Describes a proposed activity at a high level. It is the responsibility of the program manager to ensure that the charter is kept up to date during the life of the program. The Charter includes the following:

- Program objective.
- Scope.
- Critical success factors.
- Deliverables.
- Milestones.

Source: DWR's Water Resources Engineering Memorandum 65a.

In September 2015, DWR developed a draft agreement that would formally implement the Enterprise Unit as the governance structure for the design, construction, and implementation phase of WaterFix. The draft agreement envisioned that the water contractors would create a joint-powers authority—the Conveyance Project Coordination Agency (coordination agency)—to be a party to the agreement along with DWR. The contractors would organize the coordination agency to assist DWR in the design, construction, and implementation of WaterFix. The draft also envisioned that DWR and the coordination agency would enter into a contract with a “world-class project manager”—designated the *program director*—to head the Enterprise Unit.

However, according to DWR officials, it is currently in discussion with the public water agencies to create a governance structure, but whether it will be the same or similar to the Enterprise Unit is unclear. According to DWR officials, because WaterFix has not yet been approved and because the public water agencies have yet to form the coordination agency, the Enterprise Unit has yet to be officially implemented. DWR officials stated that it is currently in discussion with the public water agencies to determine, under current conditions, what the most effective governance structure will be for the design and construction phase. Further, these officials told us that the governance structure will very likely follow some of the recommendations from the McKinsey effort. It is essential that DWR develop an appropriate governance structure so that it is prepared to oversee the design and construction of WaterFix in the event that the project is ultimately approved.

DWR Did Not Properly Maintain Important Program Management Documentation

Although WaterFix has evolved since it began as the BDCP, DWR has not maintained required program management documents for the planning phase. DWR policy requires certain documentation to initiate and authorize a State Water Project-funded program—such as the DWR program that supports WaterFix—including a management plan, funding statement, and charter. The text box describes each of these documents. That policy also states that the program manager

should maintain this documentation throughout the life of the program, and DWR included that same requirement in its contracts with URS and Hallmark.

Initially, when DWR established the conservation and conveyance program, it followed its policy by creating the required management documents. Specifically, in 2008, DWR's division of engineering prepared a Charter and Management Plan (management plan) for the program, which contained all of the necessary management documents. Within the management plan, DWR identified and listed URS's program manager's responsibilities, including requesting program changes, reporting the status of business activities to DWR's executive manager and deputy directors, and updating the management plan as required.

The contract with the program manager also specified that the program manager was to develop and maintain the program management plan and further enumerated the following responsibilities: reporting on cost, schedule, significant milestones, and resources compared to established baselines as well as providing oversight, analysis, and quality control of other contractors. The management plan identified the chief of DWR's division of engineering as the executive manager of the conservation and conveyance program and the individual responsible for overseeing the program manager. The executive manager was also to oversee the program budget, schedule, engineering, and real estate activities and report to DWR's executive management with periodic updates.

However, roughly one year after DWR established the conservation and conveyance program, it began to experience significant personnel changes but did not ensure that the management plan was properly updated to reflect these changes. For example, as this report describes earlier, DWR replaced URS as the program manager with Hallmark in August 2009. Four years later in 2013, DWR's executive manager of the conservation and conveyance program retired. According to a former chief deputy director, DWR subsequently moved the responsibility for overseeing the program manager to DWR's executive management, although the management plan was never updated to reflect this change.

.....
Roughly one year after DWR established the conservation and conveyance program, it began to experience significant personnel changes.

Furthermore, DWR's executive management also experienced significant turnover. For example, since DWR established the conservation and conveyance program in 2008, it has had three different directors and five different chief deputy directors. However, DWR did not update the management plan to document these changes or to describe how DWR handled them.

We reviewed the contents of the electronic document management system that DWR uses to store project management documents. The system is an electronic repository that contains numerous documents, including monthly progress reports that provide updates on the project's milestones and accomplishments, various meeting agendas and minutes, and monthly budget reports. However, through our review of the documents in this system we were only able to locate one update to the management plan that covers the planning phase. The updated program management plan was completed in November 2009, but it did not properly address the significant personnel changes or the shift in the project from the BDCP to WaterFix. If WaterFix is ultimately approved, it will be important for DWR to develop, and update when necessary, a management plan for the design and construction phase of the project.

Recommendations

To ensure that DWR manages WaterFix in an effective manner, DWR should complete both the economic analysis and financial analysis for WaterFix and make the analyses publicly available as soon as possible.

In order to prepare for the potential approval of WaterFix and to ensure that the project is managed properly during the design and construction phase, DWR should do the following:

- Develop an appropriate governance structure so that it is prepared to oversee the design and construction of WaterFix in the event it is ultimately approved.
- Develop and update when necessary the associated program management plan for the design and construction phase of the project.

SCOPE AND METHODOLOGY

The Joint Legislative Audit Committee (Audit Committee) requested the California State Auditor to examine the funds spent on planning and design of WaterFix by DWR. Table 2 lists this audit's approved objectives and the methods we used to address them.

Table 2
Audit Objectives and the Methods Used to Address Them

AUDIT OBJECTIVE	METHOD
1 Review and evaluate the laws, rules, and regulations significant to the audit objectives.	Reviewed relevant laws, regulations, and other background materials related to the WaterFix project.
2 Determine how DWR collaborated to organize and fund the planning and design of the BDCP and subsequently WaterFix. Specifically, identify the following:	
a. DWR's role in organizing and financing the planning and design.	<ul style="list-style-type: none"> • Interviewed relevant individuals and reviewed planning documents, including various planning agreements among participants and DWR's funding agreements with the State Water Project water contractors, the Authority, and Reclamation. • Reviewed the BDCP and various drafts of the environmental impact report. • Reviewed a May 2008 Legislative Counsel opinion regarding DWR's authority to construct a water conveyance facility.
b. The extent to which DWR engaged local agencies required to contribute towards WaterFix costs in developing the funding structure for planning and design.	<ul style="list-style-type: none"> • Interviewed relevant individuals at DWR, Metropolitan, Kern, and the Authority. • Reviewed relevant documents, including BDCP steering committee minutes from 2006 through 2010, BDCP management committee documents, WaterFix business committee documents, and conservation and conveyance program financial meeting agendas.
c. The amounts and proportional share of contributions each local agency and any other entity that provided funds for planning and design made from 2006 to present.	<ul style="list-style-type: none"> • Reviewed funding agreements to determine the funding obligations of entities participating in the planning phase. • Reviewed budgets and contracts DWR developed for the preparation of the BDCP beginning in 2006 to determine estimated costs because DWR did not track adequately BDCP contributions or spending. • Obtained data from DWR's accounting system identifying participating state and federal entities and their proportionate contributions to the conservation and conveyance program's planning costs from January 2008 through June 2017. • Traced the amounts from DWR's data to supporting documentation from the two largest State Water Project water contractors (Metropolitan and Kern), the Authority, and Reclamation.
d. Whether the State allocated any General Fund money for planning and design.	<ul style="list-style-type: none"> • Reviewed state budget acts for fiscal years 2006–07 through 2016–17 to determine whether the State allocated any General Fund money for the planning of the BDCP and WaterFix. • Interviewed DWR staff to determine if DWR used General Fund money to fund the planning and design. • Analyzed the expenses from the fund that DWR set up for the conservation and conveyance program expenses to determine whether DWR used any General Fund money to fund the planning and design.

continued on next page...

AUDIT OBJECTIVE	METHOD
3 Identify, by source, the amounts of funding DWR, each local agency, and any related joint powers authority raised and used to finance the BDCP and subsequently WaterFix. In the case of debt financing, identify the entities that issued debt and their relationships to the water contractor and determine when and how they secured each debt issuance.	<ul style="list-style-type: none"> • Reviewed documents and data, as further described in Objective 2c. • Interviewed individuals at Metropolitan and Kern and traced their contribution amounts reported in DWR's data to the entities' audited financial statements to confirm the amounts and identify the sources of the funds. • Interviewed individuals at the Authority and obtained documentation of the Authority's 2009 revenue note issuance, repayment, and cost-sharing structure among its participating member agencies to determine the source of the funds. • Reviewed federal assistance agreements and interviewed individuals at Reclamation to determine the sources of its contributed funds. • Interviewed individuals at DWR to determine the need for any additional funding to carry out the remainder of the planning phase.
4 Determine the nature of the Conveyance Project Coordinating Agency's activities, date of its charter, its composition, and the amount of funding, by source, it has received since its inception.	<ul style="list-style-type: none"> • Interviewed individuals at DWR and reviewed relevant documentation. We determined that the water contractors have not created the coordinating agency; thus, it has no activities, no charter, and has not received any funding. DWR mentioned the coordinating agency in a draft agreement that DWR prepared to establish how DWR intended to manage the design and construction phase. DWR has not executed the draft. • We discuss the coordinating agency beginning on page 35 of the report.
5 Evaluate the process DWR used to select the contractor to manage design and engineering for the Design and Construction Enterprise Unit.	<ul style="list-style-type: none"> • Reviewed relevant contracts, contract amendments, emails, and other documentation regarding DWR's selection of the contractor to provide program management services for the conservation and conveyance program, and DWR's efforts to replace that contractor with Hallmark. • Interviewed individuals at DWR regarding the selection of the program manager for the conservation and conveyance program and regarding the subsequent replacement of that program manager with Hallmark. • Reviewed Statements of Economic Interests (Form 700s) for relevant DWR employees and contractors. We did not identify any apparent conflicts. • As we describe on page 36, the Enterprise Unit was never officially established, nor was a contractor selected to manage it.
6 Review and assess any other issues that are significant to the audit.	<ul style="list-style-type: none"> • Interviewed responsible individuals at DWR and reviewed management practices and policies, analyses, and agreements related to moving forward with the construction of WaterFix. • Reviewed and analyzed task orders and deliverables related to the contract for program management of the conservation and conveyance program and WaterFix.

Sources: California State Auditor's analysis of the Audit Committee's audit request 2016-132 and information and documentation identified in the table column titled *Method*.

Assessment of Data Reliability

In performing this audit, we obtained electronic files of conservation and conveyance program revenues and expenses from DWR's accounting system for January 1, 2008, through June 30, 2017. The U.S. Government Accountability Office, whose standards we are statutorily required to follow, requires us to assess the sufficiency and appropriateness of computer-processed information that we use to support our findings, conclusions, or recommendations. To gain assurance of the accuracy of these data, we traced the program revenues from the two largest state water contractors and all federal sources, which constitute 82 percent of the revenues, to supporting documentation from the responsible

entities and found that the dollar amounts materially matched. We performed completeness testing of these data by comparing the total program revenues from DWR's data to the budgeted amounts in planning documents and by ensuring that the data provided were not comingled with other data. We found the data to be complete. Consequently, we found DWR's data to be of sufficient reliability for the purposes of determining the amounts that the various state and federal contractors contributed.

We conducted this audit under the authority vested in the California State Auditor by Section 8543 et seq. of the California Government Code and according to generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives specified in the Scope and Methodology section of the report. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Respectfully submitted,



ELAINE M. HOWLE, CPA
State Auditor

Date: October 5, 2017

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For questions regarding the contents of this report, please contact Margarita Fernández, Chief of Public Affairs, at 916.445.0255.

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STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES1416 NINTH STREET, P.O. BOX 942836
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September 28, 2017

The Honorable Elaine M. Howle*
State Auditor
California State Auditor
621 Capitol Mall, Suite 1200
Sacramento, California 95814

California WaterFix Audit, State Audit Report No. 2016-132

Dear Ms. Howle:

On behalf of the Department of Water Resources (DWR), I am writing to address Draft Audit Report No. 2016-132 (Report) regarding the project that eventually developed into, and was recently approved, as the California WaterFix.¹ DWR appreciates the professionalism of the Bureau of State Audit staff and their openness to hearing DWR perspectives.

DWR is pleased that after 10 months of investigation, the Report validates that no General Fund money has been used for the planning and design for WaterFix. (Report p. 4.) All activities for the planning and design of the project were supported and paid for by the public water agencies that will benefit from the project.

① ②

The Report also finds the project's complexity resulted in unforeseen expenses and schedule extensions. We appreciate this acknowledgement. WaterFix is unprecedented both in the scale of its complexity and the extent of its public and stakeholder engagement. DWR has worked diligently to address concerns as they emerged and has made significant changes to the project in direct response to input from the public and regulatory agencies, including analyses of additional alternatives, additional species evaluations and optimization of the project. These changes required additional time and funding to implement.

The Report's primary concern involves the way DWR documented project decisions and selected the program manager. DWR agrees that decisions should be documented. We also agree that a governance structure is critical for a project of this scope, and one has been in development and will be ready for implementation at the appropriate stage of the project.

¹ For convenience, we refer to the project variously known as Delta Habitat Conservation and Conveyance Program, the Bay Delta Conservation Plan, and California WaterFix as "WaterFix" throughout these comments.

* California State Auditor's comments begin on page 87.

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In addition, DWR agrees that a financial analysis is important, and is prepared to complete a final economic analysis when each potential participant in WaterFix has made its decision to opt into the project.

- ③ We must respectfully disagree with the Report's conclusion that DWR did not follow state law in selecting the project manager. As project needs changed, DWR reassigned the project management task consistent with the terms of the contract and pursuant to DWR and state policies. The facts demonstrate the high value that DWR and the project have received from the project manager's performance.

WaterFix is a science-driven project that will upgrade the state's outdated water delivery system and maintain a reliable source of water for 25 million Californians and more than 3 million acres of farmland in the San Francisco Bay Area, Central Valley and Southern California. It is a critical element of the state's overall strategy to address climate change and ensure a reliable water supply for the future, as outlined in Governor Brown's California Water Action Plan.

The extensive outreach and responsiveness to stakeholder and public input described above resulted in what many considered unachievable: the issuance of permits from state and federal agencies to move forward with a viable and achievable long-term solution to decades-old problems in the Bay-Delta. Consistent engagement with the local public agencies funding the project has allowed for close scrutiny of any increased costs and changes to the project, affecting the scope and schedule. These local agencies have found the additional work on the project to be reasonable and necessary.

DWR's response to the Report's findings is summarized here, followed by detailed discussion of each, and concludes with our comments on the Report's recommendations.

- ④ Summary:
1. DWR Received Excellent Value and Quality for Services Under the Hallmark Group Contract
 2. The URS Contract Authorized Multiple Tasks; Only One Task was Construction
 3. Requiring a Subcontractor to Provide Program Management Services to URS was Necessary and was Appropriately Defined
 4. DWR Followed Proper and Lawful Procedures in the Necessary and Appropriate Replacement of the Program Manager
 5. The Structure of The McKinsey Contract was Beneficial to Both DWR and the Public Water Agencies that Will Ultimately Pay for the Project,
 6. DWR Developed a Governance Structure for Implementation at the Appropriate Project Stage

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7. DWR Will Prepare a Financial Analysis and Economic Analysis When WaterFix Participants are Identified
8. DWR Has Performed Significant Planning During the Planning Stage and Has Maintained and Provided Extensive Documentation

Our comments will address the Report's specific findings, and then address the Report's recommendations.

A. FINDINGS

1. DWR Received Excellent Value and Quality For Services Under The Hallmark Group Contract

The Report devotes a full one-fourth of its length to DWR's hiring and subsequent utilization of the Hallmark Group (Hallmark) to provide program management services for what has become California WaterFix. In these sections, the Report finds that Hallmark's program manager did not appear to possess the qualifications DWR required when it selected contractor URS, and that the failure to ensure Hallmark possessed these qualifications was contrary to the letter and spirit of the law, which is intended to create competition to ensure that the state obtains a competent and qualified contractor at a fair and reasonable price. Finally, the Report notes that DWR "potentially" did not receive "the best value for the contracted services." (Report p. 27-29.) DWR addresses the contracting issues later in this response, but here, we note the facts about Hallmark's performance are contrary to the above statements in the Report. The state received excellent value and a high work product for the services Hallmark provided. ①

When URS was hired for WaterFix, the project was conceived as an engineering enterprise, to be staffed and managed by engineers. After little more than a year, it became apparent to DWR and its stakeholders that engineering expertise alone would not be sufficient to manage the project; efficiency and management expertise would be essential in successfully moving the project forward. ②

As described by former DWR Director Lester Snow, the almost exclusive motivator to bring the Hallmark Group on as program manager was cost control. The entities funding WaterFix, the water contractors, were impressed by Hallmark's work managing the \$500 million UC Merced campus construction project and presented a united front in urging Hallmark be utilized to increase efficiencies on the project. Hallmark's job was to scrutinize costs, monitor schedules and ensure that tasks were completed on time. Hallmark's task did not include performing engineering work, such as deciding what approach (canals, tunnels, or levies) should be used. ③

Hallmark was not a substitute for URS expertise in large water infrastructure management. Rather, when added as a subcontractor, the Hallmark Group augmented

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- ⑧ URS' engineering expertise by providing proven project management skills. Later in the program, the contract was divided, with program management being assigned to Hallmark, and URS retaining engineering tasks.
- ⑥ Addition of a specialized program management team made sense. Not all engineers make great managers. Management excellence transcends the field in which one is trained: many exceptional managers succeed in overseeing work in specialized fields
- ⑧ not because of their particular scholarly training, but because of the strength of their leadership and management abilities.
- ⑤ ⑦ Hallmark has succeeded in the task which it was originally brought on board to provide, cost control. As stated repeatedly by the participating public water agencies and DWR, Hallmark has done an outstanding job managing WaterFix. For example, within a year of being hired, Hallmark reduced staffing on the project by 40 percent, reduced monthly burn rate costs by 44 percent, and within two years costs were reduced by 65 percent.
- ⑨ Further, Hallmark dramatically increased program efficiency, enabling WaterFix to take a budget projection intended to last for three years through an initial projected project approval of April 2012, and extend it to cover **nearly five years** of unanticipated additional work through project approval (the California Environmental Quality Act Notice of Determination) in July 2017.

Over time, WaterFix evolved, transitioning from a Habit Conservation Plan to an Endangered Species Act section 7 process, resulting in further revisions to the schedule. On two different occasions in 2013 and 2014 Hallmark developed ramp down plans to further contain costs allowing the project to continue the environmental process. Beyond its obvious cost control success, Hallmark provided excellent leadership by keeping the teams organized, the stakeholders completely informed and an unflagging focus on resolution of issues as they developed.

California water law and policy is extremely complicated, making all water development projects protracted and therefore challenging—not least of which a project like WaterFix. There will be many more challenges to overcome in the future. The Hallmark Group has provided indispensable assistance to DWR, enabling the Department to reach this point of the process.

2. The URS Contract Authorized Multiple Tasks; Only One Task Was Construction

- ⑩ The Report characterizes the URS contract as one for "construction project management, which a licensed engineer or general contractor must perform under state law." (Report, p. 24.) This is a misunderstanding of the URS contract, which can be readily understood by reviewing the contract's scope of work which states the services contracted for included:
- ①

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[E]ngineering support services and the program management of the planning, coordination and oversight of the programs, environmental engineering and construction phases, strategic program development, risk assessment and oversight of program costs and schedules of DWR's Delta Habitat Conservation and Conveyance Program (DHCCP). (Contract 46-00008104, p. 1, attached hereto as Exh. 1.)

Thus, the contract DWR made with URS authorized a number of tasks to be performed, including strategic program development, planning, coordination and oversight among other tasks. It is inaccurate to summarize the above services as "construction project management." Rather, construction is one element of a multi-element program where oversight of environmental engineering, strategic program development, risk assessment and oversight of program costs and schedules are equally or more important. At the time the contract was made, comparatively little environmental analyses was performed for the project, there was no overall project plan, and no environmental permits had been obtained. The Report's incomplete characterization of the URS contract appears to undermine the Report's conclusions. ⑩

3. Requiring A Subcontractor To Provide Program Management Services To URS Was Necessary And Was Legally Justified

The Report criticizes the manner in which DWR utilized Hallmark, a subcontractor, to provide project management services for the prime contractor. It asserts that this 2008 subcontract "does not appear to be a contractor-subcontractor arrangement" and is different from what the Report believes to be a "traditional contractor-subcontractor relationship." The Report further criticizes sections of the subcontract that details how DWR expected Hallmark to work as program manager with DWR and with URS staff. (Report p. 28.) ⑪

The URS amendment made clear the uniqueness of the program management function, performed as a subcontract, and provided clear specific provisions to prevent any conflict. (Contract No. 460008104, Am. 1, Exhibit E, Attachment 6, attached hereto as Exh. 2.) The subcontract to Hallmark was to provide a specific service – program management. In order to accomplish this function it was essential that Hallmark, as the program manager, exercise the functions typically performed by that position, including general direction and reporting, tasks which are essential for a program manager to perform in order to successfully manage WaterFix. ①

The URS amendment provided comprehensive details, "... in order to avoid the appearance of or any actual conflicts that might arise from such an arrangement" (*Ibid*, page 1.) For example, the contract required Hallmark to submit all invoices to URS, whereupon URS would submit the invoice to DWR for approval while Hallmark

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was to provide program management functions by communicating and coordinating with URS. The roles and responsibilities of the parties to the agreement were clearly defined by the amendment. The amendment proved successful to the program, as demonstrated by the high level of performance for the three years duration in which the amendment was in effect.

⑫ ⑤

4. DWR Followed Proper Procedures in Replacing the Program Manager for the Conservation and Conveyance Program.

a. The URS Subcontracting of Program Manager Responsibilities to Hallmark was Both Necessary and Lawful.

The Report's finding that DWR "... later used other methods to select a replacement program manager, and these methods did not follow the competitive process required under the law" does not take into account applicable statutes, regulations and contract terms permitting the replacement. DWR's replacement of the WaterFix program manager was in full compliance with the law.

- ⑪ As explained above, the URS contract expressly permitted subcontracting, the terms of which DWR followed in selecting the Hallmark firm. (Contract No. 4600008104, Exhibit D, paragraph 6, attached hereto as Exh. 3.) Architectural and Engineering ("A&E") contracts are frequently amended to subcontract for specialized services, replacement personnel, program changes, and for other reasons. Such amendments permit DWR to accomplish cost effective, specialized services as program needs change or require. The original URS contract was for a term of 7.5 years for a project that the Report recognizes presented "unexpected complexity." A contract for such a lengthy term for such a complex project will by necessity require modifications and changes consistent with law. When it became apparent that the assigned URS program manager was not able to devote himself full-time to the project, and that the program required a stronger emphasis on cost containment, it became essential for DWR to subcontract for a program manager to ensure effective continued progress of the contract.

⑦

⑥

The Legislature intended that the A&E process be liberally construed to accomplish its purposes. (Gov't Code § 4529.19.) Specific legal authority permitting modification of A&E contracts is provided by DWR regulation:

Where the Director determines that a change in the contract is necessary during the performance of the services, the parties may, by mutual consent, in writing, agree to modifications, additions or deletions in the general terms, conditions and specifications for the services involved, including extensions of time,

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with a reasonable adjustment in the firm's
compensation.
(23 Cal.Code Regs § 387.)

Lester Snow, DWR Director in 2008, determined that a change in the contract was necessary and effected a change. There is no indication that Director Snow failed to sufficiently assess the qualifications of Hallmark in doing so. (8)

The Report narrowly focuses on the Request for Qualifications (RFQ) process as the sole mechanism to replace the WaterFix program manager. But the contract itself, as well as DWR's regulations, provides another equally appropriate path. (13)

Indeed, the circumstances on the ground indicate why DWR's approach to contract amendment was appropriate. For example, as the contract performance was already in its 13th month, an RFQ selection process, even when given a high priority, would have required at least five months to obtain a new program manager. The program could not afford the absence of the program manager for such a lengthy period of time. Had an RFQ been utilized, it would likely have significantly delayed the project and incurred higher costs while waiting five months for a replacement program manager. Given the authorized alternative approach that DWR took, a "competitive" RFQ selection process for replacing the program manager was simply not a realistic or optimal option.

b. It Was Not Necessary That Hallmark As A Subcontractor Be An Engineer or Licensed Contractor.

The Report faults Hallmark for not having engineering expertise, but the contractor team as a whole provides all necessary expertise. As a subcontractor, Hallmark was a member of the URS team. The team, including URS, retained all the engineering/licensed contractor knowledge that was required to perform the services required under the contract. As the contract itself stated, the contract had many purposes well beyond just engineering. (14) (11)

Government Code section 4529.5 requires any individual or firm to have requisite experience to provide construction project management services.² The firm, URS, had engineering expertise before Hallmark was assigned to provide program management

² Section 4529.5 states the following:

Any individual or firm proposing to provide construction project management services pursuant to this chapter shall provide evidence that the individual or firm and its personnel carrying out onsite responsibilities have expertise and experience in construction project design review and evaluation, construction mobilization and supervision, bid evaluation, project scheduling, cost-benefit analysis, claims review and negotiation, and general management and administration of a construction project.

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- ⑭ services and afterwards. All requisite engineering qualifications were retained within the URS contract to be performed by URS personnel after Hallmark was added to the team.

The URS contract's terms make clear that "... the various areas of expertise required of the successful Program Management team include planning and implementation of ... engineering and construction program phases." (Exh. A, attached hereto at at p 1, emphasis added.) No one person has all of the qualifications necessary to perform all of the services under the contract. It is a team approach, here contained within URS and its subcontractor Hallmark.

c. Assignment of Program Management Responsibilities to Hallmark Was Appropriate and Legally Supportable

- ⑮ DWR respectfully submits that the Report incorrectly concludes that the 2013 contract assignment to Hallmark violated the law and, instead, should have been accomplished through a competitive RFQ process. (Report pp. 29-30.) With the essential engineering expertise firmly in place, DWR determined that to improve workflow efficiencies and to save the 5 percent subcontractor markup costs imposed by URS, it was necessary to assign program manager responsibilities directly to Hallmark.

- ⑯ The Hallmark assignment was for the initial planning, coordination, and oversight of WaterFix. The engineering, environmental and construction management functions remained separately as a continuing part of the URS contract. The program manager responsibilities had already been performed by Hallmark for the three preceding years prior to the assignment. DWR management was satisfied with Hallmark's performance and Hallmark was experienced and successful in managing the program. Given Hallmark's success, there appeared to be no benefit from introducing a new less-experienced program manager to replace the successful incumbent and disrupt the continuity of the program. DWR determined that given Hallmark's experience and demonstrated performance, it was clearly the most qualified contractor to perform the assignment function.

- ⑰ Nor did it make any sense to adjust the timeline for the program for five months in order to submit an RFQ to replace the successful program manager not to mention the additional time required for a new untested program manager to become knowledgeable of the program's requirements. For the success of the WaterFix program, it was important to keep the existing program manager and maintain continuity.

- ⑱ The contract assignment was accomplished lawfully. As previously mentioned, DWR's regulations permit the Director to make a change in an A&E contract when necessary. (See 23 Cal.Code Regs § 387 ["Where the Director determines that a change in the contract is necessary during the performance of the services, the parties may, by mutual consent, in writing, agree to modifications, additions or deletions in the general

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terms, conditions and specifications for the services involved. . .”].) The Director appropriately determined that a change was necessary, for the reasons stated above, to help ensure the success of the program.

Finally, the URS contract contained a specific provision regarding contract assignments:

GTC 307, 3. ASSIGNMENT: This agreement is not assignable, either in whole or in part, without the consent of the State in the form of a written amendment.
(Contract 4600008104, Exhibit C, paragraph 3, attached hereto as Exh. 4.)

Further, state law allows contracts to be assigned without a new competitive bidding process. DWR followed state law, its own regulations and the contract terms in the January 2013 contract assignment of program management responsibilities to Hallmark. ⑮

5. The Structure of the McKinsey Contract Was Beneficial to Both DWR and the Public Water Agencies That Will Ultimately Pay for the Project

The Report finds that DWR did not ensure that the price paid for work product produced by subcontractor McKinsey & Company (McKinsey) was fair and reasonable. (Report, p. 31.) It may be difficult to appreciate today, but when DWR authorized the work performed by McKinsey in 2012, it was widely believed by DWR and its stakeholders that the WaterFix (then the BDCP) project would be approved in 2013, and construction would commence shortly thereafter. Even after substantial prior work by DWR and its WaterFix program manager there was still no consensus among stakeholders about how the project would be managed during construction. In June 2012, DWR and its WaterFix stakeholders determined to retain highly specialized consultants tasked with resolving these fundamental issues, and to resolve them in an expeditious manner to match the perceived tight time schedule. ⑰

DWR initially contemplated six consultants, McKinsey, Bain, Boston Consulting, Monitor, Booz/Allen/Hamilton, AT Kearney, and KPMG. In July 2012 multiple prospective qualified consultants were interviewed by phone, reducing the number of candidates to two, McKinsey and KPMG. These candidates were interviewed by a DWR/water contractor panel, and McKinsey emerged as the top ranked firm. References provided by McKinsey were interviewed, with interviewees reporting outstanding consultant performance and extraordinary results on projects with similar challenges. A fee for the work plan was established. ⑰

DWR determined the work required to produce the product was appropriately valued at \$2.6 million. Due to the expedited timeline, a fixed price contract task order was utilized to establish a time frame and to control costs. DWR maintained control of the final

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product and the value derived. As the amendment to the contract authorizing this work noted, "The structure of the contract, fixed fee based on deliverables, is beneficial to both DWR and the stakeholders that will ultimately pay the costs for this consultant, since the consultant is only authorized to bill the fixed price for deliverables that have been accepted and approved, as opposed to hourly labor each month." (Contract 4600008104, Am. 5, Std 215, p. 3, attached hereto as Exh. 5.)

6. DWR Developed a Construction Governance Structure For Implementation at the Appropriate Project Stage

- ⑱ ① The Report (pp. 37-38) implies no governance structure exists and that lack of a governance structure for implementation of the WaterFix is somehow contrary to DWR's legal requirements. This implication is not supported by the facts. DWR has always had the legal authority to carry out the project itself. There is no legal requirement that it have a governance structure in place prior to approval of a project. Based on recommendations by McKinsey, DWR developed a governance structure in the last quarter of 2012. DWR posted the governance structure on the BDCP website and it has been publicly available since January 2016. When a decision is made regarding public water agency participation, a structure will be ready for implementation at the appropriate time and will be able to draw on the substantial materials already prepared during the work with McKinsey.

7. DWR Will Prepare a Financial Analysis and Economic Analysis When WaterFix Participants Are Identified

- As the Report noted, DWR cannot complete a final economic analysis until individual water agencies define their level of involvement in WaterFix. We are pleased the
- ① Report reflects this consideration. (Report, p. 35.)
- ⑲ With regard to the WaterFix financial analysis, the Report appears to suggest that DWR must assess each water agency's needs and provide a final financial analysis before the decision to opt in to WaterFix is made. (Report, pp. 36-37.) This is not correct:
- ① DWR's contractor Public Finance Management has already provided a wide range of financing options to water contractor governing boards as tools to enable each contractor to determine what financing option would best work for them. To date, we have received no requests for additional information. Once individual agencies decide to participate, financing will be tailored to meet each agency's needs. There is no need to prepare a full financial analysis for each potential participant in WaterFix before the decision is made to opt in to the project.

8. DWR Has Performed Significant Planning During The Planning Stage and Has Maintained and Provided Extensive Documentation

The Report states DWR failed to update its Program Management Plan (PMP) and suggests that the absence of a PMP meant there was little or no documented WaterFix

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planning effort. Although DWR did not update the PMP itself, DWR has maintained an extensive record of program management documents meeting the same planning function. DWR has provided State Auditor full access to all of the program management and planning documents on the program manager's database, Acononex, and on multiple occasions provided them with physical samples. These documents included but were not limited to documentation for the Business Committee, Core Policy, DCE, EIR/S, Biological Opinion, Project Manager, Finance, engineering, Request for Qualifications, major agreements, budget reports, invoices, and deliverables. Maintaining the critical project documentation throughout the program has been performed. ⑩

Although DWR experienced management changes, as an industry best practice, DWR required that the program manager maintain all work plans and associated documents to provide continuity for the project. This practice provided seamless transitions without loss of institutional knowledge. This proved to be a successful strategy as the project continued to make consistent progress throughout management changes.

As evidenced in the program documents, as early as 2012 DWR anticipated project approvals by the federal and state participants and began preparing to transition to the design and construction phase. DWR began the update to the PMP for the design stage, but unexpected complexities of the project forced a delay in implementing the design stage and the PMP update effort was put on hold. Given the constantly changing nature of the planning process, DWR managed the project from workplans that could quickly be developed and implemented to react to changing conditions, which proved to more efficient than constantly updating the planning PMP.

B. RECOMMENDATIONS

In this section of DWR's comments, DWR provides a response to the Auditor's recommendations made throughout the report. Since the recommendations are not consecutively numbered, DWR identifies them by the page on which they appear. DWR's response to the recommendation is provided in italicized text.

(Report, p. 21) To improve management of large and complex infrastructure projects, the Legislature should enact legislation requiring agencies to publicly report significant changes in the cost or schedule of such projects if they are expected to exceed their established budgets by 10 percent or schedules by 12 months. ①

The Department will continue to abide by any existing or new laws, and takes no position on this general recommendation to the Legislature.

(Report, p. 21) To better manage large infrastructure projects, DWR should develop and implement a project reporting policy requiring its management staff to document and justify decisions to proceed with such projects if they are expected to ①

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exceed their established budgets by 10 percent or schedules by 12 months. DWR should make these documented decisions and justifications publicly available and submit them to the Resources Agency for review and approval.

This recommendation does not make a distinction between the planning phase of a project and the design and construction phase. DWR believes this is an important distinction, as evidenced in the Report's findings for the planning phase of the WaterFix. The recommendation presupposes that an extension of time during a project planning phase is something that has a negative consequence. This recommendation has limited applicability here, since decisions regarding this project were made in response to stakeholder input and public comments to increase the range and scope to better meet the needs of the state. The planning process for large infrastructure projects is complex and subject to changing requirements and scope from a variety of sources including regulating agencies, project proponents, stakeholders, and the public at large. As seen with WaterFix, this results in increases in scope and schedules that are beyond the control of DWR. Limiting the Department's ability to be responsive to stakeholder input during complex "planning" efforts would be counterproductive.

⑪

- ① (Report, p. 22) To ensure it makes appropriate use of its growing surplus revenue balance, by December 2017 DWR should develop a detailed plan describing how it intends to use these funds.

The Department is already in the process of preparing this plan related to Water Code section 12937(b)(4) funds.

- ① (Report, pp. 32-33) To fully comply with state contracting law, DWR should ensure that it competitively selects architectural and engineering consultants based on demonstrated competence and professional qualifications. In addition, DWR should document in the contract file its evaluation of the competence and professional qualifications of all contractors and any subcontractors that are added to the contract subsequent to the competitive selection process.

- ③ *The Department will continue to comply with state contracting law including the process outlined above.*

- ① (Report, p. 33.) To ensure that only qualified subcontractors are added to contracts after the initial award is made, DWR should make sure that contractors select their own subcontractors and that DWR subsequently approves the selection after it verifies their qualifications.

- ⑫ *It is essential that DWR work with a contractor to identify the specific tasks for which a subcontractor will be required. Additionally, it is important to convey to the contractor the expertise and qualifications necessary of the subcontractor in*

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order to ensure the most highly qualified subcontractor is chosen to accomplish the specified tasks. The Report's Recommendation, above, isolates DWR from such consultation. Without these communications, time is unnecessarily expended while the contractor attempts to obtain a suitable sub-contractor without the benefit of input from DWR. The recommended edit below allows for the indispensable communications necessary to successfully obtain, and approve, subcontractors.

Proposed Revision: To ensure that only qualified subcontractors are added to contracts after the initial award is made, DWR should make sure that contractors select their own subcontractors in consultation with DWR and that DWR subsequently approves the selection after it verifies their qualifications (Report, p. 33). ② ①

(Report, p. 33) DWR should ensure that it retains documentation in its contract files to support that contract prices are fair and reasonable. ①

The Department agrees to adopt the above recommendation.

(Report, p. 41) To ensure that DWR manages WaterFix in an effective manner, DWR should complete both the economic analysis and financial analysis and make the analyses publicly available as soon as possible. ①

As planned, the Department will release completed versions of these reports as soon as practicable. This will necessarily follow the determinations currently being contemplated by the public water agencies regarding level of participation.

(Report, p. 41.) In order to prepare for the potential approval of WaterFix and to ensure that the project is managed properly during the design and construction phase, DWR should do the following: ①

- Develop an appropriate governance structure so that it is prepared to oversee the design and construction of WaterFix in the event it is ultimately approved.

A governance structure will be ready to be implemented to oversee the design and construction of WaterFix in the event it is ultimately approved.

- Develop and update when necessary the associated program management plan for the design and construction phase of the project.

The Department agrees to adopt the above recommendation.

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We appreciate this formal opportunity to respond to the Draft Audit Report No. 2016-132. If new evidence presents itself in the finalizing of this draft Report, DWR requests the opportunity to respond to such new information, which the Auditor may send to Deputy Director Taryn Ravazzini at taryn.ravazzini@water.ca.gov.

Sincerely,



Grant Davis
Director

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Attached Exhibits

1. URS Contract, Exhibit A (Scope of Work)
2. URS Contract, Amendment 1, Exh. E, Attachmt 6 (Covenants)
3. URS Contract, Exhibit D (Special Terms and Conditions)
4. URS Contract, Exhibit C (General Terms and Conditions)
5. URS Contract, Amendment 5, Std. 215 (Agreement Summary)

Exhibit 1

Contract No. 4600008104
Exhibit A
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Exhibit A Scope of Work

BACKGROUND:

The Department of Water Resources (DWR) requires the services of a consultant firm to assist with engineering support services and the program management of the planning, coordination and oversight of the programs, environmental engineering and construction phases, strategic program development, risk assessment and oversight of program costs and schedules of DWR's Delta Habitat Conservation and Conveyance Program (DHCCP).

DWR manages the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments. DWR operates California's State Water Project (SWP), the largest State-built multipurpose project in the United States. Through the SWP, DWR supplies good quality water for municipal, industrial, agricultural, and recreational uses and for protecting and enhancing fish and wildlife.

The heart of DWR's vital water supply system, the Sacramento-San Joaquin Delta, is in jeopardy of collapse without both immediate action and long term solutions to restore the ecosystem and protect water supplies. DWR is tasked to improve the Delta water conveyance system. DWR will also coordinate with the Bay Delta Conservation Plan to provide a foundation to help conserve the Delta ecosystem and a reliable water supply for California.


PURPOSE:

DWR requires a highly qualified firm with extensive experience to provide engineer support services and Program Management (PM) for the DHCCP under the DWR's direction. Some of the various areas of expertise required of the successful Program Management team include planning and implementation of large water resources infrastructure, strategic program development, project management, program risk assessment, oversight and coordination of environmental, engineering, and construction program phases. The PM Contractor will provide program management expertise of comparable size water resources programs but only at the direction and auspice of DWR authorized representative. Based on conceptual level estimates the DHCCP is anticipated to be in the range of 4 to 5 billion in present dollars.

DESCRIPTION:

- A. The PM Contractor will serve as the DHCCP Program Manager and provide program/project management, coordination and oversight over the planning, development, coordination, and implementation of the DHCCP. The PM Contractor will provide necessary staff, including ancillary services in support of this effort, as required to support the DHCCP and manage the integration of DWR and Contractor staff to effectively implement the DHCCP as authorized and approved by the DWR authorized representative. It is DWR's expectation that the DHCCP Program Manager's team be fully integrated with DWR internal staff to effectively manage the implementation of the DHCCP. Upon approval, the PM Contractor will be authorized to perform the work per the contract within the funding and time limits outlined.
- B. The PM Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all services furnished. Support service, including engineering, will be provided as needed to support DWR staff but only on a temporary basis. The PM Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its work products including management reports, costs, schedules, risk analysis, drawings, specifications, and other engineering support services.
- C. The PM Contractor will provide their best skill and judgment in discharging all duties and will promulgate and implement, efficient business administration, including best practices, and use their best efforts to complete the work in an expeditious and economical manner consistent with the best interest of DWR.
- D. The PM Contractor shall maintain financial information both in written form and electronically as required by DWR including: books, records, documents, copies of receipts, and other evidence pertinent to the performance of the work in accordance with the provisions of this Scope of Work. In addition, financial information shall be compiled in accordance with consistently applied, generally accepted accounting principles, and made available for auditing purposes by authorized representatives of DWR or the State of California. Financial information shall be maintained until three years after the date of final payment for the work in accordance with the provisions of this Scope of Work. In addition, financial information and other program records shall be transferred to DWR upon their request and timelines.
- E. The PM Contractor's staff shall be experienced in the use of software that is compatible with DWR's requirements in accordance with Exhibit D.10.

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Exhibit A
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- F. Resumes containing the qualifications and experience of the PM Contractor's personnel shall be submitted to the Division of Engineering's (DOE) Contract Manager for review prior to assignment on the DHCCP. If in the opinion of DOE's Contract Manager an individual lacks adequate experience, the PM Contractor's employee may be accepted on a trial basis until such time as the individual's ability to perform the required services has been demonstrated.
- G. The DWR's DOE will have the ultimate responsibility of determining the quality and quantity of work performed by the PM Contractor's personnel. If, at any time, the level of performance is below expectations, DWR may release PM Contractor's personnel and request another person assigned as needed. DWR reserves the right to disapprove the assignment or the continuing assignment of specific contractor personnel, subcontractors, and subcontractor personnel. The PM Contractor's withdrawal of said personnel will be immediate upon DWR's Notice of Disapproval. Replacement personnel must be approved by DWR prior to their participation in the contract. Replacement personnel must report within seven calendar days after DWR approves PM Contractor personnel. Resumes will be required for any new personnel of the PM Contractor or subcontractor.
- H. The PM Contractor is required to submit a written request and obtain the Chief of DOE approval at least 30 calendar days prior to changing previously approved lead program management staff. The PM Contractor is required to provide the DWR authorized representative with the technical qualifications of proposed replacement staff if allowed by DWR.
- I. As the PM Contractor will be involved in coordinating and overseeing the work of other firms under contract for this program, the PM Contractor shall agree in writing that neither it nor any of its subsidiaries will submit proposals or bids for any other DHCCP contract work related to but not limited to environmental and engineering and construction services. The written agreement shall remain in force until one year after the completion of this contract. If the PM Contractor is a subsidiary of another company, the other company shall also make this written commitment.
- J. The PM Contractor shall not receive compensation for any services that are found to be in conflict of interest. In the event of non-acceptance due to discovery of conflict of interest, the PM Contractor shall provide replacement deliverables free of any conflict of interest prior to payment. In the event replacement deliverables are not possible, the PM Contractor shall not receive compensation for the deliverables containing conflict of interest.
-  K. DWR does not guarantee, either expressly or by implication, that any work or services will be required under this contract. In addition, as the scope is developed, DWR reserves the right to add or delete related tasks as the

Contract No. 460008104
Exhibit A
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program evolves. In reference to the amount shown on the Standard 213, Item 3, the estimated amount of \$60,000,000 can be decreased or increased by amendment to allow for program changes as the scope is more fully developed.

AVAILABLE INFORMATION:

The DWR will provide the selected PM Contractor existing and available studies, plans, and other information acquired by DWR that would be useful for the program.

PROCUREMENT AND CONTRACTING:

The PM Contractor will answer directly to DWR as lead Contractor. DWR will administer the contract and pay invoices submitted by the PM Contractor in accordance with Exhibit B. DWR will issue task orders for specific work assignments, tied to the contract in accordance with Exhibit A, Attachment I. Each task order will be budgeted, scheduled and compensated in accordance with Exhibit B, Attachment I, not to exceed limit.

DWR will take the lead in issuing task orders for this contract, and will be the sole source in directing the PM Contractor. DWR will work with PM Contractor to develop the task orders. Unless otherwise directed by DWR, any and all work performed by the PM Contractor and its sub-contractors in preparation of this contract shall be submitted directly to DWR.

DELIVERABLES:

The PM Contractor will be responsible for, but not limited to, the following services:

1. Under the general direction of the DWR authorized representative the PM Contractor will successfully implement the DHCCP, work cooperatively with DWR and other staff.
2. Develop and deliver presentations to DWR management and stakeholders, as required by DWR, on the status, direction, schedule, budgets, cost, and other applicable items related to the DHCCP.
3. Prepare and review required reports, correspondence, other documents related to the DHCCP as necessary, and provide timely comments, findings, and recommendations to DWR management in accordance with issued task orders.

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Exhibit A
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4. Provide timely notifications and recommended actions to DWR management regarding significant issues that could or would impact the DHCCP.
5. Develop a PM Plan for the DHCCP that includes project budgets, needed resources, schedules, quality assurance, quality control, and performance measures in accordance with issued task orders. Ensure and report on cost, schedule, including significant milestones and meetings, and resources as compared to established baselines and provide corrective action and notification to DWR when variances occur.
6. Develop overall safety program and plans in conformance to DWR, State, and Federal policies, rules, and regulations. Also provide and foster good safety practices.
7. Coordinate, oversee, and monitor other DHCCP contractors including but not limited to environmental, engineering and construction services.
8. Establish and maintain a library of all DHCCP program/project documents electronic and written.
9. Develop scopes of work for other service contracts required for the DHCCP as directed by DWR.
10. Coordinate and provide oversight on construction contract bidding packages for procuring engineering and construction services in accordance with DWR procedures and policies.
11. Provide oversight, analysis, and quality control as required by DWR of other contractors associated with DHCCP to ensure contractual requirements are consistent and complete.
12. Assist in other service contracts required for DHCCP upon approval by DWR in accordance with issued task orders.
13. Develop and maintain a claims avoidance program throughout all phases of the program.
14. Develop a uniform format and editorial style manual for program documents in cooperation with DWR.
15. Maintain all financial records related to the Program Manager contract.
16. Coordinate and provide oversight with contractors related to the DHCCP including reviewing, auditing, and assisting with the processing of invoices.

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17. Prepare and maintain specific plans and reports, such as the PM Plan, Milestone Schedule, Environmental Status Report, Engineering Status Report, Construction Status Report, Cash Flow Report, Project Close-Out Report, and Program Status Reports for DWR management along with other reports as needed.
18. Cooperate in a timely fashion with DWR to provide necessary program documents in response to any internal review and audit requests.
19. Implement a program management information system for budget, schedule, and records management and reporting to support this effort and in accordance with DWR issued task orders. PM information system shall be compatible and interface with DWR's Information systems and requirements as specified in Exhibit D.10.
20. Define the business processes and program procedures necessary to implement a comprehensive program control system.
21. Prepare and maintain a work definition system that incorporates the work breakdown structure and the organization breakdown system translating functional requirements into identifiable elements of work as required.
22. Prepare and maintain a cost control system that measures expenditures and changes for program work elements, and measures them against established performance baselines as required.
23. Coordinate and provide cost estimating support to establish budgets and verify environmental, engineering and construction, and other project cost estimates as necessary.
24. Prepare Critical Path Method comprehensive program schedules addressing all program activities from program development through program close-out, measuring progress against these schedules, identifying and reporting trends and variances and recommending corrective actions.
25. The DHCCP control system shall also accurately display contracted, revised and forecasted costs for other contracts including environmental, engineering and construction contracts from award through completion.
26. Coordinate, monitor, and effectively integrate the work of the environmental contractor team with program management efforts, other appropriate DHCCP contractors, and DWR project teams.

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27. Coordinate with DWR staff and provide assistance when required for the review of environmental cost estimates, schedules, and quality control of project work, and reports on program status.
28. Monitor, document, and report on the environmental contractor's conformance with budget, schedule, and overall performance of the work.
29. Coordinate, monitor, and effectively integrate the work of all DHCCP project teams, including but not limited to planning, environmental, real estate, mapping, engineering, construction, operations, etc.
30. Coordinate with DWR staff and provide support, when required, to provide technical engineering and constructability reviews, value engineering reviews, and reviews for operability, maintainability, and project reliability.
31. Coordinate with DWR staff and provide support, when required, to review the engineering cost estimates, project schedules, quality control of project work, and report on program status.
32. Coordinate, oversee, and monitor the engineering contractor's conformance with respect to budgets, costs, schedules, and overall performance of the work.
33. Coordinate with DWR staff and provide support when required of the review of all construction contract documents to ascertain that they are descriptive, complete, and in accordance with applicable codes, regulations, and design criteria prior to DWR's final approval and contract advertisement.
34. Assure adequate preparation and scheduling for pre-bid, pre-construction, progress, coordination, completion and project close-out meetings. This includes the preparation of all necessary notices, forms, documents, hand-outs, agendas, attendance records, minutes, action item lists and proper filing of meeting documents.
35. Assure responses to requests for clarifications/information, assistance, access, quotation, and coordination by other contractors is provided accurately and in a timely manner.
36. Oversight of work progress and inspection of the work placed to ascertain compliance with contract documents, industry standards, site security and safety, testing, housekeeping, budget quality, and schedule and the successful interface with other public and private entities.

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37. Monitor, document, and report on the construction contractor's conformance with budget, cost, schedule, and overall performance of the work.
38. Oversee and monitor contract change requests, progress payments, schedule adjustments, completion, startup, and project acceptance are properly reviewed, evaluated, revised, approved, and implemented.
39. Provide oversight and reporting on significant contract changes to assure the best interests of DWR are maintained and contract requirements are enforced.
40. Assure project close-out procedures are planned, prepared, executed, documented, and completed for the successful training, startup, commissioning, and transfer of completed facilities to include inspection, preparation of completion certificates, receipt and review of contractor waivers, certifications, operations and maintenance data, as-built drawings and warranties, etc., and the preparation and execution of transfer documents.
41. The PM Contractor will lead the overall effort to foster and sustain a strong integrated team of assigned staff from DWR and the DHCCP Program Manager as well as staff from other agencies and contractors part of the DHCCP.
42. Establish and maintain a DHCCP office in Sacramento, California for staff from DWR and PM Contractor as well as staff from other agencies and contractors if required. Selection of location is subject to DWR approval.
43. Assist DWR in developing an overall program organizational structure to successfully implement the DHCCP within required timelines and budgets.
44. Implement continuous program improvement processes.
45. Assist DWR in maintaining a team spirit, cooperation between program participants, and good lines of communication.

POTENTIAL ADDITIONAL SERVICES:

DWR reserves the right to have the PM Contractor provide the following additional services. The PM Contractor could be required to provide support expertise in planning, environmental, engineering and construction, and other program management areas when requested. Other areas could include:

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1. Assist DWR with public information/public outreach efforts.
2. Program and/or project risk assessment.
3. Water resources and recreational planning.
4. Water rights specialist to support program work.
5. Safety management and oversight.
6. Real Estate services.

CONTACT INFORMATION:

The Authorized DWR and PM Contractor representatives during the term of this agreement will be:

Department of Water Resources

Representative: Richard Sanchez
1416 9th Street, Room 406-8
Sacramento, California 95814
Phone: (916) 653-3927
Fax: (916) 653-2467
Email: richs@water.ca.gov

Washington Division of URS Corporation

Representative: Joseph Ehasz
2870 Gateway Oaks Drive Suite 150
Sacramento, CA 95833
Phone: (916) 835-5200
Fax: (916) 679-2900
Email: Joseph.Ehasz@wgint.com

DOE's Contract Manager for all administrative purposes for this contract is Teresa Engstrom at (916) 653-1993 or tengstro@water.ca.gov. Contract Managers may be changed by written notice to the other party.

DISABLED VETERAN BUSINESS ENTERPRISE (DVBE) PROGRAM REQUIREMENTS

- A. The State of California's mandated DVBE Participation Program is an element of this contract and shall be included in all future contract amendments. DVBE program requirements may be required relevant to specific Task Orders and will be at the discretion of the Department to be determined on a Task Order-by-Task Order basis. Amendments to Task Orders with DVBE requirements shall also be subject to continued DVBE subcontracting requirements.
- B. DVBE Program Participation Goals of 3 percent have been set for this contract effort and will be the goal of each Task Order issued.

Exhibit 2

Contract No. 4600008104, Am. 1
Exhibit E, Attachment 6
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COVENANTS

Background:

Washington Group International, Inc., d/b/a Washington Division of URS Corporation ("URS—WD"), has been performing program management services and engineer support services for the Delta Habitat Conservation and Conveyance Program ("DHCCP") since May 2008 under Agreement No. 4600008104 ("the Agreement") with the California Department of Water Resources ("DWR"). The Agreement is administered by DWR's Department of Engineering ("DOE"). URS—WD must transition a new individual into the Program Manager role due to demands related to its current employee's career phase. DWR has directed URS—WD to engage Mr. Charles Gardner, president of Hallmark Group, Inc. ("Hallmark"), to fill the position of Program Manager by subcontracting with Hallmark for this purpose. Mr. Gardner will be providing general direction to URS—WD in coordination with DWR, while at the same time being subject to contractual obligations under a URS—WD subcontract with Hallmark, which will give URS—WD control of subcontract payments. To clarify the roles and responsibilities of the parties and subcontractor Hallmark, and in order to avoid the appearance of or any actual conflicts of interest that might arise from such an arrangement (the "Conflict"), the parties have agreed to amend the Agreement. The covenants set out below are for the purposes of preventing any actual or apparent conflicts from arising, and to permit work under the Agreement to proceed effectively. URS—WD agrees to subcontract with Hallmark for Mr. Gardner's services as Program Manager under the terms and conditions set forth in this Amendment.

Covenants:

1. Hallmark Subcontract.

- a. Upon agreement and execution by DWR and URS—WD of this Amendment, DWR will issue a Task Order which directs URS—WD to enter into a subcontract with Hallmark to provide the services of Mr. Gardner to function as the Program Manager on a full time basis as well as other Hallmark personnel as reasonably required to effectively perform the Program Manager function, all in accordance with the terms and conditions of this Amendment. URS—WD shall make good faith efforts to enter into such a subcontract (Subcontract) with Hallmark on terms and conditions reasonably acceptable to URS—WD.
- b. The Subcontract shall specify that Hallmark is an independent contractor and is not the agent or employee of DWR or URS—WD. Except as otherwise provided for in this Amendment, all other terms and conditions of the Subcontract shall be in accordance with the terms and conditions of the Agreement.

2. Hallmark Invoices.

- a. To maintain transparency in all matters related to the Conflict, DWR shall make the sole and final determination as to the payment to Hallmark of any and all amounts invoiced by Hallmark.
- b. The Subcontract will require Hallmark to submit each invoice for payment to URS-WD and to simultaneously send a copy directly to DOE's Contract Manager. Promptly upon receipt of the invoice, URS-WD shall submit an invoice to DWR consisting solely of the amount invoiced by Hallmark and with a copy of Hallmark's invoice attached. After receipt of the URS-WD invoice for Hallmark services, DWR shall provide written notice to URS-WD of those portions of Hallmark's invoice that are approved for payment, and the details and rationale for those portions of the invoice that are questioned or not approved for payment by DWR.
- c. The time period for payment of URS-WD's invoices for amounts invoiced by Hallmark shall start at the date received from URS-WD by DOE's Contract Manager. DWR will perform the review and approval function and provide the written notice that are specified in paragraph 2.b. of this Amendment, in accordance with the timelines stated in Exhibit B of the Agreement and subject to the Budget Contingency Clause of Exhibit B of the Agreement.
- d. Hallmark's right to payment for services performed under the subcontract between URS-WD and Hallmark, is subject to the prior approval by DWR of the invoices submitted by Hallmark to URS-WD. URS-WD shall make payment to Hallmark for any services rendered only to the extent that the invoice for those services has been approved by DWR. This condition precedent to payment of a URS-WD subcontractor under this Agreement shall be effective only as to Hallmark and not to any other subcontractor under this Agreement.
- e. Except as otherwise provided for in this section 2, the payment terms of the Subcontract shall be substantively the same as the payment terms of the Agreement.

3. Conflict of Interest.

- a. Each party shall promptly notify the other upon the discovery or realization of any actual or potential act or omission by any party, including Hallmark, against the interests arising from the Agreement, and the parties shall promptly implement all reasonable measures to eliminate or satisfactorily mitigate the conflict of interest and any actual or potential impact thereof. Such mitigating measures shall not extend to termination of URS-WD.

Contract No. 4600008104, Am. 1
Exhibit E, Attachment 6
Page 3 of 4

- b. Except to the extent URS-WD fails or refuses to follow the requirements of this Amendment or of any measures implemented pursuant to paragraph 3.a above, DWR and the State of California hereby waive any claim that URS-WD is in breach of the Agreement or is not entitled to compensation for services, due to any actual or apparent conflict of interest arising in any way out of or in connection with the circumstances described in the Background paragraph of this Amendment.
4. Hallmark Authority.
- a. Mr. Gardner will be reporting directly to and receive direction from DWR. Chief of DOE Richard Sanchez will remain DWR's signatory and authorized representative for purposes of the Agreement.
- b. Neither Mr. Gardner nor the Hallmark Group is authorized to make any binding commitment for or on behalf of DWR or URS-WD. By way of example and without limiting the generality of the foregoing, neither Mr. Gardner nor the Hallmark Group is authorized to do any of the following in connection with the Agreement or any other agreement to which DWR is a party: (i) approve or execute Task Orders, Task Order Amendments or Amendments to this Agreement; (ii) authorize or approve any increase or decrease in compensation; or (iii) authorize, approve or waive any deviation from any contractual requirements, including but not limited to, any change in scope of work or time of performance.
- c. Mr. Gardner is authorized to provide general direction to URS-WD on behalf of DWR, within the boundaries of the Agreement, by communicating and coordinating with URS-WD's Assistant Program Manager. Neither Mr. Gardner nor Hallmark are authorized to dictate the means or methods of URS-WD's personnel performing the work under the Agreement, but are authorized to communicate with, exchange information with and make such specific requests to such personnel that will, in their judgment, effectively coordinate DHCCP activities and contribute to achieving schedule milestones. URS-WD shall cooperate with Mr. Gardner in his role as Program Manager and shall promptly notify DWR of any issue or concern regarding direction received from or other interaction with Mr. Gardner.
- d. DWR shall notify and/or make arrangements with DWR's other DHCCP contractors that provides for Mr. Gardner to perform Program Manager authority with respect to their operations that is similar to the authority specified above with respect to URS-WD's operations.

5. Limitation of Liability and Indemnity.

- a. URS-WD's liability to DWR in any manner arising out of or in connection with any act, omission, negligence or any other aspect of Mr. Gardner's or Hallmark's performance that is the subject of this Amendment shall be strictly limited to whatever damages or other relief URS-WD actually obtains from Mr. Gardner or Hallmark. This limitation shall apply to claims in contract, tort (including negligence), indemnity, warranty or any other legal theory. This section 5 is a material provision of this Amendment. However, nothing in this section 5 shall relieve URS-WD from liability to the proportionate extent of URS-WD's own fault or negligence (excluding fault or negligence arising from a duty based on URS-WD's employment of Hallmark as a subcontractor, such as but not limited to failure to properly supervise a subcontractor or any claim based on a master-servant relationship, *respondent superior*, or breach of a non-delegable duty).
- b. DWR will defend and indemnify URS-WD against third party claims based on or concerning any actual or alleged conflict of interest arising out of or in connection with this Amendment or its implementation.

Exhibit 3

State of California

Department of Water Resources

The Resources Agency

Contract # 460008104

Exhibit D

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**Special Terms and Conditions for
Department of Water Resources
(Over \$5,000 Standard Payable)**

1. **EXCISE TAX:** The State of California is exempt from Federal Excise Taxes, and no payment will be made for any taxes levied on employees' wages.
2. **RESOLUTION OF DISPUTES:** In the event of a dispute, Contractor shall file a "Notice of Dispute" with the Director or the Director's Designee within ten (10) days of discovery of the problem. The State and Contractor shall then attempt to negotiate a resolution of such claim and, if appropriate, process an amendment to implement the terms of any such resolution. If the State and Contractor are unable to resolve the dispute, the decision of the Director or the Director's Designee shall be final, unless appealed to a court of competent jurisdiction.

In the event of a dispute, the language contained within this agreement shall prevail over any other language including that of the bid proposal.



3. **PAYMENT RETENTION CLAUSE:** ~~Ten~~ Five percent of any progress payments that may be provided for under this contract shall be withheld ~~per Public Contract Code Section 10346 pending satisfactory completion of all services under the contract and paid on a quarterly basis after receipt of invoice for retention amount.~~
4. **AGENCY LIABILITY:** The Contractor warrants by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the State shall, in addition to other remedies provided by law, have the right to annul this Agreement without liability, paying only for the value of the work actually performed, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.
5. **POTENTIAL SUBCONTRACTORS:** Nothing contained in this Agreement or otherwise shall create any contractual relation between the State and any subcontractors, and no subcontract shall relieve the Contractor of its responsibilities and obligations hereunder. The Contractor agrees to be as fully responsible to the State for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Contractor. The Contractor's obligation to pay its subcontractors is an independent obligation from the State's obligation to make payments to the Contractor. As a result, the State shall have no obligation to pay or enforce the payment of any moneys to any subcontractor.
6. **SUBCONTRACTING:** The Contractor is responsible for any work it subcontracts. Subcontracts must include all applicable terms and conditions of this Agreement. Any subcontractors, outside associates, or consultants required by the Contractor in connection with the services covered by this Agreement shall be limited to such individuals or firms as were specifically identified in the bid or agreed to during negotiations for this Agreement, or as are specifically authorized by the Contract Manager during the performance of this Agreement. Any substitutions in, or additions to, such subcontractors, associates or consultants shall be subject to the prior written approval of the Contract Manager. Contractor warrants, represents and agrees that it and its subcontractors, employees and representatives shall at all times comply with all applicable laws, codes, rules and regulations in the performance of this Agreement. Should State determine that the work performed by a subcontractor is substantially unsatisfactory and is not in substantial accordance with the contract terms and conditions, or that the

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7. **RENEWAL OF CCC:** Contractor shall renew the Contractor Certification Clauses or successor documents every three (3) years or as changes occur, whichever occurs sooner.
8. **REPORT OF RECYCLED CONTENT CERTIFICATION:** In accordance with Public Contract Code Sections 12200, 12205, 12209, and 12156(e), the contractor will complete and return the form DWR 9557, Recycled Content Certification, for each required product to the Department at the conclusion of services specified in this contract. Form DWR 9557 is attached to this Exhibit and made part of this contract by this reference.
9. **TERMINATION CLAUSE:** The State may terminate this contract without cause upon 30 days advance written notice. The Contractor shall be reimbursed for all reasonable expenses incurred up to the date of termination.
10. **COMPUTER SOFTWARE:** For contracts in which software usage is an essential element of performance under this Agreement, the Contractor certifies that it has appropriate systems and controls in place to ensure that state funds will not be used in the performance of this contract for the acquisition, operation or maintenance of computer software in violation of copyright laws.
11. **PRIORITY HIRING CONSIDERATIONS:** For contracts, other than consulting services contracts, in excess of \$200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by the contract to qualified recipients of aid under Welfare and Institutions Code Section 11200 (Public Contract Code Section 10353).
12. **EQUIPMENT RENTAL AGREEMENTS:** This provision shall apply to equipment rental agreements. The State shall not be responsible for loss or damage to the rented equipment arising from causes beyond the control of the State. The State's responsibility for repairs and liability for damage or loss to such equipment is restricted to that made necessary or resulting from the negligent act or omission of the State or its officers, employees, or agents.
13. **CONFLICT OF INTEREST:**
 - a. **Current and Former State Employees:** Contractor should be aware of the following provisions regarding current or former state employees. If Contractor has any questions on the status of any person rendering services or involved with the Agreement, the awarding agency must be contacted immediately for clarification.
 - (1) **Current State Employees:** (PCC §10410)
 - (a) No officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any state agency, unless the employment, activity or enterprise is required as a condition of regular state employment.
 - (b) No officer or employee shall contract on his or her own behalf as an independent contractor with any state agency to provide goods or services.
 - (2) **Former State Employees:** (PCC §10411)
 - (a) For the two-year period from the date he or she left state employment, no former state officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any state agency.

(b) For the twelve-month period from the date he or she left state employment, no former state officer or employee may enter into a contract with any state agency if he or she was employed by that state agency in a policy-making position in the same general subject area as the proposed contract within the 12-month period prior to his or her leaving state service.

b. Penalty for Violation:

(a) If the Contractor violates any provisions of above paragraphs, such action by Contractor shall render this Agreement void. (PCC §10420)

c. Members of Boards and Commissions:

(a) Members of boards and commissions are exempt from this section if they do not receive payment other than payment of each meeting of the board or commission, payment for preparatory time and payment for per diem. (PCC §10430 (e))

d. Representational Conflicts of Interest:

The Contractor must disclose to the DWR Program Manager any activities by contractor or subcontractor personnel involving representation of parties, or provision of consultation services to parties, who are adversarial to DWR. DWR may immediately terminate this contract if the contractor fails to disclose the information required by this section. DWR may immediately terminate this contract if any conflicts of interest cannot be reconciled with the performance of services under this contract.

e. Financial Interest in Contracts:

Contractor should also be aware of the following provisions of Government Code §1090:

"Members of the Legislature, state, county district, judicial district, and city officers or employees shall not be financially interested in any contract made by them in their official capacity, or by any body or board of which they are members. Nor shall state, county, district, judicial district, and city officers or employees be purchasers at any sale or vendors at any purchase made by them in their official capacity."

f. Prohibition for Consulting Services Contracts:

For consulting services contracts (see PCC §10335.5), the Contractor and any subcontractors (except for subcontractors who provide services amounting to 10 percent or less of the contract price) may not submit a bid/SOQ, or be awarded a contract, for the provision of services, procurement of goods or supplies or any other related action which is required, suggested, or otherwise deemed appropriate in the end product of such a consulting services contract (see PCC §10365.5).

Exhibit 4

GTC 307

EXHIBIT C

GENERAL TERMS AND CONDITIONS

1. APPROVAL: This Agreement is of no force or effect until signed by both parties and approved by the Department of General Services, if required. Contractor may not commence performance until such approval has been obtained.

2. AMENDMENT: No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties and approved as required. No oral understanding or Agreement not incorporated in the Agreement is binding on any of the parties. *This term is subject to the provisions of Exhibit A, Item K.*

3. ASSIGNMENT: This Agreement is not assignable by the Contractor, either in whole or in part, without the consent of the State in the form of a formal written amendment.

4. AUDIT: Contractor agrees that the awarding department, the Department of General Services, the Bureau of State Audits, or their designated representative shall have the right to review and to copy any records and supporting documentation pertaining to the performance of this Agreement. Contractor agrees to maintain such records for possible audit for a minimum of three (3) years after final payment, unless a longer period of records retention is stipulated. Contractor agrees to allow the auditor(s) access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records. Further, Contractor agrees to include a similar right of the State to audit records and interview staff in any subcontract related to performance of this Agreement. (Gov. Code §8546.7, Pub. Contract Code §10115 et seq., CCR Title 2, Section 1896).

5. INDEMNIFICATION: *To the extent of the Contractor's negligent errors or omissions or willful misconduct*, Contractor agrees to indemnify, defend and save harmless the State, its officers, agents and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, suppliers, laborers, and any other person, firm or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this Agreement, and from any and all claims and losses accruing or resulting to any person, firm or corporation who may be injured or damaged by Contractor in the performance of this Agreement.

6. DISPUTES: Contractor shall continue with the responsibilities under this Agreement during any dispute.

7. TERMINATION FOR CAUSE: The State may terminate this Agreement and be relieved of any payments should the Contractor fail to perform the requirements of this Agreement at the time and in the manner herein provided. In the event of such termination the State may proceed with the work in any manner deemed proper by the State. All costs to the State shall be deducted from any sum due the Contractor under this Agreement and the balance, if any, shall be paid to the Contractor upon demand.

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Exhibit C
Page 2 of 4

8. **INDEPENDENT CONTRACTOR:** Contractor, and the agents and employees of Contractor, in the performance of this Agreement, shall act in an independent capacity and not as officers or employees or agents of the State.

9. **RECYCLING CERTIFICATION:** The Contractor shall certify in writing under penalty of perjury, the minimum, if not exact, percentage of post consumer material as defined in the Public Contract Code Section 12200, in products, materials, goods, or supplies offered or sold to the State regardless of whether the product meets the requirements of Public Contract Code Section 12209. With respect to printer or duplication cartridges that comply with the requirements of Section 12156(e), the certification required by this subdivision shall specify that the cartridges so comply (Pub. Contract Code §12205).

10. **NON-DISCRIMINATION CLAUSE:** During the performance of this Agreement, Contractor and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), age (over 40), marital status, and denial of family care leave. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code §12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Agreement.

11. **CERTIFICATION CLAUSES:** The CONTRACTOR CERTIFICATION CLAUSES contained in the document CCC 307 are hereby incorporated by reference and made a part of this Agreement by this reference as if attached hereto.

12. **TIMELINESS:** Time is of the essence in this Agreement.

13. **COMPENSATION:** The consideration to be paid Contractor, as provided herein, shall be in compensation for all of Contractor's expenses incurred in the performance hereof, including travel, per diem, and taxes, unless otherwise expressly so provided.

14. **GOVERNING LAW:** This contract is governed by and shall be interpreted in accordance with the laws of the State of California.

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15. **ANTITRUST CLAIMS:** The Contractor by signing this agreement hereby certifies that if these services or goods are obtained by means of a competitive bid, the Contractor shall comply with the requirements of the Government Codes Sections set out below.

a. The Government Code Chapter on Antitrust claims contains the following definitions:

- 1). "Public purchase" means a purchase by means of competitive bids of goods, services, or materials by the State or any of its political subdivisions or public agencies on whose behalf the Attorney General may bring an action pursuant to subdivision (c) of Section 16750 of the Business and Professions Code.
- 2). "Public purchasing body" means the State or the subdivision or agency making a public purchase. Government Code Section 4550.

b. In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder. Government Code Section 4552.

c. If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. Government Code Section 4553.

d. Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action. See Government Code Section 4554.

16. **CHILD SUPPORT COMPLIANCE ACT:** "For any Agreement in excess of \$100,000, the contractor acknowledges in accordance with Public Contract Code 7110, that:

- a). The contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with section 5200) of Part 5 of Division 9 of the Family Code; and

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Page 4 of 4

b) The contractor, to the best of its knowledge is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.”

17. UNENFORCEABLE PROVISION: In the event that any provision of this Agreement is unenforceable or held to be unenforceable, then the parties agree that all other provisions of this Agreement have force and effect and shall not be affected thereby.

18. PRIORITY HIRING CONSIDERATIONS: If this Contract includes services in excess of \$200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by the Contract to qualified recipients of aid under Welfare and Institutions Code Section 11200 in accordance with Pub. Contract Code §10353.

Exhibit 5

AGREEMENT SUMMARY
STD 215 (Rev 4/2003)

<input checked="" type="checkbox"/> CHECK HERE IF ADDITIONAL PAGES ARE ATTACHED		AGREEMENT NUMBER 4600006104	AMENDMENT NUMBER 5
1. CONTRACTOR'S NAME URS Energy & Construction, Inc.		2. FEDERAL I.D. NUMBER 34-0217470	
3. AGENCY TRANSMITTING AGREEMENT Department of Water Resources	4. DIVISION, BUREAU, OR OTHER UNIT Division of Engineering	5. AGENCY BILLING CODE 81000	
6. NAME AND TELEPHONE NUMBER OF CONTRACT ANALYST FOR QUESTIONS REGARDING THIS AGREEMENT			
7. HAS YOUR AGENCY CONTRACTED FOR THESE SERVICES BEFORE? <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (If YES, enter prior contractor name and Agreement Number)			
8. BRIEF DESCRIPTION OF SERVICES - LIMIT 72 CHARACTERS INCLUDING PUNCTUATION AND SPACES Amend to add money, new subcontractor, and additional Task Order template			
9. AGREEMENT OUTLINE (Include reason for Agreement: Identify specific problem, administrative requirement, program need or other circumstances making the Agreement necessary; include special or unusual terms and conditions.)			

See Std. 215, Page 3 of 4

10. PAYMENT TERMS (More than one may apply.)

MONTHLY FLAT RATE QUARTERLY ONE-TIME PAYMENT PROGRESS PAYMENT

ITEMIZED INVOICE WITHHOLD _____ % ADVANCED PAYMENT NOT TO EXCEED

REIMBURSEMENT/REVENUE \$ _____ or _____ %

OTHER (Explain) No more often than monthly, in arrears

FUND TITLE	ITEM	F.Y.	CHAPTER	STATUTE	PROJECTED EXPENDITURES
WRRF	3860-902-0691	12/13	186/86	Sec. 135 WC	\$10,000,000.00
					\$
OBJECT CODE Unknown / GL Acct 9032640200			AGREEMENT TOTAL		\$ 70,000,000.00
OPTIONAL USE Contract Manager: Allan Davis (916) 952-2779			AMOUNT ENCUMBERED BY THIS DOCUMENT		
I CERTIFY upon my own personal knowledge that the budgeted funds for the current budget year are available for the period and purpose of the expenditures stated above.			\$ 10,000,000.00		
ACCOUNTING OFFICER'S SIGNATURE			DATE SIGNED		PRIOR AMOUNT ENCUMBERED FOR THIS AGREEMENT
See attached funding strip					\$ 60,000,000.00
					TOTAL AMOUNT ENCUMBERED TO DATE
					\$ 70,000,000.00

AGREEMENT	From	TERM	Through	TOTAL COST OF THIS TRANSACTION	BID, SOLE SOURCE, EXEMPT
Original	5/27/08		12/31/15	\$ 60,000,000.00	RFQ
Amendment No. 1	5/27/08		12/31/15	\$ 0.00	Exempt - add personnel
Amendment No. 2	5/27/08		12/31/15	\$ 0.00	Exempt - add personnel
Amendment No. 3	5/27/08		12/31/15	\$ 0.00	Exempt - add personnel and testing rates
Amendment No. 4	5/27/08		12/31/15	\$ 0.00	Exempt - add personnel and rates
Amendment No. 5	5/27/08		12/31/15	\$ 10,000,000.00	Exempt - add subcontractor
TOTAL				\$ 70,000,000.00	

(Continue)

STATE OF CALIFORNIA
AGREEMENT SUMMARY
STD. 215 (Rev. 4/2002)

13. BIDDING METHOD USED:

REQUEST FOR PROPOSAL (RFP) INVITATION FOR BID (IFB) USE OF MASTER SERVICE AGREEMENT
(Attach justification if secondary method is used)

SOLE SOURCE CONTRACT EXEMPT FROM BIDDING OTHER *(Specify)* 23CCR387 and GC 4525 et seq.
(Attach STD. 821) *(Give authority for exempt status)*

NOTE: Proof of advertisement in the State Contracts Register or an approved form STD. 821, Contract Advertising Exemption Request, must be attached

14. SUMMARY OF BIDS (List of bidders, bid amount and small business status) (If an amendment, sole source, or exempt, leave blank)
N/A - Amendment

15. IF AWARD OF AGREEMENT IS TO OTHER THAN THE LOWER BIDDER, PLEASE EXPLAIN REASON(S) (If an amendment, sole source, or exempt, leave blank)
N/A - Amendment

16. WHAT IS THE BASIS FOR DETERMINING THAT THE PRICE OR RATE IS REASONABLE?

See Std. 215, page 4 of 4

17. JUSTIFICATION FOR CONTRACTING OUT (Check one)

Contracting out is based on cost savings per Government Code 19130(a). The State Personnel Board has been so notified.
Justification:

Contracting out is justified based on Government Code 19130(b). Justification for the Agreement is described below.

N/A - RFQ pursuant to Government Code Section 4525 et seq.

<p>18. FOR AGREEMENTS IN EXCESS OF \$5,000, HAS THE LETTING OF THE AGREEMENT BEEN REPORTED TO THE DEPARTMENT OF FAIR EMPLOYMENT AND HOUSING?</p> <p><input type="checkbox"/> NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A</p>	<p>19. HAVE CONFLICT OF INTEREST ISSUES BEEN IDENTIFIED AND RESOLVED AS REQUIRED BY THE STATE CONTRACT MANUAL SECTION 7.10?</p> <p><input type="checkbox"/> NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A</p>	<p>20. FOR CONSULTING AGREEMENTS, DID YOU REVIEW ANY CONTRACTOR EVALUATIONS ON FILE WITH THE DGS LEGAL OFFICE?</p> <p><input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NONE ON FILE <input checked="" type="checkbox"/> N/A</p>
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<p>21. IS A SIGNED COPY OF THE FOLLOWING ON FILE AT YOUR AGENCY FOR THIS CONTRACTOR?</p> <p>A. CONTRACTOR CERTIFICATION CLAUSES B. STD. 204, VENDOR DATA RECORD</p> <p><input type="checkbox"/> NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> N/A</p>	<p>22. REQUIRED RESOLUTIONS ARE ATTACHED</p> <p><input type="checkbox"/> NO <input type="checkbox"/> YES <input checked="" type="checkbox"/> N/A</p>
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23. ARE DISABLED VETERANS BUSINESS ENTERPRISE GOALS REQUIRED? (If an amendment, explain changes, if any)

NO (Explain below) YES (If YES complete the following)

DISABLED VETERAN BUSINESS ENTERPRISES: 3 % OF AGREEMENT

Explain:

Exemption from DVBE participation (#35) was approved on March 19, 2008. DVBE Program requirements will be applied on a Task Order basis for this contract.

Good faith effort documentation attached if 3% goal is not reached.

We have determined that the contractor has made a sincere good faith effort to meet the goal.


<p>24. IS THIS A SMALL BUSINESS CERTIFIED BY OSBCR?</p> <p><input type="checkbox"/> NO <input type="checkbox"/> YES (Indicate Industry Group)</p>	<p>SMALL BUSINESS REFERENCE NUMBER</p>
--	--

25. IS THIS AGREEMENT (WITH AMENDMENTS) FOR A PERIOD OF TIME LONGER THAN ONE YEAR? (If YES, provide justification)

NO YES

The DHCCP - when finalized - will provide essential environmental restoration and water supply to California. This multi-year contract provides the engineering support services and program management services that will assist in the DHCCP completion. In order for the DHCCP to be successful, continual engineering support services and program management services need to be in place; therefore, this multi-year contract is in the best interest of the state.

I certify that all copies of the referenced Agreement will conform to the original Agreement sent to the Department of General Services.

<p>SIGNATURE/TITLE</p> 	<p>TITLE</p> <p>Richard Sanchez, Chief</p>	<p>DATE SIGNED</p> <p>10/11/17</p>
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Page 3 of 4

9. AGREEMENT OUTLINE

The purpose of this Amendment is to add ten million dollars to the contract and add the firm McKinsey & Company as a subcontractor. Additionally, this Contract Amendment provides for the development of governance and organizational structures for the DHCCP using Deliverables Paid Task Orders (DPTO). The DHCCP has been delayed due to issues related to completing the public draft of the EIR/EIS. Furthermore, the DHCCP organizational structure is very cumbersome and has left a need for additional program management support in the form of new subcontractor. Additional funds are needed to insure that the program management effort remains at the current levels through the completion of the environmental documentation preparation phase and for the new subcontractor to develop the DHCCP governance and organizational structure.

The DHCCP has progressed to a phase where the organizational structure and governance have become increasingly critical to the future success for design and construction of the project. Since January of 2012 attempts have been made to create a governance structure that addresses the issues of organization, governance, decision rights, and project implementation. These efforts had limited success and were costly in terms of real dollars and lost productivity. It was requested by the DHCCP Business Committee that highly specialized consultants be retained and tasked with resolving these fundamental issues.

Bringing on McKinsey & Company to be a subcontractor to Hallmark will allow for the successful completion of the governance and organizational structure of the DHCCP. Two phases as DPTO may be initiated under this contract. Phase one will provide the development of the DHCCP governance options, and phase two will contain the decision rights and implementation. DPTO will be used in order to better meet the governance and organizational needs for this contract as well. URS will not be legally responsible for McKinsey's work product. DWR releases URS Energy & Construction, Inc. from any claims for any loss, liability, or damages arising out of or in connection with any act omission, negligence or any other aspect of McKinsey & Company's performance and Hallmark Group Inc.'s performance under the McKinsey DPTO, regardless of the legal theory under which the claim is made. DWR will defend and indemnify URS Energy & Construction, Inc. against any claims from any party other than DWR arising out of or in connection with the performance of McKinsey & Company and Hallmark Group Inc. under the McKinsey DPTO.

Due to the limited success of the extensive effort that has already taken place, and the diverse nature of the stakeholders, it is not practical to estimate the number of consultant hours that will be required. The structure of the contract, fixed fee based on deliverables, is beneficial to both DWR and the stakeholders that will ultimately pay the costs for this consultant, since the consultant is only authorized to bill the fixed price for deliverables that have been accepted and approved, as opposed to hourly labor each month.

This Amendment is also updating Exhibit E, Attachment 1 - Travel and Per Diem Expenses.

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Std. 215
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16. WHAT IS THE BASIS FOR DETERMINING THAT THE PRICE OR RATE IS REASONABLE?

This Contract Amendment adds the ability to do Deliverable Paid Task Orders (DPTO) for the development of governance and organizational structures of the DHCCP only. Each DPTO will be independently reviewed and a fair and reasonable price will be determined for each deliverable. Ten million dollars total will be added to the Contract through this Amendment. Two million six hundred thousand dollars of the money being added to the Contract will be specifically assigned to DPTOs. The remaining amount of the funding is to insure that the program management effort stays at the current levels through the completion of the environmental documentation preparation phase.

Services provided by McKinsey & Company through DPTOs – also called “McKinsey DPTOs” – will not exceed \$2,691,000. This Contracts’ DPTOs will not exceed \$2,691,000. Two phases will break-up the \$2,691,000 and are listed below. The DWR Contract Manager will determine if Phase II is necessary.

- a. Phase I - Developing DHCCP Governance Options: \$1,345,500 (which includes the 3.5% mark-up to URS Energy & Construction, Inc.)
- b. Phase II - Decision Rights and Implementation: \$1,345,500 (which includes the 3.5% mark-up to URS Energy & Construction, Inc.)

Since January of 2012 attempts have been made by DWR Management, DWR DHCCP Program Manager, and State Water Project contractors to create a governance structure that addresses the issues of organization, governance, decision rights, and project implementation. For the last nine (9) months, these efforts produced limited success and were costly in terms of real dollars and lost productivity to the DHCCP Program. Due to the unique and immensely important nature of the DHCCP governance structure, the price negotiated for McKinsey is fair and reasonable because McKinsey will be able to finalize a governance structure for the DHCCP that addresses the issues above by using a Deliverables Paid Task Order method where payment is dependent on deliverables completed.

The non-DPTO funding will be billed using the rate schedule originally negotiated per Exhibit B, Attachment 1 or original Contract. The originally negotiated rates were deemed fair and reasonable after comparing them to existing contracts for similar services. No hourly rates are being changed or added by this Contract Amendment.

COMMENTS

CALIFORNIA STATE AUDITOR'S COMMENTS ON THE RESPONSE FROM DWR

To provide clarity and perspective, we are commenting on DWRs' response to our audit. The numbers below correspond to the numbers we have placed in the margin of DWR's response.

While preparing our draft report for publication, some page numbers shifted. Therefore, the page numbers DWR cites in its response do not correspond to the page numbers in our final report.

DWR incorrectly asserts that all activities for the planning of the project were paid for by the public water agencies. In Figure 5 on page 15 we show that \$81.2 million of the funding for the conservation and conveyance program, or 31 percent—the largest portion of funding—came from the U.S. Bureau of Reclamation.

We stand by our conclusion that DWR did not follow state law in selecting the program manager. As described on pages 25 through 29, and in exhibit 2 in DWR's response on page 69, it directed URS to "subcontract" with the president of Hallmark without demonstrating DWR assessed his qualifications, including that he was a licensed engineer. The purported "subcontract" created operational inefficiencies that led DWR to eventually award Hallmark a direct contract through an assignment.

We address the issues in this summary in the "Findings" section of DWR's response.

Although DWR states that it received excellent value from Hallmark, the fact remains that the current program manager that DWR directed URS to hire as a subcontractor does not possess the qualifications DWR sought when it initially awarded the contract to URS. Furthermore, as we state on page 29, the cost of Hallmark's contract increased from \$4.1 million to \$13.8 million.

We disagree that the project was conceived as just an engineering enterprise. DWR's request for qualifications and its contract with URS included more than just engineering; they also required program management services for which URS initially identified an individual as its program manager. DWR's statement seems to indicate that URS' program manager did not have the management expertise requisite for the scale and complexity of the project. However, that statement contradicts the letter we reviewed that DWR sent to URS disapproving the program manager. As we

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state on page 24, DWR replaced the URS program manager apparently because he was not working full-time on the project, not because he lacked the necessary expertise.

- ⑦ DWR mischaracterizes the services for which Hallmark was “subcontracted.” DWR and the former director attempt to narrowly define the responsibilities of Hallmark, when, in fact, the “subcontract” made Hallmark responsible for the entire scope of work for program management services. Further, the description of Hallmark’s role provided by the former director was based on assertions that neither he nor DWR was able to support. In addition, nowhere in DWR’s exhibit 2 contract language directing URS to subcontract with Hallmark’s president to fill the position of program manager, or in the scope of work in DWR’s exhibit 1—its agreement with URS describing the tasks it expected the project manager to perform—does it specify that Hallmark or its president was hired exclusively to provide cost control as DWR claims. For example, as stated in item 7 of exhibit 1 appearing on page 63, Hallmark was also responsible for coordinating, overseeing, and monitoring other contractors including, but not limited to, environmental, engineering and construction services.
- ⑧ DWR states that Hallmark was hired to provide its “proven management skills.” However, DWR was unable to demonstrate that it assessed Hallmark’s qualifications. As we state on page 25, our review of DWR’s contract file for Hallmark found no evidence that DWR evaluated Hallmark’s qualifications for the program manager role.
- ⑨ It is unclear to us what budget projection DWR is referring to. As we state on page 20, in 2012 DWR signed agreements with water contractors for an additional \$100 million—a 71 percent increase to the initial \$140 million budget—to fund the remaining planning phase activities. Additionally, as we also state on page 20, DWR ultimately exhausted this \$100 million augmentation and had to contribute \$15 million in surplus revenues in 2015 and 2016 along with an extra \$6.8 million contribution from Reclamation and the Authority to fund additional planning costs.
- ⑩ We do not misunderstand the contract. Although we agree that the scope of work included multiple elements, one of the main elements was construction project management services, which include services like those included in exhibit 1 on pages 59 and 60 in DWR’s response and many of the deliverables listed on pages 62 through 66. By law these services must be performed by a licensed architect, registered engineer, or licensed general contractor; and DWR’s request for qualifications required the program manager to have a professional engineering license.

While we do not dispute that subcontracting is permitted, as we explain on pages 27 and 28, and as shown in exhibit 2 in DWR's response on pages 69 through 72, the arrangement DWR created was not a true contractor-subcontractor arrangement. Specifically, URS was not overseeing Hallmark's work products, it was not determining payment to Hallmark, and it was not legally responsible for Hallmark's work. Additionally, we expected DWR to require URS to provide an equally qualified replacement program manager or for DWR to have used a competitive process to select a replacement program manager. Finally, because the program management services DWR was seeking included construction project management, state law requires the program manager to be a licensed architect, registered engineer, or licensed general contractor.

DWR describes in its response the inherent conflict the unusual arrangement created, and the contract terms it had to include to protect against this precarious situation. As we describe on page 28, DWR also eventually changed this arrangement to address the inefficient workflow that resulted from the subcontract. Furthermore, the asserted success of the arrangement does not justify the manner in which DWR procured Hallmark's services as program manager.

Our report does not narrowly focus on the request for qualifications process. On pages 24 and 25 we state that because of the size, cost, complexity, and significance to the State of WaterFix, we expected DWR to have required URS to provide an equally qualified replacement program manager. Because DWR included a requirement in its request for qualifications that the program manager work full-time on the project it is unclear to us why DWR did not enforce this requirement, but instead directed URS to "subcontract" with Hallmark who lacked some of these qualifications. By requiring URS to provide a qualified program manager who is able to work full-time on the project, as required by the request for qualifications, DWR would have avoided the 5-month delay it asserts would have occurred if it had used a competitive process to replace its program manager.

Despite DWR's assertion, the "subcontract" makes it clear that Hallmark is the firm responsible for the entire scope of program management services. The "subcontract" did not identify any overlap between Hallmark and URS in the work of the program management services to be provided by Hallmark that would suggest a "team" approach. In fact, in DWR's exhibit 2 on page 69 directing URS to subcontract with Hallmark and its president specifies that "Hallmark is an independent contractor and is not the agent or employee of DWR or URS".

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- ⑮ We stand by our conclusion. As described on page 27 and 28, the relationship established between URS and Hallmark was not truly a “subcontract,” and Hallmark did not have the required qualifications or license to provide the services. Further, assigning the work, although provided for by the contract, avoids the competitive process that is favored in state contracting law. In addition, by assigning the contract to Hallmark, DWR contradicts its earlier assertion that it used a team approach for program management. Finally, Hallmark and URS do not operate as a team if URS is no longer a party to the contract for program management services.
- ⑯ As we state on pages 28 and 29, when we asked for its rationale, DWR told us that the assignment provided its staff direct access to Hallmark while saving the 5 percent markup URS charged under the subcontract. However, we question this reasoning because DWR created the difficulties in the first place, and we are not convinced DWR is saving money because Hallmark has had to subcontract many of its program management functions and DWR is generally paying a 5 percent markup for invoices from these subcontractors.
- ⑰ DWR has not provided evidence describing how the fee was established or that it was fair and reasonable with price comparisons or a market survey. As we state on page 30, DWR did not justify adequately the \$2.69 million cost. Further, on page 30 we also explain that DWR staff raised the same concern because the justification from Hallmark simply stated that the price “is worth it because McKinsey has such a great track record,” which we do not consider to be adequate assurance the price was fair and reasonable.
- ⑱ Contrary to DWR’s assertion, our report does not imply that no governance structure exists or that a lack of such a structure is contrary to legal requirements. Our report on pages 34 and 35 states that DWR has not fully implemented a governance structure for the design and construction phase of WaterFix. In addition, we conclude that it is essential that DWR develop an appropriate governance structure so that it is prepared to oversee the design and construction of WaterFix in the event the project is ultimately approved. This conclusion parallels DWR’s perspective as shown in exhibit 5 on page 85 of the contract amendment that added \$10 million dollars to the contract and added McKinsey as a subcontractor. The amendment language states that the “conservation and conveyance program has progressed to a phase where the organizational structure and governance have become increasingly critical to the future success for design and construction of the project.” This section is to inform the reader that the governance structure for which DWR paid \$2.69 million has not been fully implemented.

DWR misunderstands the report. We do not suggest that DWR must assess each water agency's needs and provide a final financial analysis before the decision to opt into WaterFix is made. On pages 34 and 35 we include the statement from DWR officials that the final financial analysis report cannot be prepared until the contractors desiring to participate in WaterFix are identified. We also include on page 35 DWR officials' statement that its contractor, Public Finance Management, modeled a wide range of financing options for WaterFix that were shared with water contractor boards. Finally, these officials stated that once individual agencies decide to participate, the financing will be tailored to meet each agency's needs.

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We disagree that the documents DWR has maintained serve the same planning function as the program management plan. As the text box on page 36 shows, the management plan includes staffing requirements, reporting relationships, and participant roles and responsibilities, among other things. Additionally, the management plan incorporates that information together in one cohesive document. Our review of Aconex found a document repository (essentially a digital filing cabinet) with numerous, disparate, historical and current documents that DWR staff had to pour through in an effort to locate something that was responsive to our request for the management plan.

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Our recommendation does not presuppose that time delays have a negative consequence, rather that they should be thoroughly justified and vetted. The recommendation does not limit DWR's ability to be responsive to stakeholder input, but would require DWR to consciously and transparently consider that input before making decisions that affect project cost and schedule, whether during planning or other phases of the project.

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We disagree with DWR's revision to the recommendation because it introduces the risk that DWR will direct contractors to select specific subcontractors, which undermines the intent of the recommendation to have the contractor put forth the subcontractor it believes will best perform the work required by the contract and require DWR to verify the qualifications of the subcontractor before approving the selection.

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Appendix D

Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary

C-WIN Report on the Quantification of the Consumptive Water Available in the Delta Watershed





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**Testimony on
 Water Availability Analysis
 for Trinity, Sacramento, and San Joaquin River Basins
 Tributary to the Bay-Delta Estuary**

**Submitted by
 Tim Stroshane
 Senior Research Associate
 California Water Impact Network (C-WIN)**

**and on behalf of
 California Sportfishing Protection Alliance
 and AquAlliance**

October 26, 2012

for

**Workshop #3
 Analytical Tools for Evaluating the Water Supply,
 Hydrodynamic, and Hydropower Effects of the Bay-Delta Plan
 November 13 and 14, 2012**

The State Water Resources Control Board called for workshops to receive information from and discuss with participating parties the scientific and technical bases for considering potential changes to the 2006 Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary for Phase II of the Board's comprehensive review of this plan.

According to the State Board's public notice for these workshops, the prompts for Workshop 3 testimony are:

1. What types of analyses should be completed to estimate the water supply, hydrodynamic, and hydropower effects of potential changes to the Bay-Delta Plan?
2. What analytical tools should be used to evaluate these effects? What are the advantages, disadvantages and limitations of these tools?

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Submitted by California Water Impact Network,
California Sportfishing Protection Alliance, and AquAlliance

The California Water Impact Network, the California Sportfishing Protection Alliance, and AquAlliance (hereinafter, C-WIN) are pleased to submit this testimony to the State Water Resources Control Board. This testimony addresses the close linkage between the Board's public trust responsibilities on behalf of the State of California, its water quality control planning function, and its duty to regulate water rights in California. Water quality control planning efforts to date have led the Board to consider proportional tributary contributions needed to meet Delta inflow objectives from the Sacramento and San Joaquin River Basins to improve water quality and protect all beneficial uses, including fish and wildlife, in the Delta. The State Water Resources Control Board has authority over water rights in the Basins that would enable it to reallocate water usage and ensure compliance with the Board's new instream flow objectives.

Water availability analysis is an important method for modeling how the Board would implement new flow objectives. Our testimony illustrates the use of a planning-level water availability analysis for the Trinity River (much of whose flows are diverted to the Central Valley watershed of the Bay-Delta Estuary), and the major tributaries of the Sacramento and San Joaquin River Basins. We incorporate into the analysis the Basins' hydrologic variability, instream flow requirements based on the Board's 2010 public trust Delta flow determinations, and then operate publicly available water rights data and priorities on the divertable flows that remain in the system. We find that under public trust protective flow determinations, the promised water represented in water rights claims far exceed flow conditions available to these claims in most years.

We recommend for the Bay-Delta Plan's implementation program that the State Water Resources Control Board draw on its new flow determinations to increase the seasons during which rivers in the Bay-Delta Estuary's Central Valley watershed are fully appropriated, and push back the water rights priority date on which Term 91 curtailments are now based. Our water availability analysis suggests distinct parameters for both actions.

Finally, we conclude that the Board should use the Bay-Delta Plan process to tighten up its regulation of surplus water usage and export by the State Water Project and Central Valley Project to avoid permanently damaging Sacramento Valley groundwater resources. The Board's Delta flow determinations, coupled with comprehensive enforcement of water rights priorities, can help to protect both groundwater and surface water resources in the Sacramento Valley over the long term.

Government's Public Trust Responsibility

Governments have a permanent fiduciary responsibility and obligation to protect the public trust. In *National Audubon Society v. Superior Court* (1983) 33 Cal 3d 419, 441, the court held that "the public trust is more than an affirmation of state power to use public property for public purposes. It is an affirmation of the duty of the state to protect the people's common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when abandonment of that right is consistent with the purposes of the trust." The act of appropriating water is an acquisition of a property right from the waters of the state, an act that is therefore subject to regulation under the state's public trust responsibilities.

The State Water Resources Control Board has invoked its public trust responsibilities in regulating the waters of California and now acknowledges that the public trust is one of its ongoing regulatory responsibilities. Its most publicly prominent instance came in Water Rights Decision 1631 (D-1631) in 1994. In D-1631, the Board balanced the needs of the City of Los Angeles for water supply from the tributaries of Mono Lake with the lake's own needs for water to sustain its ecosystem. It required Los Angeles to make releases from each of its tributaries that would sustain riparian ecosystems and help restore fish populations to the tributaries by prescribing lake level targets in a

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specified time period. (State Water Resources Control Board 1994) The Board has also adopted regulations governing how it treats the public trust in matters of the appropriation of water in California. (State Water Resources Control Board 2011b: Article 14, Standard Permit Terms and Conditions)

The trial court in *United States v. State Water Resources Control Board* (1986, 182 Cal.App.3d 82) determined that the State Water Resources Control Board had the authority to modify an appropriative water right permit once it had been issued, and that it could reduce the US Bureau of Reclamation's Central Valley Project permits to gain compliance from the Bureau. But the trial court held new fish and wildlife objectives the Board had approved in Water Rights Decision 1485 (D-1485) in 1978 to be invalid because the Board failed to identify the *source* of its authority. Justice John Racanelli, the author of the subsequent appellate court decision cited above, stated that the source of the Board's authority to issue and enforce new fish and wildlife objectives such as those contained in Water Rights Decision 1485 (D-1485) was the Public Trust Doctrine:

...the state as trustee of the public trust retains supervisory control of the state's waters such that no party has a vested right to appropriate water in a manner harmful to the interests protected by the public trust. (182 Cal.App.3d 82, 149)

Stevens (2005) summarizes the present range of coverage that American and California law gives the public trust doctrine:

1. It applies to all navigable streams.
2. It applies to ecological preservation.
3. It applies to wetland areas.
4. It applies underground (citing the Waiahole decision from Hawai'i).
5. It applies to artificially enlarged waters.
6. It applies to wild animals, including fish.¹

The Public Trust and Paper Water

In the next few years, the State Water Resources Control Board is expected to make several crucial decisions on California's water future. These decisions include:

¹ The California Constitution also provides an absolute right to fish among the fundamental declared rights it accords all California citizens. Article I, Section 25 states:

ARTICLE 1 DECLARATION OF RIGHTS

Section 25. The people shall have the right to fish upon and from the public lands of the State and in the waters thereof, excepting upon lands set aside for fish hatcheries, and no land owned by the State shall ever be sold or transferred without reserving in the people the absolute right to fish thereupon; and no law shall ever be passed making it a crime for the people to enter upon the public lands within this State for the purpose of fishing in any water containing fish that have been planted therein by the State; provided, that the legislature may by statute, provide for the season when and the conditions under which the different species of fish may be taken.

In combination with California Fish and Game Code Section 5937, which provides that owners of dams must preserve fish populations downstream in "good condition", preservation of this right logically should be construed as an important aspect of the public trust responsibilities of government. It retains meaning as a right only when there exist sufficient fish to catch sustainably.

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- Determining how to provide sufficient flows from the Sacramento and San Joaquin River's major tributaries to the Bay-Delta Estuary.
- Updating its 2006 Bay-Delta Water Quality Control Plan to include those new Sacramento and San Joaquin River flow and South Delta salinity objectives.
- Deciding whether to extend the water rights *permits* of the California State Water Project and the federal Central Valley Project, or instead *license* them at levels that represent reasonable and public trust protective water usage.
- Deciding whether and/or how to permit a "north Delta diversion"—a diversion that is now more familiarly known as the Peripheral Tunnels Project.
- Deciding whether and/or how to permit new reservoirs on the San Joaquin River and in the southwestern Sacramento Valley (and/or to raise existing dams to increase storage elsewhere) that would be added to the storage capacities of the Central Valley Project and the State Water Project.

As a regulatory agency, the State Water Resources Control Board is not known for making and holding to courageous or visionary decisions that protect beneficial uses of water throughout California. Their record of delay and incrementalism has contributed to the poor condition of the Bay Delta Estuary and the great rivers of its watershed, the great Sacramento and San Joaquin Rivers.

The State Water Resources Control Board has authority to make bold decisions and hold to them. (Cahill 2008)

The State Water Resources Control Board will need to balance protection of the public trust with other competing beneficial uses of water reliant on the Delta. The Board has already determined the flows that fish and other aquatic species need. (State Water Resources Control Board 2010: 114-123) In completing and implementing the Bay-Delta Plan, the Board's next step is to evaluate the feasibility of measures needed to protect public trust resources fully. (California Supreme Court 1983; Kibel 2011: 6) These steps will need to include: determination of flow needs of public trust resources, water rights reallocation, flow modification, benefit-cost analysis, and habitat restoration. In the process, key questions must be answered:

1. How does the State Water Resources Control Board intend to prioritize water use in terms of coequal goals, of public trust balancing? How does its long-established water rights priority system fit into this policy framework?
2. What does water supply reliability mean in an arid state where we have granted rights to far more water than actually exists? Should water supply reliability be conditioned upon specific requirements to maximize reclamation, reuse, conservation and development of alternative local sources of water?
3. Is the standard by which we measure water supply reliability the same for junior and senior appropriators? Do uses of water that require vast public subsidies have the same priority as uses that don't require subsidy of public funds? Are uses that internalize adverse impacts equal in priority to uses that externalize them?
4. Should the worth of water be confined only to its economic value in use? Or does water supply reliability apply to both public trust resource needs as well as consumptive uses (i.e., is legislation needed for better protection of public resources through water rights)?
5. Are statutory requirements to protect water quality and listed species equivalent to water supply reliability for lawns or surplus, subsidized, and non-food crops? Are food crops more

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important than non-food commodities when it comes to allocating water? Does health and safety take precedence over certain agricultural uses of water?

6. Does efficient use of water have higher priority over wasteful and inefficient use? Is protection of the Bay-Delta Estuary as a “national treasure” and one of the world’s great estuaries more valuable to society than irrigating impaired soils, that by their nature when irrigated, discharge prodigious quantities of salt and toxic wastes back to our waterways and aquifers?

Answers to these questions are central to resolving California’s water problems.

The California Legislature consolidated the State of California’s water rights and water quality control responsibilities in the State Water Resources Control Board in 1967. Since that time, the Board has considerable authority to grapple with these questions and arrive at answers and solutions from them. The Board has authority to:

- Plan for water quality control.
- Receive, condition, and approve new water rights applications as permits.
- Regulate and license water rights permits specifying the point of diversion, diversion flows, place of use, and purpose of use for water.
- Investigate pre-1914 and riparian water rights to determine whether such claims to divert and use water are legal, including follow-up enforcement against illegal uses when determined (discussed below).
- Investigate and enforce the state’s prohibition of waste and unreasonable use and wasteful and unreasonable method of diversion of water under the California Constitution, Article X, Section 2.
- Protect the public trust. As an agency of the state, the Board is charged with ensuring the state of California carries out its fiduciary responsibility to protect air, running water, the sea, and the seashore, “these things that are common to all,” as stated originally in Roman law (the Institutes of Justinian).

California’s constitution promises water rights only up to what is a reasonable use. No one has a right in California to use water unreasonably, not even the federal government. (California Constitution, Article X, Section 2) The Public Trust Doctrine provides that no one has a vested right to appropriate water in a manner harmful to the interests protected by the public trust. (*National Audubon Society v. Superior Court*, 33 Cal.3d 419, 189 Cal.Rptr 346, 658 P.2d 709) And the dictionary definition of usufructuary rights, of which both riparian and appropriative water rights are examples, indicates that a fundamental principle of usufruct is that it connotes only a right to *use* a resource like water, not to waste or use it unreasonably. The State Water Resources Control Board, in taking up all of the key questions we outline above, will be deciding whether and how California’s abundant legal authorities apply to the Bay-Delta Estuary’s Central Valley watershed.

The Public Trust and Proportional Delta Inflows

In mid-2009, the State Water Resources Control Board updated its review of the Water Quality Control Plan which its Water Right Decision 1641 (D-1641) implements. The Board took the position that to change its water quality and flow criteria it needed more scientific information about flows reasonably needed to protect fish and wildlife beneficial uses (State Water Resources Control Board, 2009: 17). Its impetus to consider making changes at that time included pronounced fisheries declines among both open water resident and migratory fish, and the still-unfolding impacts of climate change and its impacts on the Bay-Delta estuarine system (State Water

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Resources Control Board, 2009: 9). The California Department of Fish and Game sought to build a salmon survival model to assist the Board's need for additional information. (California Department of Fish and Game 2010)

Later in 2009, the California Legislature directed the State Water Resources Control Board to prepare a report on Delta flow criteria that would "develop new flow criteria for the Delta ecosystem necessary to protect public trust resources" and in so doing "use the best available scientific information." The Legislature directed the Board to gather the information as part of an "informational proceeding" rather than through an evidentiary hearing. And the Legislature charged the Board with including volume, quality and timing of water necessary for the Delta ecosystem under different conditions (California Water Code: Section 85086(c)).

The Board produced its Delta flow criteria report after taking detailed testimony on the best available science for key fish species and ecosystems. The report identified a set of broad flow regimes for upstream tributaries providing inflow to the Bay-Delta Estuary that fish need to survive and recover. They represent the Board's consideration of the best available fishery and hydrologic science it considered during 2010 addressing the question: what flows do fish need? The Board confirms this when it stated in a footnote, "...the flow criteria developed in this proceeding are intended to halt population decline and increase populations of certain species," and acknowledged that, "Recent Delta flows are insufficient to support native Delta fishes for today's habitats....Flow and physical habitat interact in many ways, but they are not interchangeable." (State Water Resources Control Board 2010: 5, 120)

The Board states that the flow criteria "must be considered" in context:

- The flow criteria do not consider any balancing of public trust resource protection with public interest needs for water.
- The State Water Board does not intend that the criteria should supersede requirements for health and safety such as the need to manage water for flood control.
- There is sufficient scientific information to support increased flows to protect public trust resources; ***while there is uncertainty regarding specific numeric criteria, scientific certainty is not the standard for agency decision making.*** (State Water Resources Control Board 2010: 4; emphasis added)

The Board's flow determinations are:

- 75 percent of unimpaired Delta outflow from January through June.
- 75 percent of unimpaired Sacramento River inflow from November through June.
- 60 percent of unimpaired San Joaquin River inflow from February through June.
- Increased fall Delta outflow in wet and above normal years.
- Fall pulse flows on the Sacramento and San Joaquin Rivers to stimulate migrating fish.
- Flow criteria in the Delta interior to help protect fish from mortality in the central and southern Delta caused by operations of the state and federal water export pumps.

In essence, these flow determinations represent the Board's answer to the question, "what flows do fish need in the Central Valley watershed and the Bay-Delta Estuary?" The State Water Resources Control Board's 2010 Delta flow criteria report acknowledged that protective Delta outflows start with protective tributary inflows to the Delta. The Board's Delta inflow criteria rely on a percentage of unimpaired flow measure, which enables the flow criteria on the Sacramento and San Joaquin rivers to more closely mimic their natural hydrographs than now occurs.

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For the San Joaquin River, the State Water Resources Control Board approved its determination that 60 percent of unimpaired flow from February through June for the river basin would protect juvenile Chinook salmon during their peak emigration period. For the Sacramento River, the Board adopted the criterion of 75 percent of unimpaired flow from November through June. (This is because numerous runs of migratory salmon use the Sacramento River Basin for more of the year.) These constrained periods would also benefit the rearing period of juvenile salmon in the basin's major tributaries upstream. The Board also adopted in that report (2010) a fall season Delta inflow criterion calling for an average flow of 3,600 cubic feet per second for 10 days sometime during late October.

Nearly all scientists testifying to the Board in March 2010 agreed that mimicking the natural hydrograph (in shape if not in magnitude and volume of flow) is necessary to improve conditions for native fish species, and to counter invasive species in the Delta. Existing Board water quality and flow objectives intended to protect fish and wildlife beneficial uses in the south Delta are not working, as shown in abundant evidence presented to the Board at its hearings for the Delta Flow Criteria report. The Board includes much of that data in its report. (State Water Resources Control Board 2010) C-WIN provide a brief evaluation of the Vernalis Adaptive Management Plan to supplement this record of failure in Appendix A to this testimony.

In August 2010, the State Water Board approved these currently nonbinding Delta inflow determinations for the Sacramento and San Joaquin rivers. (State Water Resources Control Board 2010: 114-123) The State Water Resources Control Board observed that using such flow criteria would mean that "to achieve the attributes of a natural hydrograph, the criteria are advanced as a percentage of unimpaired flow on a 14-day average, *to be achieved on a proportional basis from the tributaries to the San Joaquin River.*" (State Water Resources Control Board, 2010: 120, emphasis added) The Board makes an important point that mimicking natural hydrograph and improving prospects for species recovery depends on achieving proportional flow allocations from all the major tributaries. Proportional tributary contributions would be needed to implement the Board's broader Delta inflow criteria. The Board will need to answer key questions including: what should those proportions be, how should responsibility for them be assigned, and who will be responsible for providing them? And: when will the upper San Joaquin River be included by the Board in making these determinations? (Right now, the Board excludes the upper San Joaquin River from its Bay-Delta Estuary planning deliberations. C-WIN evaluates the Board's stance in Appendix B.)

The question for the Board is how to do proportional flows *legally*. Proportional tributary contributions from Delta inflow are not new. In 1992, the California Department of Fish and Game proposed a method to identify tributary contributions to Delta inflows based on the pro rata share of unimpaired runoff each tributary generates to the Delta, as identified in the California Department of Water Resource's Bulletin 120 each year (California Department of Fish and Game, 1992). Other allocation methods could be devised as well, such as one based on reservoir storage on these same tributaries. The State Water Board in its Draft Water Right Decision 1630 presented such a method, but which excluded contributions from the San Joaquin River above Mendota Pool (State Water Resources Control Board, 1992: Tables IV and V).

Proportional tributary contributions needed to fulfill Delta inflow determinations from the Trinity River, and the major tributaries of the Sacramento and San Joaquin River Basins will require changes to the water rights of major water users in these Basins. The State Water Resources Control Board has authority over water rights to reallocate water usage and ensure compliance with the Board's Delta inflow objectives.

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Paper Water Means Boundary Disputes and Clouded Titles

Property is often legally conceived as a bundle of rights representing “investment-backed expectations” of a future stream of benefits accruing to its owner, usually in the form of money. Water rights are a form of property, conveying to their owners rights to use water from a stream. Unlike real property in land, however, we have a situation in which far more in rights to use water have been granted by the state or claimed by right holders than Nature and reality actually provide.

California’s modern water code and its body of water rights case law is the result of more than a hundred and sixty years of legislation and legal precedent. Riparian water rights are the most paramount rights, followed by pre-1914 appropriative rights and, lastly, post-1914 appropriative rights, as determined by the seniority requirements of first-in-time-and-use.

But despite this accumulated legal tradition, human promises of water exceed Nature’s provisions. A shorthand description of this condition is “paper water.” The paper water problem in the area of water and rivers in California has close analogies in concepts like “clouded title,” and “boundary dispute” for a piece of real property (say, a house, or a plot of land) that has more than one owner claiming the same piece or portion of ground. Typically, boundary disputes are resolved by one or more disputants engaging the services of a surveyor to establish where the boundary is actually located. From there, the owners have a common set of facts on which they may agree to resolve their boundary dispute.

“Clouded title” has relevance here as well. A clouded title means the ownership of a title in water has some defect or potential defect arising from a competing claim for the same source of water.

One of the earliest recognitions of the problem of paper water in California occurred over a century ago and helps illustrate the clouded condition of paper water. In 1900, Frank Soulé, a professor of civil engineering at the University of California, was retained by the US Department of Agriculture’s Office of Irrigation Investigations to study water rights claims in the San Joaquin River basin. Soulé found that the San Joaquin River’s average winter and spring months’ flows were approximately 5,000 to 6,000 cubic feet per second. In drier late summer and fall months, flows could get as low as 150 cubic feet per second. Soulé researched water rights claims to all tributaries of the San Joaquin River watershed to see how they matched up with flows in the river. Actual flows from the 1895-1909 period averaged about 2.02 million acre-feet, according to state records. (State Water Resources Board 1951: Table 62) He visited the recorders’ offices for Stanislaus, Merced, and Fresno counties and itemized 315 claims to San Joaquin River waters totaling 36,571,471 miners inches of flow (there are 50 miners inches to a cubic foot per second). This converts to 731,429 cubic feet per second. Stretched out over a year (Soulé did not specify the seasons for which the claims were made), this translated into an annual claim of water rights of 529.9 million acre-feet of water, over 260 times greater than average flow of the San Joaquin River in that period. For an eight-month irrigation season of about 246 days, such flows would amount to 356.9 million acre-feet, nearly 180 times greater than San Joaquin River flows. These, Soulé contended, were the “definite claims,” ones that had well-defined diversion points and amounts claimed. Six separate individuals claimed “all the water flowing in the San Joaquin River,” a definite claim, if exaggerated. His summary for the San Joaquin did not include claims to the Fresno and Chowchilla rivers, which are much smaller watersheds, but the grandiosity continued there. On the Fresno River, some 670,799 miner’s inches were the subject of 50 claims (about 13,416 cubic feet per second or 9.7 million acre-feet a year), and on the Chowchilla just 14 claims aggregated to 31,008 cubic feet per second (or about 22.5 million acre-feet annually). (Soulé 1901: 222, 232)

Clouded titles in water have been allowed to fester since before Professor Soulé began studying the problem in 1900. Failure by the State of California to quiet titles to water since assuming authority

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for appropriative water rights in 1914 contributes untold expectations for benefit streams that fuel controversy in California water resources planning and development ever since.

C-WIN is not a lone contemporary voice on the problem of paper water. In September 2008, State Water Resources Control Board staff informed the Delta Vision Blue Ribbon Task Force about water rights, use, and flows in the Delta watershed. It stated in part:

- The “total face value of the approximately 6,300 active water right permits and licenses within the Delta managed by the State Water Board, including the already assigned portion of state filings, is approximately 245 million AFA [acre-feet annually].” Our organizations note that this 245 million acre-feet of face value in water rights was permitted by the Board and its predecessors in the Central Valley watershed (including imports from watersheds like that of the Trinity River). (State Water Resources Control Board 2008)
- Face value “does not include pre-1914 and riparian water rights.” Riparian water rights, in the absence of some form of watershed adjudication, are usually unquantified but nonetheless require real, wet water. (State Water Resources Control Board 2008) And,
- That “the total face value of the unassigned portion of state filings for consumptive use (excluding state filings for the beneficial use of power) within the Delta watershed is approximately 60 million [acre-feet annually].” These are claims the State has filed to reserve water for further expansion of the State Water Project. (State Water Resources Control Board 2008; see also Appendix C.)

Other matters exacerbate the paper water problem:

- The SWRCB does not know how much water is actually used (and by whom) since state law has yet to require full accounting of either surface or ground water use.
- The SWRCB does not know the extent of paramount riparian or senior pre-1914 water rights either.
- Climate change is likely to alter the timing and reduce the volume of runoff into California’s rim dams and overall state and federal water systems. (Knowles and Cayan 2002) It is also likely to decrease natural groundwater recharge as well, which would further reduce runoff volumes where river reaches benefit from groundwater inflows.
- Increased cold water pools and groundwater support from gaining streams will be needed to maintain water temperatures below rim dams according to estimates by the SWRCB and Department of Fish and Game of the increased inflow and outflow necessary to protect rivers and the Delta public trust resources. (California Department of Fish and Game 2010: 51, Table 5)

Given these constraints, the obligation to achieve a public trust balancing of water supply reliability with fish and ecosystem survival cannot rest on maintenance of existing levels of supply from either Delta exports or the rim dams on all major Central Valley tributaries in the Delta watershed. The State Water Resources Control Board must use its water rights authority in the service of meeting these water quality challenges on behalf of public trust resources.

The Delta Watermaster acknowledges the problem of paper water in a recent report on the State Water Resources Control Board’s role in the Delta Stewardship Council’s Delta Plan process (Wilson 2011). He expresses concern, however, that “the face value of water rights is not a sufficient

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measure of water that can be used to determine the over-allocation of water in the [Delta] watershed." He cites four main reasons for his concern:

- The face value of many water rights are for nonconsumptive uses, such as hydropower.
 - **C-WIN Response:** As much as possible, water availability analysis should factor out water rights claims that are primarily devoted to nonconsumptive uses and hydropower generation in particular. C-WIN's analysis factors out all single-purpose hydropower generation water rights claims, whether pre- or post-1914. Where multiple purpose of use claims include hydropower generation, we assume these rights are still primarily consumptive use claims, especially when irrigation is one of the other purposes of use for which claims are made. Hydropower generation is considered incidental to the other consumptive uses.
- The face value represents a maximum possible water diversion, which is far greater than what is actually used;
 - **C-WIN Response:** We agree that face value often represents a maximum possible diversion (and/or storage amount). We also agree that it may be far greater than what is actually used in many cases. But C-WIN's review of water right claims shows that some rivers' claims far exceed maximum unimpaired flows and even reservoir capacity on that river. (The Trinity River is a good example of this.) This is less a criticism of face value than an acknowledgement of paper water by the Delta Watermaster. Nor does it justify continuation of the practice by the State Water Resources Control Board. Since the maximum possible flow (and use) can occur only relatively rarely in California's hydrology, C-WIN suggests that this extra increment of claims be eliminated because it will occur in the future with even less frequency than now occurs. Reliable rights are only meaningful when they can be exercised with relative frequency.
- Permit/license terms, such as those for protection of instream uses, further reduce below the face value the amount of water that can be diverted;
 - **C-WIN Response:** The State Water Resources Control Board needs to continue having some standard method for quantifying the value of water rights as property. This is the only way that increments of title to water as property can be described and titles cleared or quieted in the event of dispute. Moreover, quantified water rights are the only way to conduct reality-based water resources planning and development. This extends to employing a standard method for quantifying and measuring instream flows that benefit public trust resources. If the Board and Delta Watermaster are to enforce instream flows, they must quantify instream flow commitments and ensure that they are fulfilled *prior* to the exercise of permitted or licensed water rights claims.
- Water, when applied, is typically not consumed up to the full face value and the same water (return flow) is often used multiple times as it runs downstream.
 - **C-WIN Response:** While C-WIN acknowledges the reality of return flow in diversion of water for consumptive irrigation uses, there is no consistently available data that measures the volume and occurrence of return flow to rivers. Some estimates, both recent (California Department of Water Resources 2005: water balances for Sacramento and San Joaquin River Basins) and historical (Wiel 1928: 259) put return flow at between 60 and 65 percent of originally diverted volumes. Of course, the reality of return flow, however, means that river flow can decrease by as much as a third of diversion quantities each time it is applied; the more frequently water is diverted to consumptive use, the sooner surface flows are depleted in the immediate

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river reach downstream. Return flows do not reach the river from which they were diverted instantaneously. Once diverted there occurs a time lag between the diversion and its application, and when water actually returns to the river, and even then, it may only reach the river in small increments, depending on the surface return flow and/or subsurface transmissivity getting back to the river. Meanwhile, the diverted water is gone from the river, thereby depleting its flow until some later time and lower location. If return flow is truly important to determining water availability and avoiding boundary disputes and clouded water titles, then California needs to invest in getting data from each watershed that quantifies the volume, timing, and duration of return flow, instead of ignoring it. (State Water Resources Control Board 1983: 9-10)

C-WIN's methodology recognizes each of these facets of "face value" or face amount of water rights. Unfortunately, the Delta Watermaster's remarks do not clarify whatever else it is that face value quantities in water rights are supposed to positively describe. If the quantities in water rights are not relevant to face value, then on what basis can separable, stable, and reliable rights to water use be analyzed and judged? The Watermaster acknowledges that "while actual water use may be only a fraction of the face value of water rights, the state's water supplies have been over-allocated in many areas."² (Delta Watermaster 2011b: 5) C-WIN shows in this testimony that it is possible to use the "data" of water rights in combination with data on flows and diversions to generate a consistent and meaningful picture of the problem of overallocation of water supplies and rights in the San Joaquin River Basin. Our water availability analysis illustrates the usefulness of having *some idea* of the magnitude of the paper water problem as compared with having *no idea*. All of California needs better data on all facets of the problem of paper water.

Tables 1 and 2 provide static (snapshot) views of total water rights in the Trinity, San Joaquin River and Sacramento River Basins. Total water rights reported in these two tables are for consumptive uses. Hydropower generation water rights have been excluded from this analysis.

In Table 1, average annual unimpaired flow for the San Joaquin River Basin is about 6.2 million acre-feet compared with 32.7 million acre-feet of consumptive water rights claims. The ratio of total claims to average unimpaired flow for the San Joaquin Basin is 5.3 acre-feet of consumptive use claims to every acre-foot of unimpaired flow in the Basin. About 49 percent of total consumptive water claims are by riparian and pre-1914 claimants, while 51 percent is by post-1914 claimants (that is, permits and licenses) regulated by the State Water Resources Control Board.

Specifically on the major tributaries of the San Joaquin River Basin, the ratio of total consumptive use claims to unimpaired flow ranges from about 5.6 on the Stanislaus to 6.3 acre-feet of claims to every unimpaired acre-foot of flow on the San Joaquin River (including valley floor and upper watershed claims).

In Table 2, average annual unimpaired flow in the Sacramento Valley (essentially, average Sacramento River inflow to the Delta) is about 21.6 million acre-feet. Consumptive water rights claims are estimated at about 120.6 million acre-feet. The ratio of total consumptive use claims to average unimpaired flow in the Sacramento River Basin is about 5.6 acre-feet of claims per acre-foot of unimpaired flow. Ratios of claims to unimpaired flow to range from 2.2 on the Yuba River to 6.8 on the Trinity River.

² The Delta Watermaster suggests that for the Delta the process for determination of fully appropriated streams from the Water Code Sections 1205 through 1207 be used (p. 5).

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Table 1					
Consumptive (Irrigation) Water Rights Summary for San Joaquin River Basin					
Flows and Consumptive Water Rights	Thousands of Acre-Feet				
	Stanislaus River	Tuolumne River	Merced River	San Joaquin	Basin Total
Average Annual Unimpaired Flow	957	1,851	956	1,728	6,181
Total Consumptive Water Right Claims	5,318	11,015	5,495	10,828	32,656
Ratio of Total Claims to Unimpaired Flow	5.56	5.95	5.75	6.27	5.28
Total Riparian & Pre-1914 Claims	1,401	8,185	4,525	2,014	16,125
Ratio of Riparian & Pre-1914 Claims to Unimpaired Flow	1.46	4.42	4.73	1.17	2.61
Total Post-1914 Claims	3,917	2,831	970	8,814	16,532
Ratio of Post-1914 Claims to Unimpaired Flow	4.09	1.53	1.01	5.10	2.67

Sources: State Water Resources Control Board (e-WRIMS); Public Record Act responses from various public water and irrigation districts; California Water Impact Network. Sum of major tributaries' unimpaired flow does not equal Valley total due to omission of other watersheds from the table.

Table 2					
Consumptive (Irrigation) Water Rights Summary for Trinity and Sacramento River Basins					
Flows and Consumptive Water Rights	Thousands of Acre-Feet				
	Trinity River	Feather River	Yuba River	American River	Sacramento Valley Total
Average Annual Unimpaired Flow	1,283	4,370	2,287	2,621	21,619
Total Consumptive Water Right Claims	8,725	15,717	5,093	9,847	120,571
Ratio of Total Claims to Unimpaired Flow	6.80	3.60	2.23	3.76	5.58
Total Riparian & Pre-1914 Claims	134	3,855	92	286	47,883
Ratio of Riparian & Pre-1914 Claims to Unimpaired Flow	0.10	0.88	0.04	0.11	2.21
Total Post-1914 Claims	8,591	11,863	3,596	9,561	72,688
Ratio of Post-1914 Claims to Unimpaired Flow	6.70	2.71	1.57	3.65	3.36

Sources: California Department of Water Resources, 2007; State Water Resources Control Board (e-WRIMS); Public Record Act responses from various public water and irrigation districts; California Water Impact Network. Sum of major tributaries' unimpaired flow does not equal Valley total due to omission of other watersheds from the table. Trinity River is included because a large portion of its runoff is exported to the Sacramento River via federal Central Valley Project facilities.

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On a basin-wide basis, riparian and pre-1914 water claims account for about 40 percent of total consumptive use claims of 120.7 million acre-feet, and post-1914 claims (permits and licenses) in the Sacramento River Basin amount to about 60 percent of total consumptive use claims.

The largest water claims on Sacramento River Basin tributaries belong to the Feather River and the American River. The mainstem Sacramento (which is incorporated into the total for the Valley) includes the Pit and McCloud rivers and numerous small creeks that enter it from the east and west. C-WIN estimate that the largest component of pre-1914 water rights claims is held by the Glenn-Colusa Irrigation District. This District claims 26 million acre-feet in rights to divert directly from the Sacramento, as well as another 12 million acre-feet in rights from west side creeks.

On the Trinity River, the US Bureau of Reclamation is a significant claimant of post-1914 water rights, and given the small amount of riparian and pre-1914 water rights claims on the Trinity, the Bureau's Trinity River rights are reliable, as conditioned and limited by the Trinity River Record of Decision. (US Department of the Interior 2000) The Trinity's ratio of total consumptive claims to average unimpaired flow is 6.8 acre-feet of claims to every acre-foot of unimpaired flow.

There is another, more dynamic approach that we also include in this testimony to characterize excess claims to water use relative to flows. This planning-level analysis of water availability incorporates into the model hydrologic variability, instream flow requirements and publicly available water rights priorities on the divertable flows that remain in the system.

Applying Water Availability Analysis

In Tables 3A and 3B and accompanying charts, we present results of applying both a diversion cap (derived from the State Board's 2010 Delta flow determinations) and the water rights priority system in the manner that the State Water Resources Control Board is legally authorized to proceed. The unimpaired flow hydrology for this analysis was obtained from the California Department of Water Resources (2007). This analysis proceeds from the basic water rights premises that:

- 1) Instream flows needed to meet water quality and flow objectives have top priority.
- 2) When applying water rights, riparian rights are paramount, followed by—
- 3) Pre-1914 water rights claim water based on seniority date, followed by—
- 4) Any water left over is provided to junior water rights holders, in order of priority date (whether pre-1914 rights or post-1914 permits and licenses).

Detailed model results, water rights, and flow data employed in the analysis are found in Appendix D. Assumptions embedded in the method are itemized in Appendix E of this report.

To apply the water rights priority system in the context of providing new Delta inflows from the major tributaries, C-WIN's analysis builds in a range of flows from the 10th through 90th percentiles of the 82-year unimpaired flow hydrology available from the California Department of Water Resources (2007). 25th, 50th (median), and 75th percentile (quartile) flows are also considered. C-WIN's analysis summarizes total regulated period unimpaired flow, the Delta inflow contribution, and calculates a "diversion cap." (See Appendices D.1, D.2, and E.)

Water rights priorities are then assigned to allocate the diversion cap flows for the regulation period to paramount riparian and senior water right holders first. Detailed tables of our model results are provided in Appendix D.1 for the Trinity and the major Sacramento and San Joaquin River Basin tributaries. On the major tributaries, there are generally few significant water rights holders, and relatively small blocs of riparians may be known and allocated flows prior to pre-1914

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River/ Instream Flow Objective	Annual Total		
	Riparians and Senior Pre-1914 Right Holders	Major Water Right Claimants	Other Junior Major Claimants
Stanislaus	Various, including Tuolumne Utilities District	Oakdale & South San Joaquin Irrigation Districts	US Bureau of Reclamation
40% Diversion Cap	29 TAF in all percentile flows.	198 to 758 TAF in all percentile flows.	81 to 250 TAF in the 50 th to 90 th percentile flows.
Tuolumne	Various, including Tuolumne Utilities District	Turlock Irrigation District, Modesto Irrigation District	City & County of San Francisco
40% Diversion Cap	23 TAF across all percentile flows.	408 to 1,662 TAF across all percentile flows.	95 TAF in only the 90th percentile flows.
Merced	Various, including Gallo interests	Merced Irrigation District	Not applicable
40% Diversion Cap	218 to 283 TAF across all percentile flows.	5 to 594 TAF from 40th to 90th percentile flows, about 14% of all claims.	Not applicable
San Joaquin	Below Friant Dam, and along Fresno Slough	San Joaquin River Exchange Contractors	US Bureau of Reclamation
40% Diversion Cap	172 TAF in all percentile flows.	248 to 817 TAF in all percentile flows.	89 to 413 TAF in 75th to 90th percentile flows.
Sources: California Department of Water Resources, 2007; State Water Resources Control Board, 2010, 2012; other primary and secondary sources compiled by the California Water Impact Network. See Appendix D for details of data and supporting model results.			

right holders. Pre-1914 water right claims tend to comprise the majority, or in most cases exceed the unimpaired flows in most (and in some cases, all) decile flows reported in the analysis.

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Table 3B			
Summary of Water Availability Analysis Results Incorporating Water Rights Claims for the Trinity River and the Major Tributaries of the Sacramento River Basin			
River/ Instream Flow Objective	Annual Total		
	Riparians and Senior Pre-1914 Right Holders	Major Water Right Claimants	Other Junior Major Claimants
Trinity 25% Diversion Cap	Various, small claimants 134 TAF in all percentile flows.	US Bureau of Reclamation 77 to 454 TAF across all percentile flows.	Not applicable Not applicable.
Sacramento River above Feather River Confluence 25% Diversion Cap	Various, including Anderson-Cottonwood ID and Glenn Colusa ID 2,094 to 5,983 TAF ranging across all percentile flows.	Early Post-1914 to early 1927 claimants 0 TAF across range of all percentile flows.	CVP and Feather River Project Filings from 1927 through 1961 0 TAF across range of all percentile flows.
Feather River 25% Diversion Cap	Western Canal WD and Joint Water Districts, adjudication decrees 729 to 1,972 TAF ranging across all percentile flows.	South Feather and Thermalito 1920s Rights 4 to 34 TAF from 20 th to 90 th percentile flows.	DWR 1927, 1951, and 1956 Claims 7 to 236 TAF in all percentile flows.
Yuba River 25% Diversion Cap	Various, including Nevada ID, City of Nevada City 258 to 1,004 TAF ranging across all percentile flows.	Nevada ID and Yuba Co WD 1920s Rights 10 to 12 TAF only at 25 th to 80 th percentile flows.	Yuba County Water Agency 1927 Claims 20 to 81 TAF among 50 th to 80 th percentile flows.
Bear River 25% Diversion Cap	Various, including Nevada ID 26 to 92 TAF ranging across all percentile flows.	Camp Far West and Nevada ID Claims 1 to 54 TAF across all percentile flows.	South Sutter Water District Claims 4 to 9 TAF from 50 th to 90 th percentile flows.
American River 25% Diversion Cap	Various, including San Juan Water District, Nevada ID and City of Sacramento Post-1914 Claims 291 to 1,006 TAF ranging across all percentile flows.	Georgetown Divide PUD and Placer County Water Agency 8 to 183 TAF from 50 th from all percentile flows.	US Bureau of Reclamation 9 to 139 TAF in all percentile flows.
Sources: California Department of Water Resources 2007; State Water Resources Control Board 2010 and 2012; other primary and secondary sources compiled by the California Water Impact Network. See Appendix D for details of data and supporting model results.			

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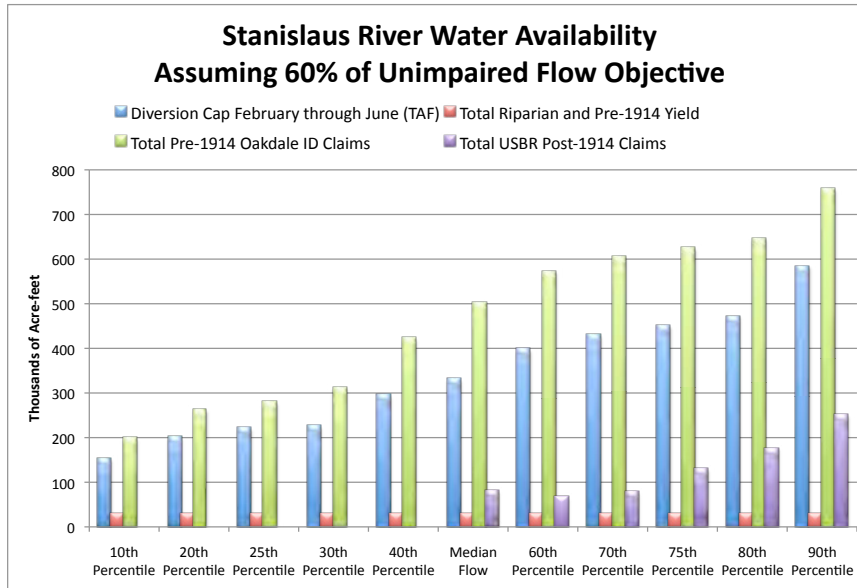
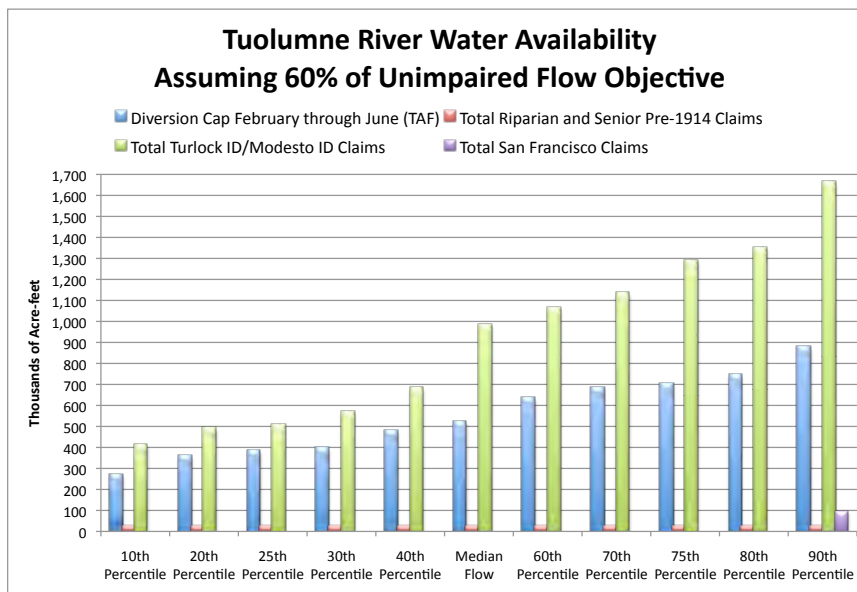


Figure 1, above. Figure 2, below.



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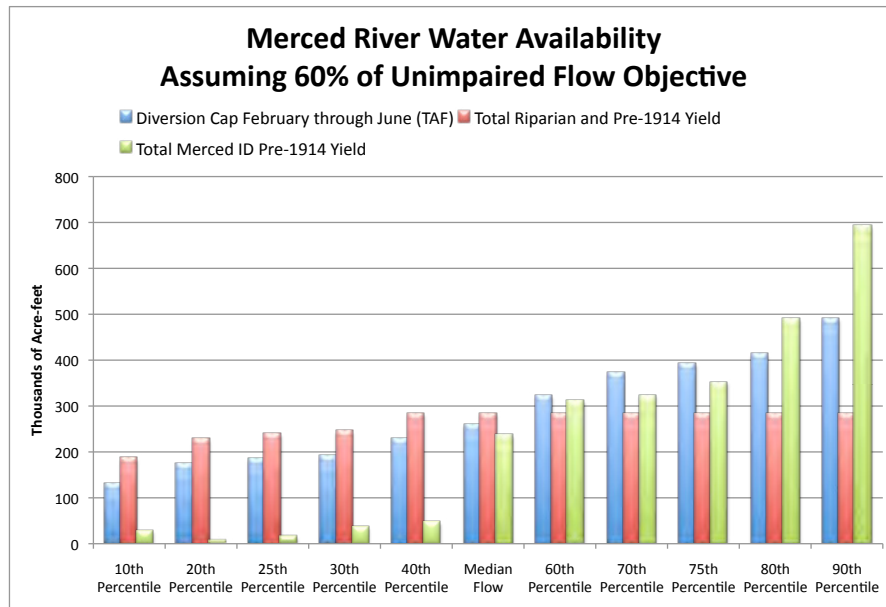
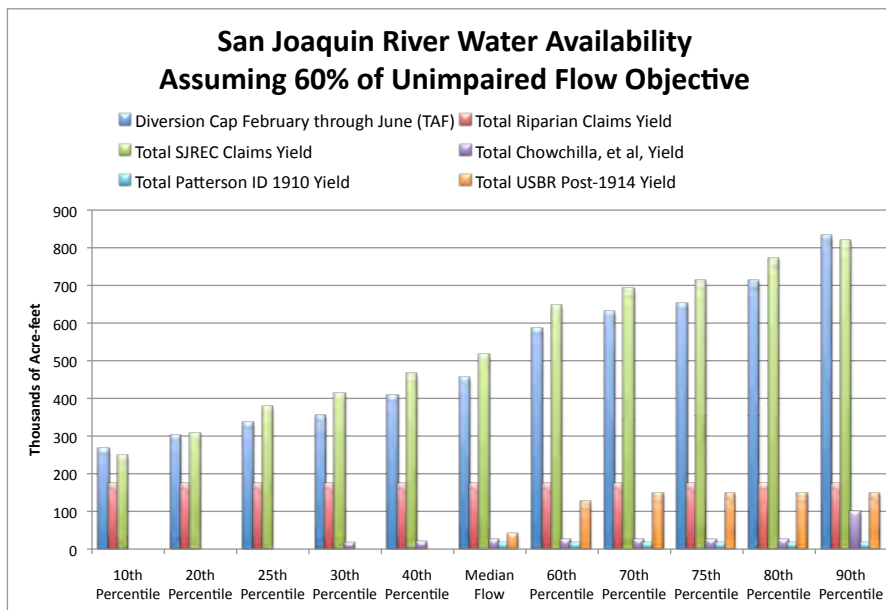


Figure 3, above. Figure 4, below.



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Stanislaus River (Figure 1)

Implications: Under strict application of both the 40 percent diversion cap and the water rights priority system in the Stanislaus River watershed, the US Bureau of Reclamation's water rights for New Melones Reservoir yields only a small fraction of Bureau claims in actual supplies.

Tuolumne River (Figure 2)

Implications: Under strict application of both the 40 percent diversion cap and the water rights priority system, the City and County of San Francisco would have reliable rights to water only in the wettest 10 percent of flows.

Merced River (Figure 3)

Implications: Under strict application of the water rights priority system to the 40 percent diversion cap, Merced Irrigation District's pre-1914 water rights exceed its post-1914 claims significantly, but are junior to a large amount of riparian and senior pre-1914 right holders.

San Joaquin River (Figure 4)

Implications: Only the small riparian allocations along the upper San Joaquin River would have fully reliable flows. The Exchange Contractors would have full claims on flows about 30 percent of the time (at the 70th percentile flows and above). The Bureau of Reclamation would not receive allocations except in the wettest 30 percent of years at all, and would receive its full allocation no more than about 10 percent of the time.

Trinity River (Figure 5)

Implications: Riparian and pre-1914 water right holders on this river system are few. The Bureau's post-1914 water rights to develop Trinity Reservoir and Lewiston Dam, and the hydropower complex linked to Keswick Dam along Clear Creek are the dominant water rights on the Trinity River. As noted in Table 2, however, the consumptive use rights alone appear to be quite excessive relative to Trinity River's unimpaired flow hydrology.³

Sacramento River Above Feather River Confluence (Figure 6)

Implications: Because of large pre-1914 water rights claims by Glenn-Colusa Irrigation District along the Sacramento River, no water would be available to the US Bureau of Reclamation, except from Trinity River exports. Strict application of this pattern of water rights claims would dramatically reduce water available for export from the Sacramento River Basin and potentially undermine the San Joaquin River Exchange Contract.

³ Our analysis applies to the Trinity the Board's 75 percent of unimpaired flow determination for November through June. This flow determination exceeds those of the 2000 Trinity Restoration Record of Decision. (US Department of the Interior 2000)

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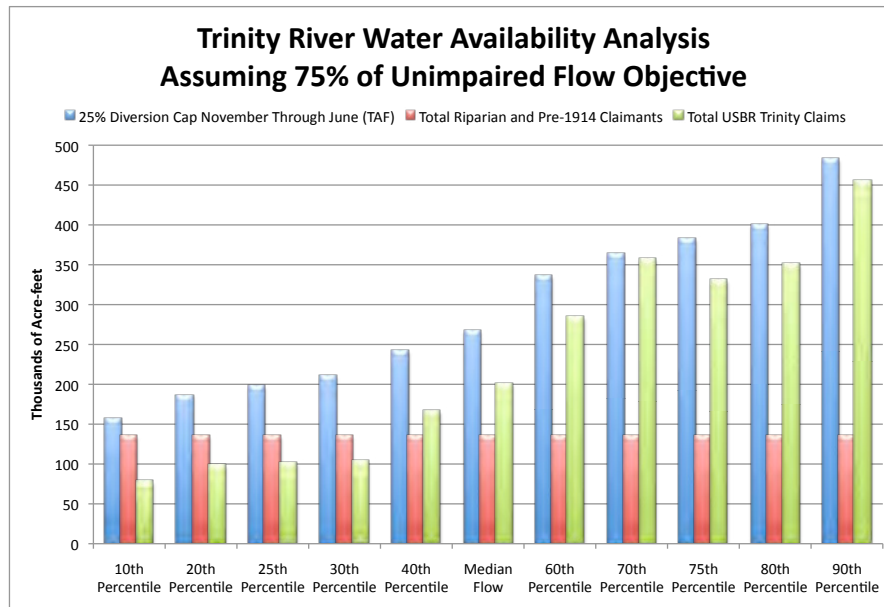
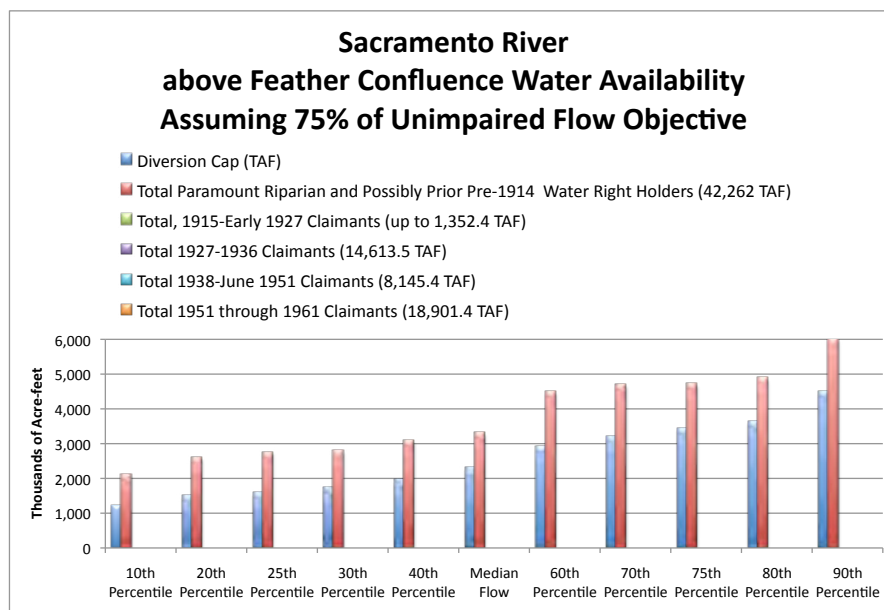


Figure 5, above. Figure 6, below.



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Feather River (Figure 7)

Implications: The Department of Water Resources' 1927, 1951, and 1956 water rights claims for the Feather River Project (now the State Water Project) would receive almost no water under a 25 percent diversion cap scenario. In drier years, even at relaxed diversion cap scenarios, DWR would receive only very small amounts. This is due to senior pre-1914 water rights claimants such as the Joint Water Districts⁴ and Western Canal Water District, whose rights predate the cultivation of rice in the Butte County region, and were adjudicated in 1923. DWR's claims amount to about 10.4 million acre-feet (MAF) on the Feather River alone for consumptive uses.

Yuba River (Figure 8)

Implications: Nevada Irrigation District and Yuba County Water District, through their pre-1914 claims and 1920s water rights claims, would have senior claims to Yuba River flows. Full operation of these claims would nearly eliminate Yuba County Water Agency diversions under a 25 percent diversion cap scenario.

Bear River (Figure 9)

Implications: Because of senior water rights claims by Nevada Irrigation District and Camp Far West Irrigation District, South Sutter Water District would see its supplies reduced significantly relative to its claimed rights under a 25 percent diversion cap scenario.

American River (Figure 10)

Implications: The US Bureau of Reclamation's Central Valley Project facilities along the American River would receive very little water supplies from operation of the water rights priority system under a 25 percent diversion cap, despite having claimed up to 5.35 million acre-feet.

Discussion

Assuming that the State Water Board adopts the 75 percent unimpaired flow determination for the upstream tributaries of the Sacramento River Basin, the 60 percent of unimpaired flow determination for the San Joaquin River Basin, and that the water rights priority system is applied, it becomes evident that several significant water rights claimants that are junior in priority contribute dramatically to the problem of paper water: They have been promised water far in excess of flow conditions available to them in most years.

Table 4 summarizes the major water rights claimants whose titles to water in the Central Valley watershed tributaries should be considered clouded, whose property "boundaries" are in dispute.

⁴ The Joint Water Districts include Butte Water District, Biggs-West Gridley Water District, Richvale Irrigation District, and Sutter Extension Water District, the successors to pre-1914 water rights accumulated by the Sutter Butte Canal Company.

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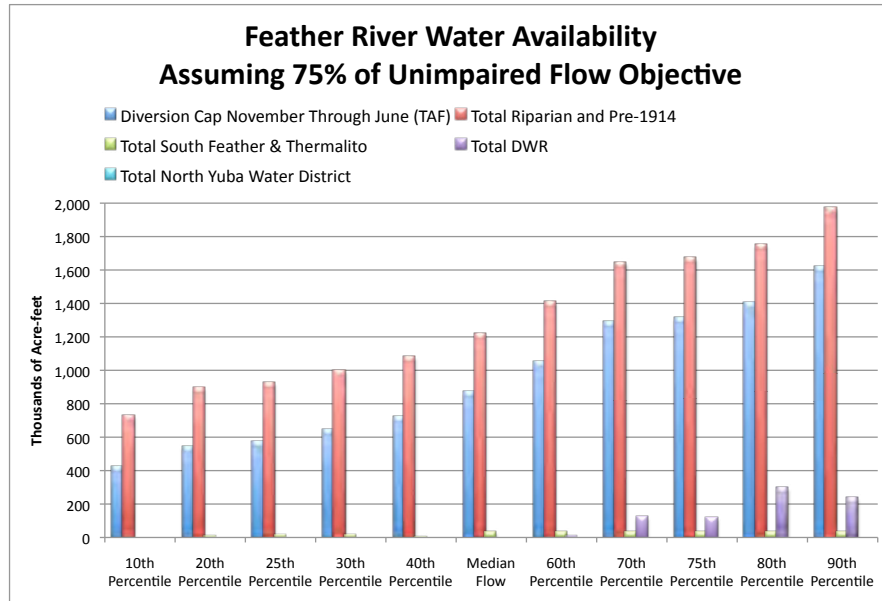
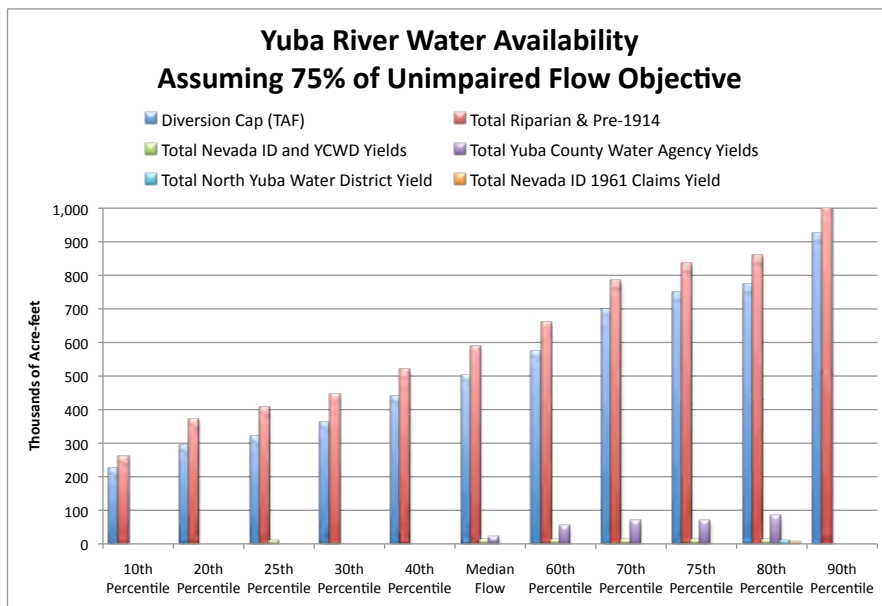


Figure 7, above. Figure 8, below.



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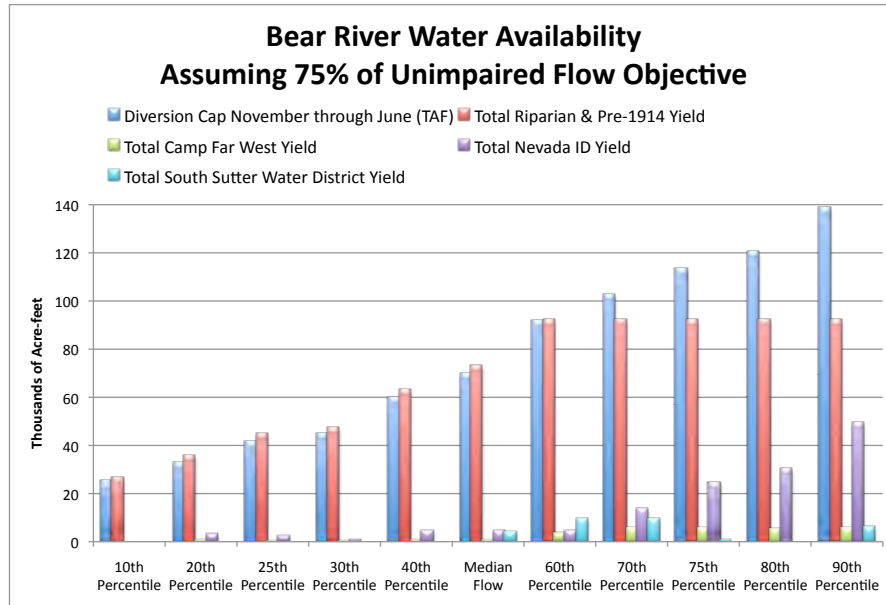
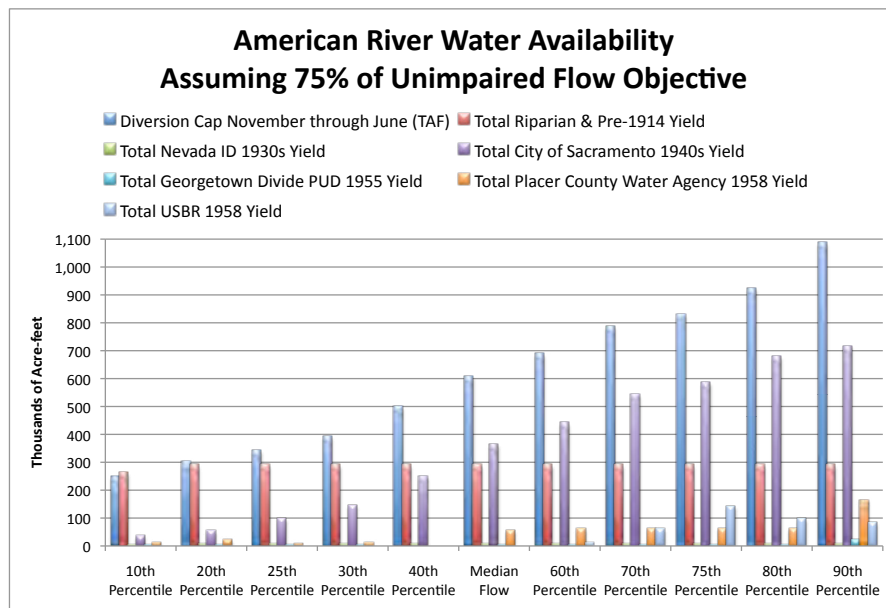


Figure 9, above. Figure 10, below.



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Table 4 Summary of Watershed Consumptive Water Rights Claimants by Reliability (Based on Legal Priority) of Claims		
Watershed	Claimants with Highly Reliable Rights	Claimants with Potentially Clouded Titles to Water
Stanislaus River	Various claimants covered by Stanislaus River decree of 1929; Oakdale ID, South San Joaquin ID	US Bureau of Reclamation (New Melones)
Tuolumne River	Tuolumne Utilities District, Turlock Irrigation District, Modesto Irrigation District	City and County of San Francisco (1901 through 1911 rights)
Merced River	Gallo, various riparian and pre-1914 parties to early Merced River decrees	Merced Irrigation District (post-1914 rights)
San Joaquin River	Paramount riparian claimants, San Joaquin River Exchange Contractors, Chowchilla WD, Tranquillity & James IDs, Patterson ID	US Bureau of Reclamation (post-1916 rights)
Trinity River	Various small riparian and pre-1914 claimants, US Bureau of Reclamation	US Bureau of Reclamation (has overstated water claims compared with actual basin hydrology)
Sacramento River (including west and east creeks, Pit and McCloud Rivers)	Various small riparian and pre-1914 claimants, claimants among adjudicated watersheds in Pit River region, Anderson-Cottonwood Irrigation District, Glenn-Colusa Irrigation District	US Bureau of Reclamation (Shasta Lake)
Feather River	Upper watershed adjudicated claimants, Joint Water Districts, Western Canal WD	California Department of Water Resources (Lake Oroville)
Yuba River	Browns Valley ID, Nevada ID, Yuba County WD	Yuba County Water Agency (1927 rights), Nevada ID (1930s rights), and North Yuba Water District (1958 rights)
Bear River	Nevada ID, Camp Far West ID	South Sutter Water District (1952 and 1981 rights)
American River	City of Folsom, San Juan WD, Georgetown Divide PUD, El Dorado ID, Nevada ID, Placer County Water Agency, City of Sacramento	US Bureau of Reclamation (Folsom Lake), Foresthill PUD
Sources: California Department of Water Resources; State Water Resources Control Board; California Water Impact Network.		

By adopting its public trust Delta inflow determinations as flow objectives in the Bay-Delta Plan for each major tributary, and applying water rights priorities—in that order—the State Water Resources Control Board can use its authority to eliminate paper water (water claims that do not have a basis in water rights law) in the Bay-Delta Estuary’s Central Valley watershed. The California Constitution reminds us that no one in California has a right to use or divert water wastefully or unreasonably. The state’s public trust responsibility requires protection of the waters of the state for the benefit of all beneficial users, not just water rights holders. The state’s water quality control planning obligations carry out this responsibility. It also helps the state meet its public trust

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obligations as well. The doctrine of prior appropriation requires that senior water right holders be served before junior water right holders. The water quality control planning process and the water rights priority system on the major tributaries of the Sacramento and San Joaquin River Basins should be used as tools for eliminating paper water—that is, for quieting water titles, and ending trespasses and boundary disputes that compromise public trust resources—from the Bay-Delta Estuary’s Central Valley watershed.

Paths for Aligning Water Rights with All Other Beneficial Uses and River Flows

We see three primary paths by which the State Water Resources Control Board can align water rights with all other beneficial uses and river flows:

- Water quality control plan implementation,
- Fully-appropriated streams declaration and Term 91, and
- Court adjudication.

Water Quality Control Plan Implementation. The State Water Resources Control Board has approved a Delta inflow determination for the San Joaquin River at Vernalis of 60 percent of unimpaired flow during the February through June period. For the Sacramento the Board approved a 75 percent of unimpaired flow determination for the November through June period. In doing so, the Board would implicitly place a cap on total diversions for each major tributary of 40 percent of unimpaired flow for the San Joaquin River and 25 percent of unimpaired flow for the Sacramento River Basin. These objectives would result in instream flows that are substantially greater in most years than current instream flow requirements now provide. In our water availability analysis, we also apply the Sacramento River Basin 75 percent objective rather than the Trinity Record of Decision flow objectives to the water availability analysis for the Trinity River. (US Department of the Interior 2000: 12)

Key water rights holders in these basins possess riparian and pre-1914 water rights that exist prior to the regulatory powers of the State Water Resources Control Board. On the question of implementing water quality control plans and adhering to state water rights law, the issue has arisen of the Board’s jurisdiction over those water rights that the Board did not originally consent to.

Attorney Tim O’Laughlin, representing the San Joaquin River Group Authority (SJRGA), has asked the State Water Resources Control Board to “identify the legal theory or approach it will use at the implementation proceeding in order to obtain the necessary flows to meet the additional flow requirements identified” in the Board’s flow studies. Without that legal theory or approach, O’Laughlin argues, the State Water Resources Control Board will be unable to complete economic or other impacts analysis in its Substitute Environmental Document on the San Joaquin River Flow and South Delta salinity objectives. He further contended in February 2011 that the Board is operating according to *some* kind of theory since it

blatantly **suggests** that additional flows will come from the Stanislaus, Tuolumne, and Merced Rivers. [State Water Resources Control Board 2011c, pp. 78, 81, and 85-89] This foreshadowing demonstrates that the SWRCB not only believes that, regardless of the Vernalis flow alternative eventually adopted, it will be able to obtain flow from all the tributaries, but that it intends to do so. That approach, however, completely ignores the existence of the water right priority system. (See, e.g., *Pleasant Valley Canal Company v. Borrer* (1998) 61 Cal.App.4th 742, 770; *City of*

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Barstow v. Mojave Water Agency (2000) 23 Cal. 4th 1224, 1243; see also *El Dorado Irrigation District v. State Water Resources Control Board* (2006) 142 Cal. App.4th 937, 961). As the SJRGA has pointed out to the SWRCB on numerous occasions, any approach to allocating responsibility for new Vernalis flow requirements must incorporate the water rights priority system. That said, the SJRGA recognizes that strict application of the water right priority system does not produce straightforward results such that the water required to meet the selected Vernalis flow alternative would come from a particular waterway or tributary, or that such water would roughly be divided equally or proportionally among such waterways and tributaries. (O'Laughlin 2011a: 1-2; emphasis in original)

O'Laughlin, on behalf of SJRGA, asserts that the Board has no jurisdiction to regulate pre-1914 appropriative water rights or riparian rights, regardless of any legal theory the Board intends to use in the implementation phase. If responsibility for new Vernalis flow requirements is determined solely based on the water rights priority system, writes O'Laughlin, "junior water right holders will be required to reduce or completely cease their water use before senior appropriators will be required to reduce theirs" as required in California's doctrine of prior appropriation. (O'Laughlin 2011a)

He wrote to the Board subsequently in June 2011 about its jurisdiction in the Bay-Delta proceedings. There he stated, "It now appears that the [Substitute Environmental Document] is being prepared solely on the basis of percentage of natural flow, without regard to the nature or priority of the water rights affected, and will therefore be the subject of immediate litigation." (He is here apparently referring to the Board's proposed use of a percentage of unimpaired flow as the basis for limiting diversions.) O'Laughlin also reiterated in this letter to the Board that it

does not have jurisdiction over pre-1914 appropriative water rights for any reason, including the implementation of water quality objectives adopted pursuant to the State Water Resources Control Board's authority under Porter-Cologne. Given the prevalence of pre-1914 appropriative rights held in the San Joaquin River Basin, and the scope of the percentage of natural flow that the [Board] is considering, it is almost certain that there will be times and conditions where the [Board] will not be able to implement a percentage of natural flow. It is arbitrary and capricious for the [Board] to continue to consider a percentage of natural flow as one of its objectives without knowing how often, if ever, it will be able to require such percentages be met. (O'Laughlin 2011b)

O'Laughlin argues that the Board's flow objective results may not be achievable if, for example, flow is 100 cfs and the Board applies a 60 percent instream flow criterion to this waterway while pre-1914 water right holders may claim 80 percent of the flow in the stream. In that case, the Board, contends O'Laughlin, "would not be able to obtain the full 60 percent flow it desired." O'Laughlin contends that this not only renders the Delta flow criterion infeasible, it means that evaluation of criterion alternatives under the California Environmental Quality Act in the Substitute Environmental Document will also be infeasible and the SED thus inadequate.

Of course, contrary to the Racanelli decision, O'Laughlin elevates the water rights priority system to paramount status in California water and environmental law. It is plain from a review of state water case law that water rights priorities, while important, are not paramount considerations when the Board takes up the protection of beneficial uses of water. As Justice Racanelli stated, water quality control planning must concern itself with the regulation of *beneficial uses*, not water rights strictly speaking. Beneficial uses include, and go well beyond, water rights and their relative priorities. (See sidebar, page 26.) The Racanelli decision made clear that the State Water Resources Control Board has authority to implement its water quality control plan by regulating all beneficial uses. Adjusting quantities in water rights is within its authority.

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Moreover, the Board retains authority to regulate pre-1914 water rights under its constitutional authority to prohibit waste and unreasonable use of water. The Legislature provided in the California Water Code key sections that do not limit the Board's authority to investigate rivers and streams in the service of the state's constitutional provisions (emphases added).

275. The department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state.

...

1050. This division is hereby declared to be in furtherance of the policy contained in Section 2 of Article X of the California Constitution and in all respects for the welfare and benefit of the people of the state, for the improvement of their prosperity and their living conditions, and the board and the department shall be regarded as performing a governmental function in carrying out the provisions of this division.

1051. The board for the purpose of this division may:

(a) Investigate all streams, stream systems, portions of stream systems, lakes, or other bodies of water.

(b) Take testimony in regard to the rights to water or the use of water thereon or therein.

(c) Ascertain whether or not water heretofore filed upon or attempted to be appropriated is appropriated under the laws of this State.

...

1052. (a) The diversion or use of water subject to this division other than as authorized in this division is a trespass.

(b) Civil liability may be administratively imposed by the board pursuant to Section 1055 for a trespass as defined in this section in an amount not to exceed five hundred dollars (\$500) for each day in which the trespass occurs.

(c) The Attorney General, upon request of the board, shall institute in the superior court in and for any county wherein the diversion or use is threatened, is occurring, or has occurred appropriate action for the issuance of injunctive relief as may be warranted by way of temporary restraining order, preliminary injunction, or permanent injunction.

(d) Any person or entity committing a trespass as defined in this section may be liable for a sum not to exceed five hundred dollars (\$500) for each day in which the trespass occurs. The Attorney General, upon request of the board, shall petition the superior court to impose, assess, and recover any sums pursuant to this subdivision. In determining the appropriate amount, the court shall take into consideration all relevant circumstances, including, but not limited to, the

Beneficial Uses Served in the Bay-Delta Water Quality Control Plan:

- Municipal and Domestic Supply
- Industrial Service Supply
- Industrial Process Supply
- Agricultural Supply
- Ground Water Recharge
- Navigation
- Water Contact Recreation
- Non-Contact Water Recreation
- Shellfish Harvesting
- Commercial and Sport Fishing
- Warm Freshwater Habitat
- Cold Freshwater Habitat
- Migration of Aquatic Organisms
- Spawning, Reproduction, and/or Early Development
- Estuarine Habitat
- Wildlife Habitat
- Rare, Threatened, or Endangered Species

Source: State Water Resources Control Board 2006: 8-9.

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extent of harm caused by the violation, the nature and persistence of the violation, the length of time over which the violation occurs, and the corrective action, if any, taken by the violator.

(e) All funds recovered pursuant to this section shall be deposited in the Water Rights Fund established pursuant to Section 1550.

(f) The remedies prescribed in this section are cumulative and not alternative.

...

1825. It is the intent of the Legislature that *the state should take vigorous action* to enforce the terms and conditions of permits licenses, certifications, and registrations to appropriate water, to enforce state board orders and decisions, and *to prevent the unlawful diversion of water*.

...

2501. The board may determine, in the proceedings provided for in this chapter, all rights to water of a stream system whether based upon appropriation, riparian right, or other basis of right.

Nothing in these sections of the Water Code prevents the Board from investigating pre-1914 water rights and eliminating illegal diversions should they be found. Water Code Section 275, appears to extend this authority of the Board to determining whether any water use is wasteful or unreasonable, or any method of use, or method of diversion is wasteful or unreasonable.

These sections provided authority for the Board to investigate pre-1914 and riparian water rights in the Delta recently. In these investigations, the Board has issued water rights orders that in at least one instance adjusted the rights of a riparian water right holder. (Wilson 2012) Mr. O'Laughlin is surely aware of this authority. On behalf of the San Joaquin River Group Authority, his comments on the Board's 2008-2012 strategic work plan helped initiate the Delta water rights investigations in 2008. He cited California Water Code Section 1825 to support the San Joaquin River Group Authority's recommendation that the Board investigate Delta riparian and pre-1914 water rights. (San Joaquin River Group Authority 2008: 64)

When the Board moves to adjust diversion amounts in the Delta's major tributaries. The Board should apply a diversion cap during the regulated period applicable to each tributary (including the Upper San Joaquin River; see Appendix B) and then allocate diversions according to water rights priority. C-WIN analyzes operation of the water rights priority system in the following river profiles.

Our testimony analyzes water availability using water rights priorities as a way of identifying the legal method for allocating responsibility for Delta inflows that are fully protective of public trust resources in the Delta.

The Board announced in two notices (dated February 13, 2009, and April 1, 2011, the latter containing revisions to the earlier Notice) its intent to revise the Bay Delta Water Quality Control Plan of 2006. This plan traces its lineage to the 1995 Bay Delta Water Quality Control Plan and the Bay-Delta Accord. The San Joaquin River flow and South Delta salinity objective process is likely to be a step in the right direction away from these failed plans. The well-documented failures of this misguided loyalty include:

- Anadromous fishery declines throughout the Central Valley watershed of the Delta estuary.
- Declines of pelagic (open water) aquatic ecosystem regimes throughout the Delta
- Continued listing of endangered species, including salmon, steelhead, Delta smelt, longfin smelt, Sacramento splittail, and green sturgeon.
- Chronic violations from 2005 through 2009 of south Delta salinity objectives in both the Bay-Delta Water Quality Control Plan and Water Rights Decision 1641 that are intended to protect agricultural beneficial uses in this part of the Delta.

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- Historic record Delta pumped exports between 2000 and 2006, peaking at nearly 6.4 million acre-feet. (More recently, 2011 exports reached 6.7 million acre-feet.)

From the two NOPs, it appears the Board prepares to incorporate flow objectives for major tributaries of the San Joaquin River: the Stanislaus, the Tuolumne, and the Merced rivers. It appears to us the Board intends to require fair share flow contributions from each of these important rivers to flows of the mainstem San Joaquin as inflow to the Delta as measured at Vernalis. Our organizations welcome this prospect in concept, and support the Board's efforts toward this goal, despite legal, ecological, and engineering challenges ahead.

The 1986 Delta Water Cases decision (also named as the "Racanelli decision" for its author, presiding Justice John Racanelli of the Third District Court of Appeals in California) bears review because it defines the Board's water quality planning duties for the Delta and its watershed. (California Appeals Court, Third District 1986) When it comes to the Board's role in undertaking its duty to fulfill its water quality planning function, the Racanelli court stated:

In its *water quality* role of setting the level of water quality protection, the Board's task is not to protect water rights, but to protect 'beneficial uses.' The Board is obligated to adopt a water quality control plan consistent with the overall statewide interest in water quality [citation to California Water Code §13240] which will ensure 'the reasonable protection of *beneficial uses*' (§13241, emphasis added). Its legislated mission is to protect the 'quality of all the waters of the state...for use and enjoyment by the people of the state.'" (§ 13000, 1st para., emphasis added.) (California Appeals Court, Third District 1986: 178)

Thus, protection of beneficial uses must be the Board's paramount goal in this process. Beneficial uses make up "all competing demands for water" which must receive Board attention during public trust balancing and analysis. Water rights are among the Board's implementation tools for achieving the protection of beneficial uses in California's Central Valley watershed and Delta estuary, not strictly ends in themselves in this context.

Justice Racanelli wrote that the State Water Resources Control Board has a dual role of regulating both water quality and adjudicating water rights. The Racanelli court stated:

In performing its dual role, including development of water quality objectives, the Board is directed to consider not only the availability of unappropriated water...but also *all* competing demands for water in determining what is a reasonable level of water quality protection. (California Appeals Court, Third District 1986: 179-180)

The Delta Water Cases came about because the Board construed its scope for water quality planning too narrowly, focusing on the major stakeholders in the Delta: the Bureau, the Department of Water Resources, and their respective contractors. The Board erred in doing so, the Racanelli court stated.

...the Board must consider 'past, present, and probable future beneficial uses of water'...as well as 'water quality conditions that could reasonably be achieved through the coordinated control of *all* factors which affect water quality in the area'. Unfortunately, the Board neglected to do so. (California Appeals Court, Third District 1986: 180)

That was 26 years ago. As we will indicate below, C-WIN is deeply concerned that the Board may still neglect significant, realistic alternatives that will be essential to fulfilling its water quality planning role for solving problems in the Bay-Delta estuary and the larger Central Valley watershed.

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Fortunately, the Board can avoid such neglect. Justice Racanelli wrote that the Board “need only take *the larger view of the water resources* in arriving at a reasonable estimate of all water uses, an activity well within its water rights function to determine the availability of unappropriated water.” And he added, “We think a similar *global perspective* is essential to fulfill the Board’s water quality planning obligations.” (California Appeals Court, Third District 1986, emphasis added) Justice Racanelli stated later that the Board compromised its role in previous water quality control plans when it defined its scope for action too narrowly “in terms of enforceable water rights. In fact,” the judge wrote, “the Board’s water quality obligations are not so limited.”

...in order to fulfill adequately its water quality planning obligations, we believe the Board cannot ignore other actions which could be taken to achieve Delta water quality, such as remedial actions to curtail excess diversions and pollution by other water users. (California Appeals Court, Third District 1986: 182)

The Board’s “paramount duty” remains to “provide ‘reasonable protection’ to beneficial uses, considering all the demands made upon the water.” Finally, Justice Racanelli concludes about the Board’s water quality planning powers:

Thus, we do not believe that difficulty in enforcement justifies a bypass of the legislative imperative to establish water quality objectives which in the judgment of the Board will ensure reasonable protection of beneficial uses. (California Appeals Court, Third District 1986: 182)

C-WIN believes that a credible water quality control plan for the Bay Delta estuary must take what Racanelli deemed the “global perspective” in order to redress the ecological collapse and cumulative salinization and pollution resulting from the Board’s water quality planning efforts to date. The 1994 Bay-Delta Accord’s water quality control planning pendulum swung too far in favor of water right holders and water contractors, and their respective beneficial uses. The Board’s duty now is to credibly balance all of the beneficial uses of water in the estuary so that public trust resources are protected, and so that reasonable uses and methods of diversion of water are employed by all water users.

In addition to the water quality planning obligations that Justice Racanelli eloquently addressed, recent state legislation provides additional authority to the State Water Resources Control Board. Using this added authority, the Board can better protect water quality and beneficial uses in the Bay-Delta Estuary and the Central Valley watershed. We point to two new laws enacted in 2009.

The State Water Resources Control Board has already fulfilled its obligation under California Water Code Section 85086(c) and (e) to prepare a public trust assessment of the Bay-Delta flow criteria needed to protect fish and wildlife beneficial uses. While not a “balancing” analysis required under public trust doctrine, the Board’s *Delta Flow Criteria Report* provides valuable scientific analysis and findings that must be used to help the Board fulfill its water quality planning responsibilities and achieve protective public trust resource outcomes in the Bay-Delta estuary. The report employed the best available science in arriving at its findings. (State Water Resources Control Board 2010b)

The same legislative package also changed the California Water Code to recognize the need to reduce reliance on the Delta as a source of water for California:

85021. The policy of the State of California is to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment

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in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.⁵

These new laws provide the Board with additional legal and political tools aiding the protection of all beneficial uses, particularly fish and wildlife beneficial uses whose protection has been neglected for decades.

The Water Code's Fully Appropriated Stream Provisions and Term 91. The Board will need to revise its 1998 water rights order concerning fully appropriated streams, and revisit its application of Term 91 curtailment of post-1978 water rights permittees. Our water availability analysis helps show where key seasonal and priority thresholds may occur under the Board's new Delta inflow objectives.

California's Water Code implicitly acknowledges the potential for over-appropriation to occur and provides a process by which the State Water Resources Control Board may take steps to avoid or prevent excessive water promises. The Board can declare streams to be fully-appropriated on a month by month basis in every watershed of California under Sections 1205 through 1207. Its statutory language is reproduced in Appendix F to this testimony.

Section 1205(b) provides that a declaration that a stream system is fully appropriated shall contain a finding that the supply of water in the stream system is fully applied to beneficial uses where the Board finds that previous water rights decisions have determined that no water remains available for appropriation. According to Section 1206(a) once a stream system is declared fully appropriated by the Board, the Board shall not accept for filing any application for a permit to appropriate water from the stream system described in the declaration, and may cancel an application pending on that date. Section 1206(b) states that the the Board may provide for exceptions to application filings under specified conditions, which may limit the purpose of use, the instantaneous rate of diversion, the season of diversion or the amount of water diverted annually.

Past State Water Resources Control Boards have declared fully-appropriated streams in California. (State Water Resources Control Board 1989; 1991; and 1998) The Board's most recent 1998 declaration included major reaches of all tributaries to the Sacramento and San Joaquin River Basins as fully appropriated, including the Trinity River. (State Water Resources Control Board 1998: Exhibit A)

The Board has also designated as fully appropriated some rivers and streams that are adjudicated or have reaches designated for protection under state and federal wild and scenic river legislation. Major portions of the Trinity, Middle Fork of the Feather, the Tuolumne, and the Merced are designated as wild and scenic rivers. Wild and scenic rivers are off-limits to appropriations year-round. Other rivers and streams are fully-appropriated primarily during irrigation season. Appendix G summarizes selected critical reaches of the Bay-Delta Estuary's Central Valley Watershed that are designated as fully-appropriated by the State Water Resources Control Board.

The Board's Full Appropriation Declaration blurs the distinction between water rights claims and water usage by claimants. Commendably, the Board has identified reaches of streams that are off-limits to new permanent applications to appropriate water. C-WIN identified several streams where it appears that the Board has excluded riparian and pre-1914 water rights in formulating its declaration. This appears to be the case on the Sacramento mainstem, the Tuolumne, the Merced, and the Yuba. On these rivers, substantial periods of the year are still officially open under the

⁵ California Water Code §85021, passed November 2009.

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Board's declaration to applications to appropriate. Substantial amounts of pre-1914 water rights do not appear to be considered in the Board's determination that a stream is fully appropriated.

Section 1205(b) does require that the Board's declaration "shall contain a finding that the supply of water in the stream system is being fully applied to *beneficial uses* where the board finds that previous water rights decisions have determined that no water remains available for appropriation." (For a list of all Bay-Delta beneficial uses, see sidebar, page 26, above.) Note that the full-appropriation declaration legislation states that the supply of water is "being fully applied to beneficial uses" and not merely to the claims of water right holders.

There is no explicit analysis in the 1998 declaration by the State Water Resources Control Board of full application of water to beneficial uses as a direct consequence of citing its water rights decisions. This means that the full appropriation declarations are likely incomplete, albeit from a different standpoint. The Board may have construed Water Code Section 1205(b) as requiring the Board to rely on its archive of water rights decision, appropriately enough. But Water Code Section 1205(b) does not expressly limit the Board to use only water rights decisions, adjudications, and other determinative documents to justify these findings as evidenced by the Board's additional reliance on wild and scenic river designations. Its approved 2010 flow objectives for the Sacramento and San Joaquin River basin (while legislated to be informational and predecisional in Water Code Section 85086(c)(1)), could also be used to support findings of full appropriation for the Sacramento River, the San Joaquin River, and their other major tributaries. Instream flows serve natural beneficial uses as surely as water rights claims serve economic uses. Accounting for these instream flows as part of full appropriation declarations would increase the periods of full appropriation to include November through June throughout the Sacramento Basin, and February through June in the San Joaquin Basin, given the magnitude of water rights claims we have identified.

Moreover, Board decisions like Water Rights Decision 1594 (D-1594) acknowledge the Board's duty to account for all beneficial uses, such as those protected by the Board's Delta water quality and flow objectives.

C-WIN's planning-level water availability analysis allocates unimpaired flow hydrology, among instream flow objectives first, followed by water rights in order of priority status for the Sacramento and San Joaquin River basins. This planning-level method of water availability analysis demonstrates that the waters of the Sacramento and San Joaquin River Basin, from a planning standpoint, should indeed be declared fully appropriated. The full spectrum of beneficial uses is fully accounted for in allocating the Basins' flows to full protection of instream beneficial uses as well as those of all water rights claimants in California's water rights priority system. Moreover, this water availability analysis uses instream flow determinations that the Board itself endorsed in 2010 as Delta protective of public trust resources. It also indicates which major claimants have either poorly reliable or no water rights once all beneficial uses are accounted for.

A problem with the State Water Resources Control Board's fully-appropriated declaration involves its reliance on Water Right Decision 1594 (D-1594) from 1984. D-1594 authorizes the Board to place into permits (whose priority dates come after August 16, 1978) a new permit condition (called Term 91) notifying all permittees of its intent to curtail diversions of water right permittees. Curtailment occurs when flow and water quality conditions in the Delta demand that reservoir releases are needed to enable the California Department of Water Resources and the US Bureau of Reclamation to meet Delta water quality standards established by the Board. August 16, 1978, is significant as the date on which the Board adopted Water Right Decision 1485. This decision made the Bureau and the Department responsible for meeting water quality objectives in the Delta.

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D-1594 expressly addresses water availability for appropriation (diversion) in the Bay-Delta Estuary's Central Valley watershed by subordinating junior appropriative water rights to adherence to Delta water quality objectives. D-1594 is cited by the State Water Board as the water right decision authority for including the Sacramento-San Joaquin Delta in the 1998 fully-appropriated streams water right order. This decision reaffirms the Board's reserved jurisdiction to revisit the season of diversion of water right permittees in the Bay-Delta Estuary watershed, and it establishes with standard permit Term 91 its authority to curtail diversions by post-1978 diverters so that storage releases by the Bureau and the Department can meet Delta water quality objectives.

In this decision, the Board states:

The availability of water for appropriative water right permittees is affected by the quantity needed to satisfy holders of prior rights and the quantity necessary for protection of other beneficial uses. (State Water Resources Control Board 1983: 2)

In the process leading up to D-1594, the Board initiated a process to conduct a planning-level water availability analysis. Unfortunately, it abandoned that analysis:

Staff had originally proposed a comprehensive analysis of water supply and demand which attempted to identify and quantify water usage by all diverters below the foothill reservoirs within the Delta watershed. [SWRCB Exhibit. 1, pp. 19-20] This approach was discontinued [apparently in April 1983, according to reporter's transcript dated April 11, 1983, p. 14, lines 16-20] due to the lack of adequate data for factors such as return flow, groundwater accretions, unmeasured tributary inflow, riparian use, appropriative use, and Delta consumptive use. (State Water Resources Control Board 1983: 9-10)

D-1594 states at least twice that application of Term 91 to post-1978 permittees is an "interim solution" or an "interim measure." Nearly 30 years later, the Board still employs Term 91's method of calculating water availability. D-1594 commits the Board to occasionally requiring the post-1978 permittees in the Delta's extensive watershed to curtail deliveries when flows are insufficient to meet Delta water quality objectives and protect the Delta's beneficial uses.

Our planning-level water availability analysis focuses on water rights claims compared to historical hydrology. As we earlier showed, it finds there are far more water right diversion claims than there are flows in the Bay-Delta Estuary's Central Valley watershed (including the Trinity River claims of the Bureau). Our water availability analysis incorporates Board-approved instream flow determination the Board approved as fully protective of public trust resources in the Bay-Delta Estuary and its watershed. Its results suggest that *making Delta water quality and flow objectives fully protective of public trust resources will require moving the priority date of Term 80 permittees far earlier than 1978 for determining when and for whom Term 91 diversion curtailments would occur*. This is necessary because the State Water Resources Control Board (2010) found that current Delta flow objectives on the mainstem and tributaries of the two basins, including the Vernalis Adaptive Management Plan on the San Joaquin River, are insufficiently protective of the Delta's fish and wildlife beneficial uses. (State Water Resources Control Board 2010: 9-10) Conversely, this means that Term 91 *currently* applies Delta water quality objectives that are well known to be ineffective at protecting public trust resources in the Delta.

C-WIN believes it will be necessary for the State Water Resources Control Board to revisit Term 91 and D-1594's method of estimating water availability in the Bay-Delta Estuary's Central Valley watershed when implementing new Delta inflow (instream flow) objectives for the Sacramento and San Joaquin River Basins and their major tributaries upstream of the Delta. For the same reason, the Board's 1998 water rights order must also be revisited to update and expand the seasons where

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appropriations would be prohibited as a matter of protecting all beneficial uses in compliance with Water Code Section 1205 through 1207. The Board should include these actions in the Bay-Delta Plan's implementation program.

In sum: the Board has acknowledged that existing Delta water quality and flow objectives for the Bay-Delta Estuary are inadequate. (State Water Resources Control Board 2000: 5) However, the Board *assumes* these water quality and flow objectives when it enforces Term 91 on post-1978 water rights permittees. Improving these objectives will mean the Board must curtail diversions by water right permittees (also probably licensees) with priority dates *earlier* than August 16, 1978, in order for Board-required Delta water quality and flow objectives to perform their functions protecting Delta watershed public trust resources. As part of its Phase III process to implement the Bay-Delta Plan, the Board must take testimony on how to determine this earlier priority date.

In all types of hydrology and using the Sacramento River Basin flow determination of 75 percent of unimpaired flow from November through June, C-WIN's water availability analysis suggests that for the Stanislaus and Merced Rivers, the Term 91 curtailment date should be December 19, 1914. On the Yuba and the Bear Rivers, the date of curtailment could be somewhat later, ranging from 1924 on the Yuba to 1941 on the Bear. On the American River, the earliest date should coincide with the priority date of Placer County Water Agency's 1958 water rights.

In all types of hydrology and applying the San Joaquin River Basin flow determination of 60 percent of unimpaired flow from February through June, C-WIN's water availability analysis suggests that for the Stanislaus and Merced Rivers, the Term 91 curtailment date should be December 19, 1914. On the Tuolumne River, the Term 91 curtailment date should be 1871. On the upper San Joaquin River, our analysis suggests that Term 91 curtailment dates should be on or before the dates of the Bureau of Reclamation's permits for Friant Dam and Millerton Lake in 1916. (See Appendix D.1 for Water Availability Analysis model results.)

The Board has acknowledged that current Delta water quality and flow objectives do not protect Delta fish and wildlife beneficial uses adequately. The Board must decrease the seasons of diversion for the Delta and its major tributaries of the Sacramento and San Joaquin River Basin watersheds, because the Board is obligated under the Public Trust Doctrine to protect all beneficial uses in the Delta. To implement this obligation, the Board must also revisit its Fully-Appropriated Streams Declaration and push back the priority date used to conduct diversion curtailments under Term 91.

Court Adjudication. Still another path that may be used is that of adjudication by a court of competing water rights claims in a watershed. It may take years of painstaking testimony and argumentation by attorneys and (usually) engineers. But the present situation of extreme uncertainty and unreliability, clouded water titles, trespassing on the public trust, and related boundary disputes of many surface and groundwater water rights throughout the Bay-Delta Estuary's Central Valley watershed argues for its consideration.

In the 1930s and 1940s, staff within the Department of the Interior and the old State Water Rights Board advocated an adjudication of water rights prior to construction of the Central Valley Project. Both Governor Earl Warren and State Water Rights Board Chairman Henry Holsinger testified during the Clair Engle's Congressional hearings in 1951 that a complete adjudication of water rights on the Sacramento River should have occurred prior to the completion of the Central Valley Project. In fact, the Engle committee concluded that, "[t]hat for all practical purposes, the developed water supplies of the Sacramento River are overcommitted and oversubscribed." This was prior to approval and construction of the State Water Project. That project was predicated on obtaining some 5,000,000 acre- feet of water annually from north coastal streams (Figure 11). With the

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exception of about 1 million acre-feet of Trinity River flows to the Central Valley Project service area, this “surplus” of surface water to the Delta system never arrived. Adjustments to the State Water Project should have been made earlier, but were not. The logical result is that the Delta’s native aquatic ecosystems have collapsed.

A reliable source of surplus water for the State Water Project and the Central Valley Project eludes the Department and the Bureau, so far. Because surface water imports from north coast watersheds were precluded by wild and scenic river designations the Department and the Bureau have instead tried to establish a “water market” to transfer water from northern California across the Delta as an interim strategy for increasing water supplies in dry years for low-priority water service contractors south of the Delta. C-WIN, CSPA and AquAlliance see this as a grave threat to the regional aquifers of the Sacramento Valley from the Delta to Redding.

This threat is manifest in “groundwater substitution transfers.” In such water transfers, surface water rights are transferred by “willing sellers” to the Department or the Bureau. The agencies facilitate the transportation of the water in the deal to the buyer south of the Delta using their export pumps near Tracy. To continue producing their crop however, the seller replaces or substitutes the surface water supply with water pumped from underground. The seller is thus able to achieve a net profit from the gross revenues from selling surface water rights, less the cost of pumping water from below ground, and still can sell a crop after harvest.

Such transactions however assume that groundwater may be treated simply as an individual’s property under their land. Such a legal theory runs straight into the reality of groundwater in the Central Valley watershed being a regional commons, a shared resource, particularly among all individual landowners of the Sacramento Valley who overlie its extensive aquifers. One landowner or a set of landowners in one general location may cause a region-wide cone of depression by pumping a lot of groundwater to replace surface water they sold to someone south of the Delta. Such intensive pumping can damage the wells of neighbors near to and far from the scene of the original pumping. Many of the Valley’s rivers are well known as “gaining” streams—that is, surface flows are actually enhanced upslope by accretions from groundwater sources. Too much groundwater pumping lower down in the aquifers for the “surplus” benefitting only the State Water Project and the Central Valley Project could drastically lower water tables upslope and reduce river flow permanently if allowed to become “the new normal.” Potentially permanent injuries to many beneficial users of water in the Sacramento Valley would result.

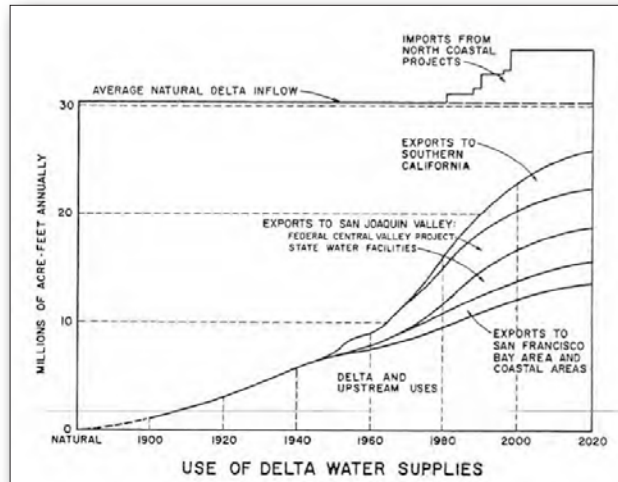


Figure 11

Source: California Department of Water Resources, 1960: 13.

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A glimpse of this prospect occurred in 1994 when the Department sponsored a drought water bank program. The program resulted in damage to a municipal well and to individual wells in Durham and Cherokee areas of Butte County. More recently, the Department and the Bureau have since 2002 repeatedly sought “willing sellers” to offer surface water among the numerous public and private Sacramento Valley water right holders in Sacramento, Yolo, Sutter, Butte, Glenn, and Colusa counties. The State Water Resources Control Board in 1996 engaged in proceedings to determine the responsibility of Sacramento River Basin diverters to meet water quality standards in the Bay-Delta Estuary. The Board had completed phases 1 through 7 of the proceeding that led in 2000 to adoption of Water Rights Decision 1641 (D-1641). Phase 8 of that proceeding was to focus on the Sacramento River and its tributaries. In Phase 8, the Department of Water Resources and the Bureau of Reclamation, as operators of the state and federal export projects, claimed that certain water right holders in the Sacramento Valley must cease diversions or release water from storage to help meet water quality standards in the Delta. Sacramento Valley water users claimed that their water use has not contributed to any water quality problems in the delta, and, as senior water right holders and water users within the watershed and counties of origin, they are not responsible for meeting these standards. To avoid both litigation and independent regulatory action by the State Water Resources Control Board, water diverters throughout the Sacramento River Basin executed an agreement in April 2001. (Northern California Water Association, 2001) As a result of the Sacramento Valley Water Management Agreement, the Phase 8 process was dismissed by the State Water Resources Control Board. (State Water Resources Control Board 2001)

The Department and the Bureau have encouraged planning approaches to regional water management to facilitate water transfers, such as those in this partial list:

- The Department of Water Resources undertook a draft and final Program Environmental Impact Report in 1993 on a drought water bank, but to our knowledge has never certified this document.
- The Sacramento Valley Water Management Agreement, signed in 2002, but which ten years on still lacks a programmatic environmental review document. It expired December 31, 2010.
- The 2000 Governor’s Advisory Drought Planning Panel Report, Critical Water Shortage Contingency Plan, which also promised a program environmental document on a drought response water transfer program, but was never undertaken.
- The Sacramento Valley Integrated Regional Water Management Plan of 2006, overseen by a joint powers authority of numerous water agencies in the Valley.
- DWR’s last Drought Water Bank in 2009 sought authorization for over 100,000 acre-feet of temporary transfers of water, though only 16,000 acre-feet were eventually supplied to Southern California buyers.
- The Northern Sacramento Valley Integrated Regional Water Management Plan, now in development.
- The Delta Stewardship Council’s Delta Plan, whose planning scope includes the entire Sacramento Valley and assumes a groundwater surplus is necessary for meeting Delta export water demands. The Council has also expressed support for water transfers using groundwater substitution.
- The Bay Delta Conservation Plan, which would provide coverage from a 50-year habitat conservation plan for Governor Brown’s recently announced Peripheral Tunnels Project. This project has no identified water source, other than acknowledgement by the Bureau of Reclamation that it would reroute existing surface flows around the Delta from the Sacramento River Basin. (Vlams et al 2012)

C-WIN, CSPA, AquAlliance, and other knowledgeable experts are concerned that long term impacts of regional use of groundwater to substitute for transferred surface supplies will accelerate the depletion of the Valley’s groundwater supplies. There are significant gaps in scientists’ grasp of how

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the aquifer system recharges; how surface flows and groundwater systems interact in the Valley's creeks and rivers; how supplies contained within upper and lower aquifers interact; how the aquifers respond in the long-term to increasingly intense demands on them, even during wetter years. And the regional effect of declines in groundwater levels on river and creek flows and riparian corridor species and wetland ecosystems has never been adequately explored. These are beneficial uses upstream along the major tributaries of the Sacramento River Basin that must also be considered part of the public trust responsibilities of the State Water Resources Control Board in its Bay-Delta Plan. (Vlams et al 2012)

State and federal water planners assume that surface and groundwater flows will always be there to support this hoped-for surplus. Based on that assumption they continue each winter and spring to plan the next water transfer program that relies on and encourages groundwater substitution transfers. This assumption has been built into the Department and the Bureau's chief water supply and operations planning tool, CalSIM II. When surface water supplies for riparian and appropriate water right holders are exhausted in model runs through CalSIM II, the model's automatic response is to add pumped groundwater to make up for any deficit to water demands in the model. (Drajer and Bourez 2004: slide 20; Close et al 2003: 26-27; California Department of Water Resources and US Bureau of Reclamation 2004: Appendix A) Sacramento Valley groundwater activity is explicitly modeled to include "minimum groundwater pumping" for those land uses that rely exclusively on groundwater in the Valley. (California Department of Water Resources and US Bureau of Reclamation et al 2004: Appendix A) San Joaquin Valley groundwater is not modeled. (Close et al 2003) This can result in low estimates of salinity reaching the south Delta. (San Joaquin Valley CalSIM II External Review 2006: 45) Upper bounds on potential pumping from aquifers in the Sacramento Valley are undefined. According to Close et al:

This does not represent reality, since, if CalSIM II is used for statewide planning, it would allow pumping of vast quantities of water for export to southern parts of the state, something which agency staff [i.e. California Bay-Delta Authority Science Program and the Association of Bay Area Governments] claim is unrealistic. Realistic upper bounds to pumping from any of the aquifers represented in the model need to be developed and implemented. (Close et al 2003: 26-27)

The Department and the Bureau responded that CalSIM II does explicitly model the "impact on groundwater storage of each sub-basin." They state that CalSIM II runs that result in groundwater pumping over and above the natural and artificial recharge and which causes depletion of the basin will cause CalSIM II to no longer run. They also state, however, that CalSIM II "does not include local ground water inventories" but instead relies on a historically-modeled calibration of approximated inventories. They state further that "no groundwater is exported from the overlying watershed (except in the form of surface water return flow or tailwater that results from irrigation using groundwater)." (California Department of Water Resources and US Bureau of Reclamation 2004: A-1) Thus, CalSIM II assumes that groundwater "backstops" surface water rights holders and their needs for supplies, when in reality groundwater now backstops river flows (and all associated beneficial uses associated with those flows). It is small comfort that CalSIM II ceases to work when a basin is depleted from the program's operations; more to the point, it fails to assume, let alone build in a rational groundwater management strategy of sustained yield.

CalSIM II's reliance on groundwater to meet overall water demand when surface supplies must not be the de facto water supply development strategy for the state of California when supplies run low. When supplies run low—as they are forecasted to as climate change affects the American West—the state and its responsible and lead agencies must increase other means of stretching water supplies. This can be done through water recycling, reuse, conservation, and a range of urban, industrial, and agricultural efficiency measures.

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Appendix A

Appendix A River Flow Regulation to the Bay-Delta Estuary

In 1992, the Board proposed in a draft Bay-Delta water right decision regulating flows to the Delta from the San Joaquin River Basin by apportioning responsibility for Delta inflows according to the size of major reservoirs on the Basin's major tributary streams. This draft decision was withdrawn by order of then-governor Pete Wilson. While the Board considers regulating inflows from the San Joaquin River tributaries once again, many years of delay have elapsed: This section recounts and evaluates the Board's record regulating inflows to the Delta from the San Joaquin River Basin.

After backing away from its "global" approach to regulating inflow to the Delta from the San Joaquin River in 1993, the State Water Resources Control Board instead chose to continue regulating Delta conditions in part by regulating flow and water quality at Vernalis. In Water Rights Decision 1641 (D-1641), the Board assigned responsibility for meeting the Vernalis water quality standards to the California Department of Water Resources and the US Bureau of Reclamation and added interior Delta salinity objective monitoring sites to evaluate compliance by the Department and the Bureau. The Department has no regulating reservoirs of its own on San Joaquin River Basin rivers, so it fell to the Bureau to provide most of the flows to Vernalis from the Basin to meet the Board's objectives there. The bulk of the flows the Bureau has available for this purpose come from its New Melones Dam and Reservoir facility on the Stanislaus River. This strategy has been largely unsuccessful for the Bureau, the Department and the Board. Migratory fish populations and open water fish populations endemic to the Delta have crashed over the last decade since D-1641 was implemented. An experiment to provide helpful spring flows for migratory salmon, called the Vernalis Adaptive Management Plan, has achieved only limited results (Review Panel, 2010).

Table 13 summarizes the State Water Resources Control Board's present river flow objectives set for compliance at Vernalis and Rio Vista. These flow criteria were adopted as part of its Water Right Decision 1641 (D-1641) in 2000. Under D-1641, the Board currently regulates flows on the San Joaquin River at Vernalis during two main periods of the year: February 1 through June 30, and throughout the month of October. Within the February to June period, there are two regimes as well. One flow regime is in place from February 1 through April 14 and then again from May 16 through the end of June. The second flow regime occurs generally from April 15 to May 15, a 31-day period in which spring pulse flows are required to increase over the early and late spring periods. The spring pulse flow is intended to aid young salmon smolts migrating to the ocean by improving their chances of survival as they pass through the Delta. Minimum flow criteria in this spring regime vary depending on the water year type, and the water year type is generally finally forecasted by May 1. Note that these flow rates are a monthly average, which allows for great variability as long as the average is maintained throughout the 30-day running average during these flow regimes.

October minimum flows must be 1,000 cubic feet per second or greater using a 30-day running average. This is a period of time when adult fall-run Chinook salmon return from the ocean to migrate upstream and spawn in their natal streams. Again, as with the February through June regime, the use of a 30-day running average allows upstream water right holders wide latitude in providing flows that meet the Vernalis flow standard for October as long as the 30 day running average during October is not less than 1,000 cubic feet per second of flow.

Instead of implementing D-1641 San Joaquin River flow objectives to benefit fish and wildlife, the State Water Resources Control Board approved the San Joaquin River Agreement under which the major water right holders of the San Joaquin River Basin agreed to provide spring pulse flows

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Table 13 State Water Resources Control Board D-1641 Flow Regulations at Vernalis			
Compliance Location	Water Year Type	Time Period	Minimum Monthly Average Flow Rate (cfs)
Sacramento River at Rio Vista	All	September	3,000
	W, AN, BN, D	October	4,000
	Critically Dry	October	3,000
	W, AN, BN, D	Nov-Dec	4,500
	Critically Dry	Nov-Dec	3,500
San Joaquin River at Airport Way Bridge, Vernalis	W, AN	Feb-Apr 14 and May 16-Jun	2,130 or 3,420
	BN, D		1,420 or 2,280
	C		710 or 1,140
	W	Apr 15 to May 15	7,330 or 8,620
	AN		5,730 or 7,020
	BN		4,620 or 5,480
	D		4,020 or 4,880
	C		3,110 or 3,540
All	October	1,000	

Source: State Water Resources Control Board, 2000.
Key to Water Year Types: W = Wet; AN = Above Normal; BN = Below Normal; D = Dry; C = Critically Dry.

intended to benefit outmigrating salmon smolts.¹ The Board agreed to its provisions as a voluntary approach to achieve the objectives. In exchange for providing these spring pulse flows totaling up to 110,000 acre-feet, the Agreement called upon the state and federal pumps in the south Delta to limit their export rates to certain specified levels. The Agreement further called upon the state, federal and San Joaquin River Group Authority member agencies to participate in an annual experimental study of the effects of these pulse flows on salmon smolt survival and other ecological indicators in the San Joaquin River in the Vernalis area. That study was called the Vernalis Adaptive Management Plan (VAMP).

The State Water Resources Control Board hoped that by using VAMP to implement its D-1641 flow criteria for the San Joaquin River at Vernalis, the scientific study would find salmon smolt survival is closely related to the humanly manageable actions of river flow, export limits at the pumps, and maintaining a barrier at the head of Old River to direct smolts toward

Suisun Bay and the Pacific Ocean via the most direct and safest route. The Board also hoped that increased smolt survival would contribute to increased salmon escapement (that is, fish leaving the ocean in late summer and early fall to spawn in the fall).

¹ The parties to the agreement included California Departments of Water Resources and Fish and Game; United States Department of the Interior agencies Reclamation and Fish and Wildlife; and member agencies of the San Joaquin River Group Authority: South San Joaquin and Oakdale irrigation districts on the Stanislaus River; Modesto and Turlock irrigation districts on the Tuolumne; Merced Irrigation District on the Merced River; and Central California Irrigation District, Firebaugh Canal Water District, Columbia Canal Company, and San Luis Canal Company on the upper San Joaquin River. Other parties included state and federal water contractors south of the Delta export pumps, and two environmental community parties: the Natural Heritage Institute and the Bay Institute of San Francisco.

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The VAMP seeks to test the hypothesis that increasing San Joaquin River flows, sharply limiting Delta export pumping during the spring pulse flow period, and blocking fish access to Old River (which leads to the state and federal export pumps) will increase survival rates of young salmon juveniles and smolts migrating through the Delta to the Pacific Ocean (San Joaquin River Group Authority, 2000: Section 2.5).

The 110,000 acre-feet of water from these agencies was intended for use in reaching "target flows" under VAMP at Vernalis that increased flow in the San Joaquin at Vernalis over defined

Existing Flow (cfs)	Single Step Target Flow (cfs)	Double-Step Target Flow (cfs)
0 to 1,999	2,000	3,200
2,000 to 3,199	3,200	4,450
3,200 to 4,449	4,450	5,700
4,450 to 5,699	5,700	7,000
5,700 to 6,999	7,000	Existing Flow
7,000 or greater	Existing flow	Existing flow

Source: San Joaquin River Agreement, 2000, Articles 5.5 and 5.6.

Year	VAMP Target Flow Period	Target flow Condition	VAMP Target Flow	Actual Mean Flow	Existing Flow	VAMP Supplementing Flows (AF)	Delta Export Target	Actual Delta Exports
2000	4/15-5/15	Double-step	5,700	5,869	4,800	77,680	2,250	2,155
2001	4/20-5/20	Single-step	4,450	4,224	2,909	78,650	1,500	1,420
2002	4/15-5/15	Single-step	3,200	3,301	2,757	33,430	1,500	1,430
2003	4/15-5/15	Single-step	3,200	3,235	2,290	58,065	1,500	1,446
2004	4/15-5/15	Single-step	3,200	3,155	2,088	65,591	1,500	1,331
2005	5/1-5/31	na[a]	>7,000	10,390	10,390	0	2,250	2,986[b]
2006	5/1-5/31	na[a]	>7,000	26,220 to 24,262 [c]	26,020	0	1,500 to 6,000	1,599 to 5,748[c]
2007	4/22-5/22	Single-step	3,200	3,263	2,721	33,330	1,500	1,486
2008	4/22-5/22	Single-step	3,200	3,163	1,939	75,250	1,500	1,520
2009	4/19-5/19	Off-ramp	na	2,260	2,260	0	na	1,990
2010	4/25-5/25	Single-step	4,450	5,140	4,830	23,980	1,500	1,515
Average VAMP Supplementing Flows						40,543	Acre-feet	

Source: San Joaquin River Group Authority 2011: Table 2-8; California Water Impact Network. Notes: [a] Existing flow greater than maximum VAMP Target Flow of 7,000 cfs; [b] May 1 through 25 average was 2,260 cfs; exports were increased starting May 26 in conjunction with increasing existing flow; May 26 through 31 average was 6,012 cfs; [c] "First fish release-recapture period"/"Second fish release-recapture period"; "na" means not available or not applicable.

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“existing flows” that would occur in the River in the absence of the VAMP flows. The VAMP flows were intended to be released during the spring pulse flow period coinciding with the State Water Resources Control Board’s flow criteria period of April 15 through May 15 (or a reasonable 31-day period thereabouts based on the presence or absence of migrating salmon). The Agreement employs the State Board’s water year classification scheme as an indicator for determining target flows. Wet years would have an indicator of 5, decreasing by one to Critical years having an indicator of 1. Double step target flows could be invoked under VAMP in situations where the sum of present plus current water year indicators added to 7 or greater. When that occurred, a “double step” target flow, showed in Table 14, would become the new target flow.

The Agreement also limits Central Valley Project and State Water Project export pumping during this same mid-April to mid-May period. Combined export rates for the pumps would be limited to no more than 1,500 cubic feet per second when Vernalis target flows are between 2,000 and 4,450 cubic feet per second. When the target flow reach 5,700 cubic feet per second, combined export rates are limited to no more than 2,250 cubic feet per second. And when target flows reach 7,000 cubic feet per second, the pumping plants are limited either to 1,500 or 3,000 cubic feet per second (San Joaquin River Group Authority, 2000: Article 6.4). The rationale for this “either/or” export rate at the high VAMP target flow is explained in Appendix A of the Agreement as a matter of safety and operational capacity of installing the barrier at the head of Old River and minimum pumping capacity of the export pumps, as well as the intent of the US Fish and Wildlife biological opinion that export rates in this period be less than 50 percent of the required Vernalis standard. Hence, the export pumping rate at a target flow of 7,000 cubic feet per second would be able to go as high as 3,000 cfs (San Joaquin River Group Authority, 2000, Appendix A, p. 3).

At present, VAMP is a 12-year study. Through 2010, double step target flows have been invoked once (San Joaquin River Group Authority [SJRGA], 2011: Table 2-8). Table 15 below summarizes VAMP flow activity from 2000 to 2010 (SJRGA, 2011). This table shows that over the course of the VAMP experiments through 2010, average supplemental VAMP flow contributions have averaged just 40,543 acre-feet per year, about 37 percent of the maximum annual commitment by SJRGA agencies of 110,000 acre-feet for VAMP.

Previous studies have shown that salmon smolt survival could be enhanced if increased flows were directed primarily down the mainstem of the San Joaquin River below Vernalis past Stockton (Review Panel, 2010). To facilitate fish using that route, the San Joaquin River Agreement called upon the Department of Water Resources to install a fish barrier at the head of Old River (which is a direct route for San Joaquin River water to the state and federal export pumps near Old River at the export pumps where fish can be all too easily entrained and killed).

In the event that more water than the 110,000 acre-feet was needed to meet target flows, the US Bureau of Reclamation and the California Department of Water Resources could approach the agencies making up the San Joaquin River Group Authority as willing sellers of additional water. As Table 15 reveals, neither the Bureau nor the Department needed to purchase additional water for VAMP flows, since no VAMP flows exceeded 110,000 acre-feet.

VAMP results have largely been inconclusive because there have been only a narrow range of flows subject to VAMP researchers. The State Water Resources Control Board permitted the VAMP experiment to proceed in D-1641 for over a decade. Table 16 compares spring pulse flow range criteria set by the State Board in D-1641 with mean (average) VAMP flows. For years with VAMP results (of which there were only 8 of 11 total), only four years yielded VAMP results that actually complied with D-1641 flow criteria at Vernalis (2000, 2001, 2007, and 2008). Four other VAMP flow years were *beneath* the D-1641 flow criteria, and did not comply with the Board’s adopted objective. It appears that VAMP as a regulatory experiment performs adequately only half the time when it can be invoked. Of the three years with no VAMP flow results, two were wet years (2005 and 2006) where high flows on the San Joaquin overwhelmed the need to regulate or experiment. The

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remaining year (2009) was considered an “off-ramp” year (that is, a dry year following two critically dry years). VAMP and Agreement requirements were in part short-circuited by prolonged dry weather in order to protect upstream water supply reliability. It appears from these results that VAMP and the San Joaquin River Agreement have failed to “provide the environmental benefits in the lower San Joaquin River and Delta at a level of protection equivalent to the San Joaquin River portion of the 1995 WQCP for the duration of this Agreement (SJRGA, 2000: Section 2.5.3).” In effect, protective flows for Delta public trust resources such as Chinook salmon populations have been delayed for the sake of seeking greater scientific certainty.

Table 16
Comparison of D-1641 Spring Pulse Flow Criteria and Mean Actual VAMP Flows, 2000-2010 (Years with VAMP Results Only)

Year	San Joaquin River Basin Water Year Type	Spring Pulse Flow Range Criteria, D-1641 (cubic feet per second)	Mean Actual VAMP Flows (cubic feet per second)
2000	Above Normal	5,730 or 7,020	5,869
2001	Dry	4,020 or 4,880	4,224
2002	Dry	4,020 or 4,880	3,301
2003	Below Normal	4,620 or 5,480	3,235
2004	Dry	4,020 or 4,880	3,155
2007	Critically Dry	3,110 or 3,540	3,263
2008	Critically Dry	3,110 or 3,540	3,163
2010	Above Normal	5,730 or 7,020	5,140

Source: SJRGA, 2011; State Water Resources Control Board, 2000; California Water Impact Network. **Years in bold did not comply with minimum D-1641 flow criteria.**

Appendix B

Omission of the Upper San Joaquin River from the Bay-Delta Plan

The Board proposes different flow objectives for the Sacramento and San Joaquin Rivers. C-WIN and CSPA applaud the State Water Resources Control Board's decision to include the major tributaries of the San Joaquin River Basin (specifically, the Stanislaus, the Tuolumne, and Merced rivers) and of the Sacramento River Basin (the Trinity [via Central Valley Project facilities], Pit, Feather, Yuba, Bear, and American) in its proposed analysis of San Joaquin River flow requirements and the scope of the Bay-Delta Plan. The Upper San Joaquin River (above its confluence with the Merced River) is excluded from the Plan by the Board. The Board has not provided adequate rationale to justify excluding the Upper San Joaquin River from the "project area" for purposes of environmental evaluation of proposed San Joaquin River flow criteria. The State Water Resources Control Board wants to use the criterion of "salmon-bearing tributaries" to justify excluding the upper San Joaquin River. The Board then states in a footnote:

Currently, the San Joaquin River does not support salmon runs upstream of the Merced River confluence (upper San Joaquin River). However, pursuant to the San Joaquin River Restoration Program (SJRRP), spring-run Chinook salmon are planned to be reintroduced to the upper San Joaquin River no later than December 31, 2012. Flows needed to support this reintroduction are being determined and provided through the SJRRP. During the next review of the Bay-Delta Plan, the State Water Board will consider information made available through the SJRRP process, and any other pertinent sources of information, in evaluating the need for any additional flows from the upper San Joaquin River Basin to contribute to the narrative San Joaquin River flow objective. State Water Resources Control Board 2011a: Map on page 1 and narrative on page 3 of Attachment 2)

In essence, if it adheres to this reasoning during this process, the State Water Resources Control Board would allow the SJRRP to determine what those flows are to be, and would allow the SJRRP to dictate the Board's time schedule for Basin-wide flow objective-setting and implementation. This provides incentive to minimize the upper San Joaquin River's contribution to overall basin flows to benefit the Delta. It will put greater pressure on the water right holders on the tributaries of the San Joaquin to provide additional flows. In its Water Rights Orders 2010-0029 and 2009-0058-DWR, the Board authorized interim schedules for "experimental flows" sought by the parties to the San Joaquin River Restoration Program and settlement agreement. At minimum, these interim flows should be incorporated into the project description, so that it is clear that upper San Joaquin River flows will contribute to solving flow and water quality problems in the Delta. In addition, there needs to be a basic description in the Substitute Environmental Document of how future contributions from the upper San Joaquin River will contribute to improving the health of the Bay-Delta estuary. This can be expressed in the form of project alternatives, but it must not be deferred.

Appendix C

**Appendix C
Definitions and Terminology**

This report relies on several definitions and terminology that readers should grasp as they read. Here too is the method C-WIN employs to describe water rights in the San Joaquin River Basin.

The geographic scope of the “San Joaquin River Basin” used in this report is that portion of the basin that extends from the measurement of flows on the San Joaquin River near Vernalis all the way upstream on both sides of the river to the headwaters of the river and its tributary creeks and streams in the Coast Range and Sierra Nevada; and including the “major tributaries” of the San Joaquin: the Stanislaus River, the Tuolumne River, and the Merced River all the way to their headwaters in the Sierra Nevada. See Figure C-1.

The geographic scope of the “Sacramento River Basin” used in this report is that portion of the basin that extends from that portion of the basin that extends from the measurement of flows on the San Joaquin River at Rio Vista all the way upstream on both sides of the river to the headwaters of the river and its tributary creeks and streams in the southern Cascade range, up the McCloud River, the Pit River to their headwaters, and including east creeks (such as Deer, Butte, Battle, and others), the west creeks (such as Cottonwood, Clear, Putah, Stony, Cache and others), and the major tributary rivers including the Feather, Yuba, Bear, and American rivers all the way to their headwaters in the Coast Range (for the east and west creeks) and the Sierra Nevada. See Figure C-2.



Figure C-1: Location of San Joaquin River Basin in the San Joaquin Valley, and the major rivers in the Basin. Green shading denotes the outline of the Valley floor. Source: Gronberg et al 1998.

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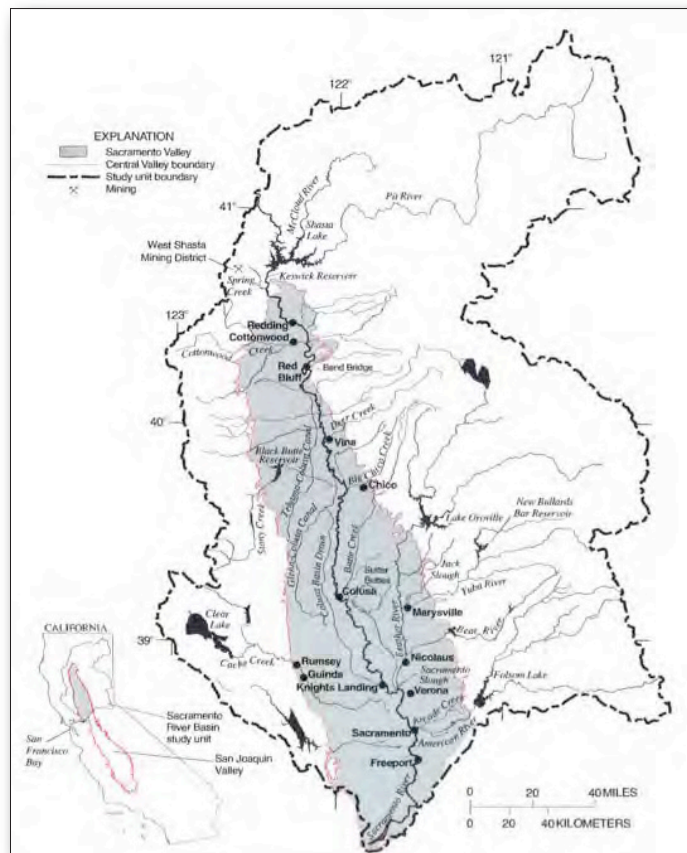


Figure C-2: Location of Sacramento Valley floor in the Sacramento River Basin.

Source: Domagalski et al 1998.

Two common measures of water amounts are “acre-feet (AF)” and “cubic feet per second (cfs).” An acre-foot is 325,851 gallons of water, and is a measure of the *volume* of water, or about the amount of water that two families of four in California consume in a year. (There are 7.48052 gallons to a cubic foot, and 43,560 cubic feet in an acre-foot.) Cubic feet per second measures the *rate of flow* of a volume of water: a cubic foot of water that flows past a given point within a second of time passing. Since there are 43,560 square feet to an acre, 3600 seconds in an hour and 24 hours in a day and 365.25 days in an average year, one cubic foot per second flowing yields about 1.98 acre-feet per day in volume, or about 724.46 acre-feet in a year’s time. For perspective, the San Joaquin River Basin’s “unimpaired flow” has been estimated by the California Department of Water Resources to average *about* 6.18

million acre-feet per year. The average annual natural or unimpaired flow of the Upper San Joaquin River (above its confluence with the Merced River) is about 1.8 million acre-feet.

“Unimpaired flow” is one of several phrases (such as “full natural flow”, “natural flow”, and “natural runoff”) used by the California Department of Water Resources to approximate “what would have occurred” on California streams “had man not altered the flow of water in the basin.” (California Department of Water Resources, 2006: 5). Estimation of unimpaired flow by the Department typically assumes the current configuration of contemporary altered rivers, dams, levees, and the absence of former wetlands, floodplains and other features of rivers that may no longer exist. In some instances, it is possible that “natural flow,” other things being equal might be less than “unimpaired flow” in a situation where wetlands and floodplains were reconstructed. These features of rivers tend to absorb water or at a minimum slow the rate of flow. For this report, unimpaired flows are used for the description and analysis of natural Basin hydrology, but the reader should keep in mind that, other things being equal, restoration of more natural conditions in the Basin might yield flows somewhat lower than those characterized by unimpaired conditions.

Appendix C

The State Water Resources Control Board employs a measure of water rights it calls “face amount” or “face value” that it applies to the rights it administers. Typically, descriptions of water rights have three basic components that describe the quantity of the right:

- “Direct diversion rates” (usually measured in cubic feet per second, or older rights may be stated in “miners inches”)
- “Collection to storage” or “contribution to storage” which is the amount of water that may be cumulated in a reservoir.
- “Season” during which the diversions and collections are permitted to occur under the water right. For a season that is “January 1 to December 31 inclusive”

To estimate the face amount, the direct diversion rate is converted to cubic feet per day (that is, 3600 seconds in an hour multiplied by 24 hours in a day), then multiplied by the number of days contained in the diversion season to derive a maximum volume (in cubic feet) for the entire diversion season. That amount is divided by 43,560 square feet per acre, to arrive at the acre-footage volume for the diversion season. If a storage amount (in acre-feet) is included in the water right, it is either substituted because it represents a cap on the entire collection to storage for the year, or is added to the diversion volume to arrive at the total face amount. The water right terms and conditions in state-issued permits and licenses usually say whether the collection to storage is capped or not.

Additional geographic components of water rights are used to pinpoint both where the diversion and/or storage occur and where the water so diverted/stored is to be used. These are the “point of diversion” and the “place of use.” This information is presented frequently in terms of the American “township and range system.” The base map meridian in the San Joaquin River Basin is always the Mount Diablo Base and Meridian (“MDB&M”). For some rights, a familiar water facility is stated.

Finally, the water rights also state what the “purpose of use” for the water is intended: most often in the San Joaquin River Basin the purposes of use are for “irrigation” or “power generation” (meaning the generation of hydroelectricity by running water through power plant turbines). Other uses may include fish and wildlife, recreation, municipal, and industrial uses.

Water Rights and Water Law in California

The use of water is first and foremost a matter of owning rights to its *use*. In our capitalist economy, this means use of water is a form of property right. This kind of property right is known as a *usufruct*. *Black’s Law Dictionary* defines a usufruct as:

“a right for a certain period to use and enjoy the fruits of another’s property without damaging or diminishing it, but allowing for any natural deterioration in the property over time.” (Garner 2010)

A usufruct, according to the Oxford English Dictionary, “is a right to use another’s property short of the destruction or waste of its substance.” (Pearsall 1999) As water lawyers Arthur Littleworth and Eric Garner wrote, “Water rights are usufructuary, a right to the use of water, not a right to own it.” (Littleworth and Garner 2007: 27) The 20th century California water law authority, Wells Hutchin, wrote: “Water flowing in a natural stream is not the subject of private ownership,” and cites the California Supreme Court’s earliest water rights decision which stated in part, “the right of property in water is *usufructuary*, and consists not so much of the fluid itself as the advantage of its use. (Hutchins 1956: 36; *Eddy v. Simpson* 3 Calif 249 (1853), 252)”

Appendix C

The history of water rights in California has long been contentious. The state legislature beginning at statehood never passed a law that established California's water rights system. Instead, it was cobbled together by the court system on a case-by-case basis. In all cases, water rights in California give their owner a right to use, but not to hoard or otherwise possess water; all uses must be reasonable. The question, of course, is "what is reasonable?"

Riparian Rights

Prior to statehood, California's territorial legislature adopted the English Common Law for its legal code. This action implied that landowners had riparian rights to water, consistent with the common law, when they owned property abutting a stream. **Riparian rights** are predominant in California and are held by those who own parcels of land that abut a flowing stream or spring.

(Analogously, land owners may possess "overlying rights" to pump water from the ground for use on their property.)

Riparian water rights are "part and parcel of the land" and are held in common with other riparian land owners along the same stream. A map of the streams of California gives an impression of the large number of potential riparian water right holders there are in California (Figure C-3). Riparian water rights are not quantified. But right holders along a stream share the river in common.

They may make explicit agreement with neighbors divert water subject to reasonable use. Riparian water right holders may irrigate their lands immediately adjacent to the river, and their drainage must be returned to the river.

They may have small ponds, under California state law, for purposes of managing their irrigation efforts, watering livestock, and incidental domestic uses. Riparian rights are the predominant water right in California and riparian diverters have priority to divert for use before prior appropriators do. Unlike appropriative water rights (see below), riparian water rights cannot



Figure C-3
Source: U.S. Geological Survey.

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be lost to the right holder from disuse. However, in specific circumstances such rights may be severed from land, usually having to do with land subdivision.

Appropriative Water Rights

Appropriative water rights are the other major form of water rights in California. Under the doctrine of prior appropriation, right holders gain the right to use a specific quantity of water from a stream, and no more. They may move that water out of the watershed. In California, this right arose in the Sierra Nevada mining districts in the 1850s, though the right's doctrine was known in the humid eastern United States where it facilitated American accommodation of mill-wheel technology to water law (Steinberg 1991; Horwitz 1977: 34-40). It follows the logic of mining claims: the miner who was first in time had the prior right not only to the mining claim but to the water in the adjacent stream needed to work the claim. "First in time, first in right," is the familiar adage for this right. Appropriators may divert their supplies only in order of the dates of their claims. The earlier the claim in time, the more senior the right. In dry years such a right has a more reliable water supply than rights with later dates of claim. Rights later in time are considered to be more junior, and have lower reliability of actual supply in dry years.

Appropriative rights have another important aspect: the water right must be *diligently exercised* year-in and year-out. The water must be applied to beneficial use under the right or else the right can be lost. "Use it or lose it," is another familiar adage for appropriative water rights. Once someone obtains the right, they must develop the facilities to divert, transport and store the water in a diligent manner, and once those facilities are completed, the water must be demonstrably used to the extent the right allows, or the right to use may be reduced or lost. Generally, long-distance canals, dams, and hydropower plants are the subjects of appropriative water rights. But it is also true that small ditches to parcels non-riparian in their location may rely on appropriative water rights to divert water to a ditch that irrigates some acreage, provides private domestic use, facilitates a mining claim, or runs a small hydroelectric generator.

Prescriptive Rights

Prescriptive rights come into play when one water user uses water adversely to the rights of another. They may divert water for years without discovery or objection by a neighboring user. In California, if that usage continues for five years or longer, that use may be demonstrated in court to have ripened into a legitimate right through the prescriptor's adverse use against the other existing right holder(s). This right has come into play in some instances in the San Joaquin River Basin, most notably involving rights held by San Francisco, and rights that came to be acquired by the US Bureau of Reclamation on the upper San Joaquin River .

State Water Rights Regulation

There are other water rights in California besides these. Groundwater is the subject of overlying rights. These rights are analogous to riparian rights because land owners may drill wells to pump groundwater for use on their properties. And like riparian rights, their overlying rights are held in correlation to the rights of neighbors over the same underground reservoir (or "aquifer") of water. In other words, both riparian and overlying rights holders use water from their sources in common with those of other adjacent land owners. Their rights are not quantified, but receive a percent share of the yield of the river or aquifer. Groundwater rights are not described in this report, but are very important to the history and use of water throughout the San Joaquin Valley. Groundwater has never been formally regulated by a state-level administrative agency. But some groundwater basins are regulated under supervision of court-appointed watermasters.

Appendix C

Until 1914, California water rights were obtained either by purchasing riparian land or by posting a noticed claim at the site of the intended river diversion or dam site, and then recording that claim within a specified time at the local County Recorder's office. Beginning December 19, 1914, the start date for California's formal administrative system of water rights regulation approved by referendum, appropriative water rights may only be obtained by filing an application with the state water rights board. Today, that regulatory authority is vested in the Division of Water Rights of the State Water Resources Control Board. Applications are prioritized by the date on which they are filed with the Division, and have been since December 19, 1914.

However, the Water Commission Act only committed California to regulate appropriative water rights moving forward from December 19, 1914. Riparian and appropriative rights (now known as "pre-1914" water rights) created before this date are unregulated from the new water rights administration. While unregulated, the State Water Resources is empowered to investigate these prior water rights (both riparian and pre-1914). There is disagreement about how far the Board's authority reaches in adjusting rights that might, for example, come into conflict with post-1914 water rights.

Legally speaking, stream flows are first available to riparian diverters, and any surplus determined by the State Water Resources Control Board is then available for appropriation by other water rights applicants. In deciding whether to permit a new water right on a stream, the State Water Resources Control Board performs a water availability analysis that determines whether such a surplus is available for new appropriations.

Exceptional Water Rights: The State Filings

Before taking up analysis of "paper water" in the San Joaquin River Basin in detail, it is necessary to present background and context for where the tremendous quantities of federal Bureau of Reclamation water rights originated.

California, on one hand, has a rather complex water rights system, what some scholars and attorneys call the "California Doctrine" (e.g., Holsinger 1936). Riparian right holders (owners of riparian lands) generally have paramount (but unquantified) claim to a correlative (i.e., "pro rata" fair share) of waters of a stream or lake, followed by appropriators who made their claims prior to 1914 and who perfect their quantified flow and storage rights by diligent completion of their facilities and diversion for use. The next class of water right holders are those who applied for rights to appropriate and use water through California's permit system that began in December 1914. These right holders are regulated by the State Water Resources Control Board today. Riparian and pre-1914 right holders are exempt from the Board's permit process.

Because of the California Doctrine and the state's water rights permit and license system, priority of application of water to use has long been the established system for determining whose rights get served and whose don't during droughts. One of the more difficult problems for state water policy, in the 1920s, became how the state could acquire water rights for a project of statewide scope when claims, permits, and licenses for water rights (especially the system for *acquiring* water rights) cumulated as the state's economy developed through time. How could the state gather the rights it needed to move forward with statewide coordinated water development? The state was clearly a late-comer to obtain water rights for a state-sponsored system, and its rights were likely to face larger cutbacks during droughts than those with more senior rights on the same river systems.

When the Water Code was adopted by the State Legislature in 1914, it included (and still includes) Sections 104 and 105, which state:

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Section 104. It is hereby declared that the people of the State have a paramount interest in the use of all the water of the State and that the State shall determine what water of the State, surface and underground, can be converted to public use or controlled for public protection.

Section 105. It is hereby declared that the protection of the public interest in the development of the water resources of the State is of vital concern to the people of the State and that the State shall determine in what way the water of the State, both surface and underground, should be developed for the greatest public benefit.

These provisions provide a policy rationale, if not the tools, for the State to intervene in the cumulating claims of water rights (essentially private rights) on behalf of the public interest in coordinated water development. Provoked by growing perceptions of shortage around the fast-developing state, which were aggravated by drought and litigation in the early 1920s¹, the State of California came up with its first statewide plan to develop and reallocate water to meet the state's water problems. In 1925, state planners realized they had to address how water rights could be obtained without injury to vested rights. The California Water Project Authority describes the problem this way in 1951:

With respect to the protection of water rights and water requirements in carrying out such a plan of coordinated development, [a 1925 report to the Legislature on California's water resources] contains the following statement....:

The whole discussion of the diversion of surplus waters from the Sacramento River into the San Joaquin Valley, must be predicated upon the institution of a coordinated development in both valleys that gives full protection against present or future loss to the owners of vested rights and to present users of water as well as to those potential users whose lands lie tributary to streams from which exportations of water are proposed. (California Water Project Authority, 1951: 21-23)

A 1926 California Supreme Court decision once again upholding riparian over appropriative rights made the water rights issue for statewide development even more immediate. In 1927, a Legislative committee studying the "coordinated plan of development" recommended the legislature "*at once* take the necessary steps, either through its proper officials or by legislation, to file on or withdraw from filing by private parties the water rights to be utilized and required for the consummation of the coordinated plan. (California Water Project Authority, 1951: 23; italics added)"

The Legislature passed the Feigenbaum Act, Chapter 286, Statutes of 1927² to authorize the California Department of Finance to file applications for water rights "for any water which in its judgment is or may be required in the development and completion of the whole or any part of a general or coordinated plan looking toward the development, utilization, or conservation of the water resources of the State."³ The Act gave the State the power to literally but fictitiously *stop time* for the purpose of filing applications for water rights on behalf of the state water plan:

¹ The case of *Town of Antioch v. Williams Irrigation District*, the first Delta water case that attempted to address low Delta inflows and tidal salinity intrusion, was filed during dry conditions in 1920, and decided by the California Supreme Court in 1922.

² Today, portions of its provisions live on in Water Code sections 10500 and 10504, while other sections of the Feigenbaum Act were subsequently repealed in 1953. The Feigenbaum Act is also mentioned in Jackson and Mikesell, (1979: 29).

³ Water Code §10500, quoted in California Water Project Authority (1951: 28).

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Section 10501. Any application filed by the Department of Finance within nine months after July 29, 1927, has priority as of that date and such priority shall be retained over any application made by others subsequent application made by others subsequent to that date in conflict therewith, regardless of any requirements or provisions for water or the use thereof, until October 1, 1955.

Section 10502. Any priority under this part may be maintained and extended by further legislative enactment.⁴

The Feigenbaum Act further empowered the Department of Finance to “release from priority or assign any portion of any appropriation filed by it under this part when the the release or assignment is for the purpose of development not in conflict with such general or coordinated plan.” While benefiting from a special state-filed priority date under the Act, assignees would still be obligated to proceed with their water development plans with due diligence. Assignees of these applications could include state agencies, commissions, and departments, as well as the United States of America or any of its departments or agencies.⁵

Subsequent legislation also enables counties and watersheds of origin to benefit from such state filing assignments. State filings provide the State of California with the water rights-equivalent of a “wild card” (within some limits) that can reserve, withdraw or otherwise control the waters of any California river or stream so that they may be incorporated into either the State Water Project or the Central Valley Project, either for export or to benefit areas of origin—until or unless that state filing right is revoked by the State Water Resources Control Board.

State Filings for San Joaquin River Basin Water Rights

According to State Water Resources Control Board records, there have been 26 state filings on rivers and creeks of the San Joaquin River Basin since enactment of the Feigenbaum Act in 1927.⁶ They are listed in Appendix J. The filings include claims for creeks and tributaries of the Stanislaus, Merced, and San Joaquin Rivers. No state filings appear to exist for the Tuolumne River.

In the San Joaquin River Basin, state filings were assigned to the US Bureau of Reclamation to develop Friant Dam, its associated Madera and Friant-Kern Canals, and New Melones Dam and Reservoir on the Stanislaus River. State filing Application 5638 was assigned to the Bureau to supplement earlier, insufficient water rights applications for the Friant Dam site filed in 1916 and 1919.

The rest of the state filings are as yet unassigned and therefore technically (if not politically) still in play with regard to coordinated statewide water development and/or area of origin claims. For example, Application 5949 (priority date of July 30, 1927) on the south fork of the Stanislaus River has been the subject of requests for assignment by Pacific Gas & Electric Company (beginning in 1951) and by Tuolumne Regional Water District (1980s). Neither request for assignment was acted on by the State, deferring action until some sort of coordinated plan of development was further

⁴ These sections were repealed in 1953.

⁵ Water Code § 10504, quoted in California Water Project Authority (1951). This provision remains in effect today.

⁶ According to eWRIMS, the State Water Board’s online water rights application database, there are 185 active state filings. San Joaquin River Basin state filings amount to about 14 percent of all state filings at this time. Excel file accessed and downloaded 12 November 2010 and updated in July 2011. They may be found by searching on both California Department of Finance and State Water Resources Control Board.

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along. Meanwhile, 184 other state filings throughout California have similar status as Application 5649.

Additional file research at the State Water Resources Control Board Records Room would be necessary to determine the current status of these and other state filing applications.

Reasonable Use of Water

Even before Californians amended their constitution in 1928, legal precedents set by California courts required that water use among riparians had to be reasonable, and water use between appropriators had to be reasonable. Appropriators also were accountable to riparians for reasonable use. Major political conflict arose about water rights though because California law contained no requirement that the water use of riparians with respect to appropriators had to be reasonable. Then, in 1928, California voters approved an amendment to the California Constitution that required all water use in California by any water right holder (riparians included) had to be reasonable and not wasteful.⁷ The California Constitution stresses that “the right to water...does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.” Where riparian rights were once entitled to the “full natural flow” of the stream to which the rights attached, the California Constitution now limits attachment of the riparian right to “no more than so much of the flow thereof as may be required or used consistently with this section, for the purposes for which such lands are, or may be made adaptable, in view of such reasonable and beneficial uses” without “depriving any riparian owner of the reasonable use of water of the stream...or as depriving any appropriator of water to which the appropriator is lawfully entitled.”

The question remains under this doctrine: what uses, methods of use, and methods of diversion represent are reasonable, and how does that translate into more efficient allocation and use of water so that waste of water and significant environmental impacts of water development are avoided or at least mitigated? In case law, the answer is a matter of the facts involved.

The new Delta Watermaster, Craig M. Wilson, whose office was created by the water reform legislation of 2009, calls the Reasonable Use Doctrine “the cornerstone of California’s complex water rights laws. All water use must be reasonable and beneficial regardless of the type of underlying water right. No one has an enforceable property interest in the unreasonable use of water. (Wilson, 2011: 3)”

⁷ [Article X, Section 2 of the California Constitution.](#)

Appendix D
Supporting Data and Analyses

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- D.1 Water Availability Analysis Spreadsheet Models**
- D.2 Unimpaired Flow Hydrology**
- D.3 Adjudication Decree Quantification**
- D.4 Consumptive Statements of Diversion and Use**
- D.5 Other Pre-1914 Consumptive Water Rights**
- D.6 Post-1914 Consumptive Water Rights**
- D.7 Sacramento River Post-1914 Water Rights Priorities**

Appendix D

**Section D.1
Water Availability Analysis Spreadsheet Models**

Trinity River Water Rights Yield Analysis

Tributary Inflow Criteria	Water Year Flow Percentile										
	10th Percentile	20th Percentile	25th Percentile	30th Percentile	40th Percentile	Median Flow	60th Percentile	70th Percentile	75th Percentile	80th Percentile	90th Percentile
75% of unimpaired flow	679	789	824	866	1,025	1,133	1,424	1,582	1,611	1,683	2,035
40% of unimpaired flow	624	743	785	838	968	1,064	1,341	1,455	1,529	1,599	1,930
50% of unimpaired flow	468	557	589	629	726	798	1,006	1,091	1,147	1,199	1,448
60% of unimpaired flow	156	186	196	210	242	266	335	364	382	400	483
94% average regulated period share of flow during water year	126	126	126	126	126	126	126	126	126	126	126
75% Inflow Criterion Scenario											
Total Annual Unimpaired Flow (TAF)	30	60	70	84	116	140	209	238	256	274	357
November through June Unimpaired Flow (TAF)	0	0	0	0	0	0	0	0	0	0	0
Delta Inflow Criterion (75% of UF, TAF)	0	0	0	0	0	0	0	0	0	0	0
Diversion Cap (TAF)	55	46	39	27	57	69	82	127	82	85	105
Riparian and Pre-1914 Claimants (134.1 TAF)	8	8	8	8	8	8	8	8	8	8	8
USBR 1927 Trinity Claim (3,349.9 TAF)	47	37	31	19	49	61	74	119	74	77	97
USBR 1959 Trinity Claim (3,030.8 TAF)	0	0	0	0	0	0	0	0	0	0	0
USBR 2002 Trinity Claim (2,203.1 TAF)	0	0	0	0	0	0	0	0	0	0	0
Remaining Flows, July-October	134	134	134	134	134	134	134	134	134	134	134
Riparian and Pre-1914 Claimants (134.1 TAF)	77	97	101	103	165	201	284	357	330	350	454
USBR 1927 Trinity Claim (3,349.9 TAF)											
USBR 1959 Trinity Claim (3,030.8 TAF)											
USBR 2002 Trinity Claim (2,203.1 TAF)											
Total Riparian and Pre-1914 Claimants											
Total USBR Trinity Claims											

Sources: DWR, SWRCB, C-WIN.
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Central Valley Water Rights Yield Model.xls
Trinity @ Lewiston

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Feather River Water Rights Yield Analysis

Tributary Inflow Criteria	Diversion Cap										
	75%	60%	50%	40%	30%	25%	20%	10th Percentile	40th Percentile	90th Percentile	
25% of unimpaired flow	2,007	2,511	2,638	2,932	3,251	3,854	4,596	5,673	5,767	6,268	7,095
40% of unimpaired flow	1,705	2,150	2,270	2,562	2,893	3,466	4,201	5,160	5,260	5,583	6,470
50% of unimpaired flow	1,278	1,613	1,703	1,921	2,170	2,600	3,151	3,870	3,945	4,187	4,852
60% of unimpaired flow	426	538	568	640	723	867	1,050	1,290	1,315	1,396	1,617
90% average regulated period share of flow during water year	426	538	568	640	723	867	1,050	1,290	1,315	1,396	1,617
75% Inflow Criterion	0	0	0	0	0	0	0	0	0	0	0
Total Annual Unimpaired Flow (TAF)	1,705	2,150	2,270	2,562	2,893	3,466	4,201	5,160	5,260	5,583	6,470
November through June Unimpaired Flow (TAF)	1,278	1,613	1,703	1,921	2,170	2,600	3,151	3,870	3,945	4,187	4,852
Delta Inflow Criterion (75% of UF, TAF)	426	538	568	640	723	867	1,050	1,290	1,315	1,396	1,617
Diversion Cap (TAF)	426	538	568	640	723	867	1,050	1,290	1,315	1,396	1,617
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (Total 3,493 TAF)	0	0	0	0	0	0	0	0	0	0	0
South Feather WPA and Thermalito Water & Sewer 1920s Rights (331.8 TAF)	0	0	0	0	0	0	0	0	0	0	0
DWR 1927, 1951, and 1956 Rights (10,447.2 TAF)	0	0	0	0	0	0	0	0	0	0	0
North Yuba Water District 1958 Rights (624 TAF)	0	0	0	0	0	0	0	0	0	0	0
DWR 1967 Right (83 TAF)	0	0	0	0	0	0	0	0	0	0	0
Remaining Flow July-October (TAF)	303	360	368	371	359	388	395	513	507	685	625
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (Total 3,493 TAF)	303	355	355	355	355	355	355	355	355	355	355
South Feather WPA and Thermalito Water & Sewer 1920s Rights (331.8 TAF)	0	6	13	16	4	33	34	34	34	34	34
DWR 1927, 1951, and 1956 Rights (10,447.2 TAF)	0	0	0	0	0	0	7	124	118	297	236
North Yuba Water District 1958 Rights (624 TAF)	0	0	0	0	0	0	0	0	0	0	0
DWR 1967 Right (83 TAF)	0	0	0	0	0	0	0	0	0	0	0
Total Riparian and Pre-1914	729	892	922	995	1,078	1,221	1,405	1,645	1,670	1,750	1,972
Total South Feather & Thermalito	0	6	13	16	4	33	34	34	34	34	34
Total DWR	0	0	0	0	0	0	7	124	118	297	236
Total North Yuba Water District	0	0	0	0	0	0	0	0	0	0	0

Central Valley Water Rights Yield Model.xls
Feather_River

Sources: DWR, SWRCB, C-WIN.
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Yuba River Water Rights Yield Analysis

Tributary Inflow Criteria	10th Percentile		20th Percentile		25th Percentile		30th Percentile		40th Percentile		60th Percentile		70th Percentile		75th Percentile		80th Percentile		90th Percentile		
	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	
75% Inflow Criterion	921	1,231	1,363	1,521	1,826	2,123	2,428	2,949	3,164	3,284	3,765										
Total Annual Unimpaired Flow (TAF)	884	1,151	1,268	1,438	1,746	2,006	2,280	2,780	2,993	3,079	3,681										
November through June Unimpaired Flow (TAF)	663	863	951	1,078	1,310	1,505	1,710	2,085	2,245	2,310	2,761										
Delta Inflow Criterion (75% of UF, TAF)	221	288	317	359	437	502	570	695	748	770	920										
Diversion Cap (TAF)	221	288	317	359	437	502	570	695	748	770	920										
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada ID and Yuba County Water District 1920s Rights (212.6 TAF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yuba County Water Agency 1927 Right (1,159 TAF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada ID 1930s Rights (212.8 TAF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Yuba Water District 1958 Rights (145.1 TAF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nevada ID 1961 Right (101.2 TAF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yuba County Water Agency 1966 Rights (760 TAF)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remaining Flow July-October (TAF)	37	80	95	83	80	117	148	169	171	204	84										
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (1,497 TAF)	37	80	85	83	80	85	85	85	85	85	84										
Nevada ID and Yuba County Water District 1920s Rights (212.6 TAF)	-	-	10	-	-	12	12	12	12	12	-										
Yuba County Water Agency 1927 Right (1,159 TAF)	-	-	-	-	-	20	51	66	66	66	-										
Nevada ID 1930s Rights (212.8 TAF)	-	-	-	-	-	-	-	6	8	12	-										
North Yuba Water District 1958 Rights (145.1 TAF)	-	-	-	-	-	-	-	-	-	8	-										
Nevada ID 1961 Right (101.2 TAF)	-	-	-	-	-	-	-	-	-	6	-										
Yuba County Water Agency 1966 Rights (760 TAF)	-	-	-	-	-	-	-	-	-	15	-										
Total Riparian & Pre-1914	258	368	402	442	516	587	655	780	833	855	1,004										
Total Nevada ID and YCWD Yields	0	0	10	0	0	12	12	12	12	12	0										
Total Yuba County Water Agency Yields	0	0	0	0	0	20	51	66	66	81	0										
Total North Yuba Water District Yield	0	0	0	0	0	0	0	0	0	8	0										
Total Nevada ID Yield	0	0	0	0	0	0	0	0	0	6	0										

Source: DWR, SWRCB, C-WIN.
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Central Valley Water Rights Yield Model.xls
Yuba_River

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Bear River Water Rights Yield Analysis

Tributary Inflow Criteria	10th Percentile		20th Percentile		25th Percentile		30th Percentile		40th Percentile		Median Flow	60th Percentile		70th Percentile		75th Percentile		80th Percentile		90th Percentile			
	Value	Share	Value	Share	Value	Share	Value	Share	Value	Share		Value	Share	Value	Share	Value	Share	Value	Share	Value	Share	Value	Share
75% Inflow Criterion																							
Total Unimpaired Flow (TAF)	102	137	171	181	247	290	384	434	462	489	567	567	567	567	567	567	567	567	567	567	567	567	567
November through June Unimpaired Flow (TAF)	102	130	165	177	239	278	365	410	453	482	553	553	553	553	553	553	553	553	553	553	553	553	553
Delta Inflow Criterion (75% of UF, TAF)	76	98	124	132	179	209	274	308	340	361	415	415	415	415	415	415	415	415	415	415	415	415	415
Diversion Cap (TAF)	25	33	41	44	60	70	91	103	113	120	138	138	138	138	138	138	138	138	138	138	138	138	138
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (92.1 TAF)	25	33	41	44	60	70	91	103	113	120	138	138	138	138	138	138	138	138	138	138	138	138	138
Camp Far West 1918 Right (4.8 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada ID 1921 Rights (77.5 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp Far West 1922 and 1924 Rights (8.6 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada ID 1929 Right (50.9 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp Far West 1941 Right (5 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Sutter Water District 1952 Right (139.5 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake of the Pines 1966 Right (4.2 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Sutter Water District 1981 Right (130.7 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Remaining Flow July-October (TAF)	1	7	6	4	8	12	18	24	9	7	14	14	14	14	14	14	14	14	14	14	14	14	14
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (92.1 TAF)	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Camp Far West 1918 Right (4.8 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada ID 1921 Rights (77.5 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp Far West 1922 and 1924 Rights (8.6 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada ID 1929 Right (50.9 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp Far West 1941 Right (5 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Sutter Water District 1952 Right (139.5 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lake of the Pines 1966 Right (4.2 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Sutter Water District 1981 Right (130.7 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Riparian & Pre-1914 Yield	26	36	44	47	63	73	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Total Camp Far West Yield	0	0	0	0	1	1	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Total Nevada ID Yield	0	3	2	1	4	4	4	13	24	30	49	49	49	49	49	49	49	49	49	49	49	49	49
Total South Sutter Water District Yield	0	0	0	0	0	0	0	9	1	0	6	6	6	6	6	6	6	6	6	6	6	6	6
Total Lake of the Pines Yield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Central Valley Water Rights Yield Model.xls
Bear_River

Sources: DWR, SWRCB, C-WIN
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American River Water Rights Yield Analysis

Tributary Inflow Criteria	20th		25th		30th		40th		60th		70th		75th		80th		90th		
	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	
75% Instream Flow Criterion																			
Total Annual Unimpaired Flow (TAF)	1,041	1,252	1,416	1,613	2,023	2,521	2,844	3,300	3,886	4,525									
November through June Unimpaired Flow (TAF)	984	1,188	1,363	1,556	1,983	2,422	2,731	3,140	3,311	3,687									
Delta Inflow Criterion (75% of UF, TAF)	738	891	1,022	1,167	1,487	1,817	2,048	2,355	2,483	2,766									
Diversion Cap (TAF)	246	297	341	389	496	606	683	785	828	922									
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (286 TAF)	246	273	273	273	273	273	273	273	273	273									
Nevada ID 1930s Rights (5.0 TAF)	0	5	5	5	5	5	5	5	5	5									
City of Sacramento 1940s Rights (715.2 TAF)	0	19	63	111	218	328	405	507	550	644									
Georgetown Divide 1955 Rights (20.4 TAF)	0	0	0	0	0	0	0	0	0	0									
Placer County Water Agency 1958 Rights (1,291 TAF)	0	0	0	0	0	0	0	0	0	0									
USBR 1958 Rights (5,347.8 TAF)	0	0	0	0	0	0	0	0	0	0									
City of Sacramento 1958 Rights (95.1 TAF)	0	0	0	0	0	0	0	0	0	0									
Foresthill PUD 1964 Rights (24.1 TAF)	0	0	0	0	0	0	0	0	0	0									
El Dorado ID 1992 Rights (47.9 TAF)	0	0	0	0	0	0	0	0	0	0									
Remaining Flow July-October (TAF)	57	64	53	57	40	99	113	160	243	198									
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (286 TAF)	13	13	13	13	13	13	13	13	13	13									
Nevada ID 1930s Rights (5.0 TAF)	0	0	0	0	0	0	0	0	0	0									
City of Sacramento 1940s Rights (715.2 TAF)	32	32	32	32	26	32	32	32	32	32									
Georgetown Divide 1955 Rights (20.4 TAF)	1	1	1	1	1	1	1	1	1	1									
Placer County Water Agency 1958 Rights (1,291 TAF)	11	18	7	11	0	53	58	58	58	58									
USBR 1958 Rights (5,347.8 TAF)	0	0	0	0	0	0	0	9	55	139									
City of Sacramento 1958 Rights (95.1 TAF)	0	0	0	0	0	0	0	0	0	0									
Foresthill PUD 1964 Rights (24.1 TAF)	0	0	0	0	0	0	0	0	0	0									
El Dorado ID 1992 Rights (47.9 TAF)	0	0	0	0	0	0	0	0	0	0									
Total Riparian & Pre-1914 Yield	259	286	286	286	286	286	286	286	286	286									
Total Nevada ID Yield	0	5	5	5	5	5	5	5	5	5									
Total City of Sacramento Yield	32	51	95	143	244	360	437	539	582	676									
Total Georgetown Divide PUD Yield	1	1	1	1	0	1	1	1	1	1									
Total Placer County Water Agency Yield	11	18	7	11	0	53	58	58	58	58									
Total USBR Yield	0	0	0	0	0	0	0	9	55	139									
Total Foresthill PUD Yield	0	0	0	0	0	0	0	0	0	0									
Total El Dorado ID Yield	0	0	0	0	0	0	0	0	0	0									

Sources: DWR, SWRCB, C-WIN.
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Central Valley Water Rights Yield Model.xls
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Sacramento River at Feather River Confluence Water Rights Yield Analysis

75% Inflow Criterion Scenario	Water Year Flow Percentile										
	10th Percentile	20th Percentile	25th Percentile	30th Percentile	40th Percentile	Median Flow	60th Percentile	70th Percentile	75th Percentile	80th Percentile	90th Percentile
Total Annual Unimpaired Flow (TAF)	5,572	6,984	7,371	7,877	8,860	10,162	13,046	14,151	14,945	15,697	19,369
November through June Unimpaired Flow (TAF)	4,638	5,876	6,170	6,806	7,721	9,163	11,451	12,658	13,688	14,434	17,849
Delta Inflow Criterion (75% of UF, TAF)	3,479	4,407	4,627	5,104	5,791	6,872	8,588	9,494	10,266	10,826	13,386
Diversion Cap (TAF)	1,160	1,469	1,542	1,701	1,930	2,291	2,863	3,165	3,422	3,609	4,462
Paramount Riparian and Prior Pre-1914 Water Right Holders (42,261.8 TAF)	1,160	1,469	1,542	1,701	1,930	2,291	2,863	3,165	3,422	3,609	4,462
Water Right Holders with Priorities 1915 to Early 1927 (1,352.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
Early CVP Sacramento River State Filings, Other Claimants, 1927-1936 (11,263.6 TAF)	0	0	0	0	0	0	0	0	0	0	0
1938 CVP and Post-War Claimants through June 1951 (8,145.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
1951 Feather River Project, CVP State Filings, Other Claimants through 1961 (18,901.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
Remaining Flows, July-October (TAF)	934	1,107	1,201	1,071	1,139	999	1,595	1,493	1,257	1,263	1,520
Paramount Riparian and Prior Pre-1914 Water Right Holders (42,261.8 TAF)	934	1,107	1,201	1,071	1,139	999	1,595	1,493	1,257	1,263	1,520
Water Right Holders with Priorities 1915 to Early 1927 (1,352.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
Early CVP Sacramento River State Filings, Other Claimants, 1927-1936 (11,263.6 TAF)	0	0	0	0	0	0	0	0	0	0	0
1938 CVP and Post-War Claimants through June 1951 (8,145.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
1951 Feather River Project, CVP State Filings, Other Claimants through 1961 (18,901.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
Total Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (1,433.7 TAF)	2,094	2,576	2,743	2,773	3,069	3,290	4,458	4,657	4,679	4,872	5,983
Total, 1915-Early 1927 Claimants (up to 1,352.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
Total 1927-1936 Claimants (14,613.5 TAF)	0	0	0	0	0	0	0	0	0	0	0
Total 1938-June 1951 Claimants (8,145.4 TAF)	0	0	0	0	0	0	0	0	0	0	0
Total 1951 through 1961 Claimants (18,901.4 TAF)	0	0	0	0	0	0	0	0	0	0	0

Tributary Inflow Criteria
 Diversion Cap
 25% of unimpaired flow
 40% of unimpaired flow
 50% of unimpaired flow
 60% of unimpaired flow
 87% average regulated period share of flow during water year

Central Valley Water Rights Yield Model.xls
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Stanislaus River Water Rights Yield Analysis

	10th Percentile		20th Percentile		25th Percentile		30th Percentile		40th Percentile		Median Flow		60th Percentile		70th Percentile		75th Percentile		80th Percentile		90th Percentile		
	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	Value	Flow	
60% Instream Flow Criterion																							
Total Annual Unimpaired Flow (TAF)	457	382	592	500	637	551	680	566	894	740	1,107	822	1,265	994	1,359	1,077	1,460	1,127	1,559	1,180	1,912	1,459	
Feb-June Unimpaired Flow Level (TAF)																							
Delta Inflow Criterion (60% of UF, TAF)																							
Diversion Cap (TAF)																							
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (29.4 TAF)	153	200	220	226	226	296	226	296	296	296	329	398	398	431	431	451	451	472	472	583	583	583	
Pre-1914 Oakdale ID Claims (1,371.4 TAF)	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
Total USBR Post-1914 Claims (3,400 TAF)	128	175	195	201	201	271	271	304	304	372	372	406	406	425	425	447	447	472	472	558	558	558	
Remaining Flows, July through January																							
Paramount Riparian and Possibly Prior Pre-1914 Water Right Holders (29.4 TAF)	75	92	87	114	114	154	154	285	285	271	271	282	282	333	333	380	380	454	454	454	454	454	
Pre-1914 Oakdale ID Claims (1,371.4 TAF)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Total USBR Post-1914 Claims (3,400 TAF)	70	88	82	110	110	150	150	199	199	199	199	199	199	199	199	199	199	199	199	199	199	199	
Total Riparian and Pre-1914 Yield	0	0	0	0	0	0	0	81	81	67	67	79	79	129	129	176	176	250	250	250	250	250	
Total Oakdale ID Claims	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	
Total USBR Claims	198	262	277	311	311	421	421	503	503	572	572	605	605	625	625	646	646	758	758	758	758	758	

Sources: DWR, SWRCB, C-WIN. Totals may not sum due to effects of rounding.
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Tuolumne River Water Rights Yield Analysis													
60% Instream Flow Criterion	Tributary Inflow Criteria	10th Percentile	20th Percentile	25th Percentile	30th Percentile	40th Percentile	Median Flow	60th Percentile	70th Percentile	75th Percentile	80th Percentile	90th Percentile	Total
Total Annual Unimpaired Flow (TAF)	836	1,053	1,107	1,183	1,416	1,786	2,030	2,181	2,363	2,483	2,483	3,093	
Feb-June Unimpaired Flow Level (TAF)	675	898	961	984	1,189	1,299	1,578	1,704	1,755	1,852	1,852	2,188	
Delta Inflow Criterion (60% of UF, TAF)	405	539	577	591	713	779	947	1,023	1,053	1,111	1,111	1,313	
Diversion Cap (TAF)	270	359	384	394	475	520	631	682	702	741	741	875	
Gallo Riparian and Tuolumne Utilities District Pre-1914 Claims (22.6 TAF)	17	17	17	17	17	17	17	17	17	17	17	17	17
Turlock ID/Modesto ID 1855 and 1871 Claims (3,382.1 TAF)	253	342	367	376	458	502	614	665	685	724	724	858	
San Francisco 1901, 1902, and 1908 Claims (1,840.1 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
Modesto ID 1908 Claim (40 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco 1908 through 1911 Claims (4,114.9 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turlock ID 1911 Claim (100 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
Remaining Flow, July-January	161	154	146	199	228	487	451	477	609	631	631	904	
Gallo Riparian and Tuolumne Utilities District Pre-1914 Claims (22.6 TAF)	5	5	5	5	5	5	5	5	5	5	5	5	5
Turlock ID/Modesto ID 1855 and 1871 Claims (3,382.1 TAF)	155	149	141	193	222	482	446	471	603	626	626	804	
San Francisco 1901, 1902, and 1908 Claims (1,840.1 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
Modesto ID 1908 Claim (40 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
San Francisco 1908 through 1911 Claims (4,114.9 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turlock ID 1911 Claim (100 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Riparian and Senior Pre-1914 Claims	23	23	23	23	23	23	23	23	23	23	23	23	23
Total Turlock ID/Modesto ID Claims	408	491	508	570	680	984	1,060	1,136	1,288	1,349	1,349	1,662	
Total San Francisco Claims	0	0	0	0	0	0	0	0	0	0	0	0	0

Sources: DWR, SWRCB, C-WIN. Totals may not sum due to effects of rounding. Central Valley Water Rights Yield Model.xls
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Merced River Water Rights Yield Analysis

	Tributary Inflow Criteria		Diversion Cap		60% of unimpaired flow		50% of unimpaired flow		40% of unimpaired flow		30% of unimpaired flow		81% Average of Regulated Period to Total Flow during Water Year	
	10th Percentile	20th Percentile	25th Percentile	30th Percentile	40th Percentile	Median Flow	60th Percentile	70th Percentile	75th Percentile	80th Percentile	90th Percentile			
60% Instream Flow Criterion	409	492	527	562	669	906	1,077	1,160	1,220	1,389	1,708			
Total Annual Unimpaired Flow (TAF)	326	432	459	471	568	648	805	924	977	1,030	1,223			
Jan-June Unimpaired Flow Level (TAF)	196	259	275	283	341	389	483	554	586	618	734			
Delta Inflow Criterion (60% of UF, TAF)	130	173	183	189	227	259	322	370	391	412	489			
Diversion Cap (TAF)	130	173	183	189	227	228	228	228	228	228	228			
Decreases + Riparian Claims (282.7 TAF)	0	0	0	0	0	31	94	142	163	184	261			
Merced ID Pre-1914 Claims + SDUs (4,193.3 TAF)	82	60	69	91	101	258	272	236	243	359	485			
Remaining Flow, July-January	55	55	55	55	55	55	55	55	55	55	55			
Decreases + Riparian Claims (282.7 TAF)	27	5	14	36	46	203	217	181	188	304	430			
Merced ID Pre-1914 Claims + SDUs (4,193.3 TAF)	185	228	238	244	282	283	283	283	283	283	283			
Total Riparian and Pre-1914 Yield	27	5	14	36	46	235	311	323	351	489	692			
Total Merced ID Pre-1914 Yield														

Sources: DWR, SWRCB, C-WIN. Totals may not sum due to effects of rounding.
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San Joaquin River Water Rights Yield Analysis

Tributary Inflow Criteria	20th		30th		40th		60th		70th		80th		90th	
	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow	Percentile	Flow
60% Instream Flow Criterion														
Total Annual Unimpaired Flow (TAF)	813	928	1,052	1,128	1,257	1,449	1,854	2,047	2,195	2,322	2,475	2,622	2,770	2,918
Feb-June Unimpaired Flow Level (TAF)	656	749	839	881	1,007	1,137	1,458	1,572	1,623	1,779	1,875	2,075	2,175	2,275
Delta Inflow Criterion (60% of UF, TAF)	394	450	503	529	604	682	875	943	974	1,068	1,145	1,245	1,345	1,445
Diversion Cap (TAF)	262	300	335	353	403	455	583	629	649	712	780	830	880	930
Paramount Riparian Claims (171.7 TAF)	131	131	131	131	131	131	131	131	131	131	131	131	131	131
Pre-1914 San Joaquin River Exchange Contractors Claims (816.6 TAF)	131	168	204	221	271	323	452	497	518	580	625	675	725	775
Pre-1914 Chowchilla, Tranquillity & James Claims (111.1 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Patterson ID 1910 Claims (60.2 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Post-1914 USBR Claims (623.2 TAF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Remaining Flow, July-December	157	179	214	246	250	312	396	475	572	642	712	782	852	922
Paramount Riparian Claims (171.7 TAF)	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Pre-1914 San Joaquin River Exchange Contractors Claims (816.6 TAF)	117	139	173	191	191	191	191	191	191	191	191	191	191	191
Pre-1914 Chowchilla, Tranquillity & James Claims (111.1 TAF)	0	0	0	15	19	26	26	26	26	26	26	26	26	26
Patterson ID 1910 Claims (60.2 TAF)	0	0	0	0	0	14	14	14	14	14	14	14	14	14
Post-1914 USBR Claims (623.2 TAF)	0	0	0	0	0	40	124	146	146	146	146	146	146	146
Total Riparian Claims Yield	172	172	172	172	172	172	172	172	172	172	172	172	172	172
Total SJREC Claims Yield	248	307	377	413	463	515	643	689	709	772	817	870	915	960
Total Chowchilla, et al, Yield	0	0	0	15	19	26	26	26	26	26	26	26	26	26
Total Patterson ID Yield	0	0	0	0	0	14	14	14	14	14	14	14	14	14
Total USBR Yield	0	0	0	0	0	40	124	146	146	146	146	146	146	146

77% Average of Regulated Period to Total Flow during Water Year

Diversion Cap
40% of unimpaired flow
50% of unimpaired flow
60% of unimpaired flow
70% of unimpaired flow

Sources: DWR, SWRCB, C-WIN. Totals May not sum due to effects of rounding.
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Appendix D

**Section D.2
Unimpaired Flow Hydrology**

Unimpaired Flow Hydrology for Trinity, Sacramento, and San Joaquin River Basins
(Thousands of Acre-Feet)

Indicator	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	Regulated Period as % of Total Flow	
														Regulated Period	% of Total Flow
Trinity River at Lewiston															
Minimum Flow	0	4	7	10	14	19	37	27	7	2	0	0	200	176	85.9%
Maximum Flow	134	413	544	552	648	515	380	662	514	248	77	35	2,990	2,587	98.9%
Average Flow	17	52	102	130	153	181	209	249	129	40	13	8	1,283	1,205	94.0%
10th Percentile	3	10	18	26	46	80	111	111	42	11	4	1	679	624	90.7%
20th Percentile	7	13	24	34	59	100	141	150	59	17	6	3	789	743	92.4%
25th Percentile	8	15	28	43	76	114	147	160	63	19	4	4	824	785	92.9%
30th Percentile	9	17	36	47	83	134	160	178	77	20	7	4	866	838	93.3%
40th Percentile	10	22	43	69	111	147	185	201	86	24	9	6	1,025	968	93.9%
Median Flow	12	33	59	93	130	179	234	262	110	35	12	8	1,424	1,341	94.5%
60th Percentile	14	42	86	120	153	199	232	282	156	42	15	10	1,582	1,455	95.3%
70th Percentile	16	54	119	149	167	199	232	282	156	42	15	10	1,611	1,529	95.6%
75th Percentile	17	66	149	173	195	214	260	307	178	48	16	12	1,683	1,599	95.8%
80th Percentile	19	76	163	209	234	230	270	339	204	55	18	12	1,683	1,599	95.8%
90th Percentile	29	128	240	295	286	312	316	411	254	73	23	16	2,035	1,930	96.7%
Sacramento River to Feather Confluence (Including Pitt River)															
Minimum Flow	201	223	259	284	321	352	290	284	238	203	177	184	3,825	2,633	68.8%
Maximum Flow	1,377	2,897	4,792	6,915	6,817	7,171	3,556	2,481	1,851	771	477	442	25,936	23,892	93.3%
Average Flow	356	594	1,210	1,778	1,944	1,838	1,380	955	564	363	302	299	11,583	10,263	86.9%
10th Percentile	243	265	322	449	554	728	610	459	327	265	220	219	5,572	4,638	81.4%
20th Percentile	258	313	421	576	758	983	786	578	386	283	241	242	6,984	5,876	83.3%
25th Percentile	271	324	480	653	911	1,079	808	605	403	295	254	250	7,371	6,170	84.3%
30th Percentile	287	341	509	693	1,017	1,186	835	646	418	302	266	266	7,877	6,806	85.3%
40th Percentile	308	379	624	931	1,221	1,360	985	752	456	319	280	274	8,860	7,721	86.5%
Median Flow	325	430	876	1,321	1,589	1,518	1,123	812	481	334	296	300	10,162	9,163	87.8%
60th Percentile	351	486	1,039	1,645	2,044	1,714	1,326	955	546	375	318	320	13,046	11,451	88.8%
70th Percentile	381	622	1,274	2,156	2,351	2,134	1,656	1,121	612	400	341	335	14,151	12,658	89.9%
75th Percentile	405	651	1,474	2,445	2,585	2,293	1,830	1,255	661	408	352	340	14,945	13,688	90.6%
80th Percentile	420	758	2,062	2,858	2,795	2,456	2,073	1,343	706	431	358	346	15,697	14,434	91.1%
90th Percentile	451	1,132	2,690	3,890	3,921	3,292	2,531	1,568	917	493	378	376	19,369	17,849	92.1%

Sources: California Department of Water Resources, 2007;
California Water Impact Network.
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Unimpaired Flow Hydrology for Trinity, Sacramento, and San Joaquin River Basins
(Thousands of Acre-Feet)

Indicator	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	Regulated Period as % of Total Flow	
														Regulated Total	Regulated Period % of Total Flow
Feather River															
Minimum Flow	53	57	62	69	89	92	100	101	64	63	58	46	995	733	73.7%
Maximum Flow	855	1,240	1,997	2,539	2,678	2,283	1,830	1,700	1,122	370	197	154	9,418	8,608	91.4%
Average Flow	106	191	376	497	555	663	682	638	324	151	100	87	4,370	3,926	89.8%
10th Percentile	63	73	96	132	181	279	307	216	109	86	67	59	2,007	1,705	84.9%
20th Percentile	70	92	119	155	220	369	379	316	159	98	74	65	2,511	2,150	85.6%
25th Percentile	73	100	126	160	227	396	416	361	176	106	81	72	2,638	2,270	86.1%
30th Percentile	77	107	139	184	303	415	471	402	186	113	84	73	2,932	2,562	87.4%
40th Percentile	82	121	168	263	366	465	528	444	220	119	91	78	3,251	2,893	89.0%
Median Flow	93	132	205	320	467	540	611	537	241	134	96	86	3,854	3,466	89.9%
60th Percentile	103	144	270	402	565	646	686	631	294	142	103	89	4,596	4,201	91.4%
70th Percentile	110	178	349	554	674	743	837	784	342	164	108	97	5,673	5,160	91.0%
75th Percentile	114	194	405	668	748	782	885	838	401	173	112	99	5,767	5,260	91.2%
80th Percentile	120	219	550	724	781	870	932	939	453	198	118	104	6,268	5,583	89.1%
90th Percentile	143	337	859	1,131	1,103	1,216	1,134	1,168	662	253	143	120	7,095	6,470	91.2%
Yuba River															
Minimum Flow	0	13	17	20	29	35	58	78	17	6	0	0	370	324	87.6%
Maximum Flow	451	677	1,341	1,482	1,351	993	885	929	713	275	66	45	4,925	4,729	96.0%
Average Flow	32	90	200	266	293	330	362	411	206	56	23	19	2,287	2,157	94.3%
10th Percentile	13	21	33	47	84	148	189	161	44	15	9	10	921	884	96.0%
20th Percentile	17	29	43	63	127	199	231	229	75	21	12	13	1,231	1,151	93.5%
25th Percentile	17	31	48	82	143	213	249	265	89	25	13	13	1,363	1,268	93.0%
30th Percentile	19	35	57	100	155	218	263	282	107	27	14	15	1,521	1,438	94.5%
40th Percentile	22	39	74	133	186	244	307	330	127	34	18	17	1,826	1,746	95.6%
Median Flow	25	48	108	156	240	281	336	397	162	38	19	19	2,123	2,006	94.5%
60th Percentile	29	59	134	224	292	320	403	461	203	46	24	20	2,428	2,280	93.9%
70th Percentile	33	72	189	309	344	373	429	506	246	63	27	22	2,949	2,780	94.3%
75th Percentile	34	91	248	354	411	394	454	539	284	67	29	23	3,164	2,993	94.6%
80th Percentile	36	107	286	400	452	421	491	564	309	84	32	25	3,284	3,079	93.8%
90th Percentile	43	174	414	573	566	578	539	708	428	108	42	30	3,765	3,681	97.8%

Sources: California Department of Water Resources, 2007;
California Water Impact Network.
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Unimpaired Flow Hydrology for Trinity, Sacramento, and San Joaquin River Basins
(Thousands of Acre-Feet)

Indicator	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	Regulated Period as % of Total Flow	
														November Through June	June
Bear River															
Minimum Flow	0	0	0	0	2	1	0	0	0	0	0	0	13	9	69.2%
Maximum Flow	85	108	225	244	313	208	175	60	52	36	33	18	740	736	99.5%
Average Flow	4	14	41	62	69	61	38	17	7	3	2	2	320	309	96.6%
10th Percentile	0	1	6	9	14	16	7	4	0	0	0	0	102	102	99.2%
20th Percentile	0	3	10	13	21	26	13	6	2	0	0	0	137	130	95.2%
25th Percentile	1	4	12	15	25	31	14	8	3	0	0	0	171	165	96.8%
30th Percentile	1	5	14	19	27	35	18	10	3	1	0	0	181	177	97.7%
40th Percentile	2	6	18	30	35	41	22	12	4	2	0	1	247	239	96.7%
Median Flow	3	8	23	43	52	50	25	15	5	2	1	1	290	278	95.9%
60th Percentile	4	10	31	52	67	61	34	18	7	3	1	2	384	365	95.3%
70th Percentile	5	14	38	70	88	71	49	20	8	3	2	2	434	410	94.5%
75th Percentile	5	16	54	93	104	76	56	22	10	4	2	3	462	453	98.1%
80th Percentile	6	18	65	111	113	88	62	25	11	5	3	3	489	482	98.6%
90th Percentile	7	32	112	152	146	121	74	40	14	7	3	4	567	553	97.5%
American River															
Minimum Flow	0	6	3	11	24	42	75	92	17	0	0	0	349	334	95.7%
Maximum Flow	335	985	1,509	1,988	1,866	1,172	1,254	1,136	942	382	90	61	6,380	5,842	91.6%
Average Flow	25	85	200	298	325	387	441	501	265	66	16	12	2,621	2,503	95.5%
10th Percentile	9	15	25	44	95	153	212	180	48	5	0	2	1,041	984	94.5%
20th Percentile	11	21	35	58	119	212	264	260	86	13	3	4	1,252	1,188	94.9%
25th Percentile	12	26	42	70	138	228	292	283	107	16	4	5	1,416	1,363	96.3%
30th Percentile	13	30	48	98	153	239	309	326	131	20	6	6	1,613	1,556	96.5%
40th Percentile	15	34	81	124	205	293	372	401	169	33	10	8	2,023	1,983	98.0%
Median Flow	17	44	99	159	257	341	417	487	222	42	13	10	2,521	2,422	96.1%
60th Percentile	19	53	128	255	317	382	462	553	282	62	12	12	2,844	2,731	96.0%
70th Percentile	22	63	164	353	361	440	528	627	352	84	19	14	3,300	3,140	95.2%
75th Percentile	26	77	184	421	425	449	554	653	375	88	21	15	3,554	3,311	93.2%
80th Percentile	29	90	276	486	513	528	589	692	422	96	25	17	3,886	3,687	94.9%
90th Percentile	36	161	458	635	696	665	657	901	516	134	34	21	4,525	4,340	95.9%

Sources: California Department of Water Resources, 2007;
California Water Impact Network.
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Unimpaired Flow Hydrology for Trinity, Sacramento, and San Joaquin River Basins
(Thousands of Acre-Feet)

Indicator	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	Regulated Period as % of Total Flow	
														Regulated Period Total	Regulated Period % of Total Flow
Sacramento Valley Total															
Minimum Flow	302	324	353	386	482	548	527	582	398	287	244	259	5,584	4,065	72.8%
Maximum Flow	3,185	5,129	9,730	12,592	13,050	11,922	7,687	5,762	4,257	1,701	794	670	48,368	44,187	91.4%
Average Flow	527	998	2,076	3,013	3,299	3,343	2,939	2,526	1,326	646	444	420	21,619	19,581	90.6%
10th Percentile	344	399	487	682	972	1,409	1,326	1,072	526	389	303	305	10,049	8,779	87.4%
20th Percentile	373	453	636	870	1,350	1,848	1,716	1,415	756	431	345	336	12,363	10,624	85.9%
25th Percentile	390	504	710	979	1,620	2,019	1,783	1,558	870	460	368	345	13,599	11,909	87.6%
30th Percentile	403	521	791	1,076	1,691	2,154	1,989	1,686	886	484	380	366	14,670	13,051	89.0%
40th Percentile	419	585	1,014	1,571	2,074	2,503	2,281	2,092	1,018	517	400	388	16,461	14,710	89.4%
Median Flow	462	660	1,303	2,094	2,705	2,737	2,737	2,258	1,143	569	419	414	19,436	17,687	91.0%
60th Percentile	510	820	1,609	2,722	3,387	3,163	3,000	2,550	1,312	610	463	442	23,670	21,209	89.6%
70th Percentile	539	954	2,059	3,671	3,882	3,796	3,397	2,986	1,471	715	488	475	27,725	25,597	91.6%
75th Percentile	573	1,052	2,456	4,160	4,512	4,069	3,653	3,287	1,776	750	508	485	28,202	26,048	92.4%
80th Percentile	594	1,236	3,492	4,803	5,008	4,442	4,216	3,640	1,921	798	552	510	30,108	27,965	92.9%
90th Percentile	681	1,977	4,271	6,604	6,460	5,715	5,008	4,537	2,519	1,025	590	534	35,614	33,016	92.7%
Stanislaus River															
Minimum Flow	0	2	3	3	1	13	35	44	11	0	0	0	155	107	69.0%
Maximum Flow	88	366	412	659	532	415	433	595	632	286	77	38	2,950	3,266	110.7%
Average Flow	10	28	53	82	96	128	192	283	176	53	13	7	1,120	957	85.5%
10th Percentile	3	6	9	13	23	51	100	101	41	7	2	1	457	382	83.7%
20th Percentile	4	7	12	18	33	71	123	163	59	13	4	2	592	500	84.4%
25th Percentile	5	8	13	23	40	78	136	175	71	16	5	3	637	551	86.4%
30th Percentile	6	9	14	25	45	82	152	188	96	20	6	3	680	566	83.3%
40th Percentile	7	10	19	34	55	97	173	238	127	27	7	4	894	740	82.7%
Median Flow	8	14	25	42	72	105	192	281	167	36	9	5	1,107	822	74.3%
60th Percentile	10	17	32	59	98	124	207	322	193	51	11	5	1,265	994	78.6%
70th Percentile	11	23	45	88	108	143	227	355	223	63	14	7	1,359	1,077	79.2%
75th Percentile	12	27	50	104	115	154	246	375	240	72	17	8	1,460	1,127	77.2%
80th Percentile	12	31	58	117	130	161	254	390	248	83	19	10	1,559	1,180	75.7%
90th Percentile	16	48	124	179	195	233	275	439	331	111	26	13	1,912	1,459	76.3%

Sources: California Department of Water Resources, 2007;
California Water Impact Network.
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Unimpaired Flow Hydrology for Trinity, Sacramento, and San Joaquin River Basins
(Thousands of Acre-Feet)

Indicator	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	Regulated Period Total	Regulated Period as % of Total Flow
Tuolumne River															
Minimum Flow	0	1	4	5	8	23	79	106	17	10	0	0	384	330	85.9%
Maximum Flow	153	522	650	1,033	616	579	660	960	1,016	652	205	104	4,632	2,904	62.7%
Average Flow	17	48	88	125	147	191	274	446	353	123	26	12	1,851	1,411	76.2%
10th Percentile	4	8	13	22	42	86	162	214	90	17	3	1	836	675	80.8%
20th Percentile	5	9	20	33	60	117	186	294	137	22	6	3	1,053	898	85.3%
25th Percentile	6	12	24	40	64	125	195	326	158	28	8	3	1,107	961	86.8%
30th Percentile	7	14	27	43	70	129	221	347	222	36	10	4	1,183	984	83.2%
40th Percentile	9	17	35	56	88	146	248	380	291	57	14	5	1,416	1,189	83.9%
Median Flow	11	24	48	78	119	160	266	449	336	70	18	7	1,786	1,299	72.7%
60th Percentile	12	35	58	107	145	178	290	495	401	109	21	10	2,030	1,578	77.8%
70th Percentile	16	48	81	133	166	216	319	537	451	142	27	13	2,181	1,704	78.1%
75th Percentile	18	55	93	150	193	232	328	551	476	161	30	16	2,363	1,755	74.2%
80th Percentile	21	68	106	178	231	255	344	574	529	189	34	18	2,483	1,852	74.6%
90th Percentile	39	96	218	258	308	338	385	658	598	302	55	22	3,093	2,188	70.8%
Merced River															
Minimum Flow	0	1	1	3	3	8	31	39	13	4	0	0	151	128	44.5%
Maximum Flow	51	259	373	634	362	370	429	565	656	352	97	47	2,786	1,837	93.6%
Average Flow	7	20	43	66	85	101	147	241	171	56	13	6	956	746	80.6%
10th Percentile	1	4	5	10	19	37	80	102	43	8	2	0	409	326	79.8%
20th Percentile	2	5	8	13	26	52	93	135	53	11	3	0	492	432	87.8%
25th Percentile	2	6	10	16	30	56	101	163	69	15	4	1	527	459	87.0%
30th Percentile	3	6	10	20	34	60	113	175	83	18	4	1	562	471	83.8%
40th Percentile	4	8	16	23	47	69	129	205	114	26	6	2	669	568	84.9%
Median Flow	5	9	22	37	55	82	142	246	147	33	8	4	906	648	71.5%
60th Percentile	6	14	28	48	73	96	158	268	171	45	11	5	1,077	805	74.8%
70th Percentile	7	18	34	66	104	115	171	290	208	52	13	6	1,160	924	79.7%
75th Percentile	9	21	42	82	118	131	181	309	227	62	15	7	1,220	977	80.1%
80th Percentile	11	22	52	95	148	152	192	321	261	79	17	8	1,389	1,030	74.1%
90th Percentile	16	41	100	159	201	167	216	387	335	122	31	12	1,708	1,223	71.6%

Sources: California Department of Water Resources, 2007;
California Water Impact Network.
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Unimpaired Flow Hydrology for Trinity, Sacramento, and San Joaquin River Basins
(Thousands of Acre-Feet)

Indicator	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	Regulated Period as % of Total Flow	
														February Through June	Regulated Period Total
San Joaquin River															
Minimum Flow	5	6	7	10	11	19	57	75	35	16	9	4	361	277	54.7%
Maximum Flow	126	247	461	735	472	485	613	1,096	1,166	752	280	170	4,642	2,896	88.3%
Average Flow	19	33	59	83	103	144	236	432	374	168	52	24	1,728	1,289	76.6%
10th Percentile	7	10	15	18	30	67	127	209	121	41	14	8	813	656	80.7%
20th Percentile	10	13	16	24	42	83	155	240	148	46	18	10	928	749	80.7%
25th Percentile	10	15	19	28	49	89	166	273	172	51	21	11	1,052	839	79.7%
30th Percentile	11	16	21	33	55	95	173	314	212	58	23	12	1,128	881	78.2%
40th Percentile	13	17	31	40	63	108	203	372	278	91	28	14	1,257	1,007	80.1%
Median Flow	16	22	36	48	76	119	234	419	325	115	34	15	1,449	1,137	78.5%
60th Percentile	19	26	43	67	99	134	249	464	373	145	42	18	1,854	1,458	78.7%
70th Percentile	21	33	54	82	113	162	279	509	476	181	51	22	2,047	1,572	76.8%
75th Percentile	24	37	62	95	134	174	289	543	500	213	63	27	2,195	1,623	73.9%
80th Percentile	25	42	73	112	163	201	308	594	581	266	73	33	2,322	1,779	76.6%
90th Percentile	34	66	114	168	208	232	350	704	642	364	125	42	3,018	2,075	68.8%
San Joaquin Valley Total															
Minimum Flow	9	13	17	23	25	65	204	266	76	36	11	7	1,061	879	45.8%
Maximum Flow	426	1,535	2,213	3,813	2,315	2,603	2,578	3,563	3,792	2,451	731	346	18,977	12,250	90.8%
Average Flow	55	140	280	425	529	668	929	1,467	1,117	413	107	50	6,181	4,711	78.7%
10th Percentile	16	29	47	67	124	266	501	629	304	78	24	13	2,535	2,033	80.2%
20th Percentile	25	40	60	101	180	366	559	836	401	95	34	18	3,273	2,732	83.5%
25th Percentile	28	43	67	124	200	381	631	982	475	107	40	20	3,381	2,921	86.4%
30th Percentile	30	48	75	134	226	403	685	1,044	612	135	43	21	3,626	2,966	81.8%
40th Percentile	35	52	105	174	281	448	785	1,225	839	213	52	27	4,385	3,623	82.6%
Median Flow	39	69	140	222	370	520	901	1,404	970	251	68	31	5,896	4,187	71.0%
60th Percentile	47	98	198	357	488	625	954	1,639	1,157	346	92	38	6,559	5,069	77.3%
70th Percentile	56	130	244	419	614	726	1,084	1,732	1,394	447	106	44	7,393	5,752	77.8%
75th Percentile	63	147	268	481	763	826	1,135	1,880	1,496	489	121	58	7,934	5,947	74.9%
80th Percentile	72	187	330	616	875	971	1,154	1,925	1,653	623	132	67	8,667	6,347	73.2%
90th Percentile	95	271	615	977	1,224	1,147	1,462	2,451	2,070	948	243	84	11,004	7,891	71.7%

Sources: California Department of Water Resources, 2007;
California Water Impact Network.
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Appendix D

**Section D.3
Adjudication Decree Quantifications**

Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree		Allotments										Total, AF		
Butte County Decree No. 18917		Acreeage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority (cfs)	Fourth Priority Face Value (AF)	Total, cfs	
Seasons of Use		365.25 days	50	Parrott Ditch and Crouch and Lateral	3.33	2,414.63							3.33	2,414.63
Continuous, regardless of season		198.00 days	50	Parrott Ditch and Edgar Slough	3.33	2,414.63	50.00	36,223.14					53.33	38,637.78
April 1 through October 15		229.00 days	50	Parrott Ditch and Edgar Slough	3.33	2,414.63	50.00	36,223.14					53.33	38,637.78
March 1 through October 15														
Schedule 3, Foreign Water Rediversion Group														
Dayton Mutual Water Company		1,796.30	50	Parrott Ditch and Crouch and Lateral	3.33	2,414.63							3.33	2,414.63
M & T Incorporated		3,620.00	50	Parrott Ditch and Edgar Slough	3.33	2,414.63	50.00	36,223.14					53.33	38,637.78
Parrott Investment Company		17,427.00	50	Parrott Ditch and Edgar Slough	3.33	2,414.63	50.00	36,223.14					53.33	38,637.78
Subtotal, Schedule 3, Foreign Water Rediversion Group		22,843.30			10.00	7,243.90	100.00	72,446.28	0.00	0.00	0.00	0.00	110.00	79,690.18
Schedule 4, Nonconsumptive Claimants on Butte Creek and Tributaries														
Harold B Rathwell		Power	27	Unnamed Spring	0.20	144.89							0.20	144.89
Almon E Smith		Mining	26	Ethel Webb	1.90	1,376.48							1.90	1,376.48
David S Webb and Mary D Webb		Mining	13	Webb	0.15	108.67							0.15	108.67
Herbert W Whitten, Marjorie C Whitten, Olive M Young, George Mead, Anna Mead, T H Polk, and Lucia V Polk		Mining	26A, 26B, 28A	Eureka Middle, Eureka Pump, Eureka Little	3.45	2,499.40							3.45	2,499.40
Jack L Post		Mining	28	La Monte Post Pump	12.90	9,345.57							12.90	9,345.57
Jack L Post		Mining	28B	Post Pump	0.85	615.79							0.85	615.79
W J McGinn and Elizabeth T Cussick		Potable	36	Davis	0.50	362.23							0.50	362.23
Grace D Taylor		Potable	37	Thomas	0.50	362.23							0.50	362.23
L H McLain and C J McLain		Mining	45A, 45B	Butte Bell, McLain Sluice	0.90	652.02							0.90	652.02
Margaret A Smith		Mining	46	Smith	2.50	1,811.16							2.50	1,811.16
Pacific Gas & Electric Company		Power	45	Butte Creek Centerville Canal	88.50	64,114.96							88.50	64,114.96
Pacific Gas & Electric Company		Power	47	Canal	179.50	130,041.07							179.50	130,041.07
Electric Mining Company		Power	49	Electric Mining Co	305.00	220,961.16							305.00	220,961.16
Subtotal, Schedule 4, Nonconsumptive Claimants on Butte Creek and Tributaries					596.85	432,395.63							596.85	432,395.63
Schedule 5, Little Butte Creek and Tributaries Claimants Group														
David S Webb and Mary D Webb		Domestic	13	Webb Pipe	0.10	72.45							0.10	72.45
Anna Spangler		1.00	13A	Spangler	0.20	144.89							0.20	144.89
Estate of Ernest Duensing		11.80	14	Duensing	0.25	181.12	0.25	98.18					0.50	279.30
Vandegrift Trust		87.00	20, 20A	Richardson, Richardson	3.00	2,173.39							3.00	2,173.39

Butte Creek 2012.xls
Butte Creek Decree No. 18917

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Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

**Butte Creek Decree
Butte County Decree No. 18917**

Seasons of Use
Continuous, regardless of season
April 1 through October 15
March 1 through October 15

Claimants	Acreage to be supplied	Diversions No. as per DWR Map	Name of Diversion System	Allotments				Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority (cfs)	Fourth Priority Face Value (AF)	Total, cfs	Total, AF
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)						
Paradise Irrigation District	11,100.00	22, 23	Paradise ID, Nickerson	0.00	0.00	8.00	3,141.82				8.00	3,141.82	
Harold B Rathwell	Domestic	27	Ripley Spring	0.20	144.89						0.20	144.89	
S A Vandegrift	Domestic	23A	Vandegrift	0.50	362.23						0.50	362.23	
Jack L Post	Domestic	28, 28B	La Monte, Post Pump	0.15	108.67						0.15	108.67	
D A Hook, W S Hook, and Lillian M Hook	3.00	24A	Hook	0.10	72.45	0.10	39.27				0.20	111.72	
S A Vandegrift	Domestic	24B	Hook	1.00	724.46						1.00	724.46	
S A Vandegrift	Domestic	24D	Hook	1.00	724.46						1.00	724.46	
Almon E Smith	Domestic	26	Ethel	0.10	72.45						0.10	72.45	
Herbert W Whitten, Marjorie C Whitten, Olive M Young, George Mead, Anna Mead, T H Polk, and Lucia V Polk	Domestic	26A, 26B, 28A	Eureka Middle, Eureka Pump, Eureka Little	0.05	36.22						0.05	36.22	
Ella G Evers	13.60	30	Todd (Evers)	1.00	724.46	1.00	392.73				2.00	1,117.19	
H W Skillin and Alice Skillin	9.40	31	Burke	0.00	0.00	0.67	263.13	0.66	259.20		1.33	522.33	
H D March and Henrietta March	14.40	31	Burke	0.00	0.00	0.67	263.13	0.66	259.20		1.33	522.33	
Thurman and Wright	6.00	31	Burke	0.00	0.00	0.67	263.13	0.66	259.20		1.33	522.33	
George E McLain and C J McLain	17.10	32	McLain	0.10	72.45	0.50	196.36			2.50	981.82	1,250.63	
Subtotal, Schedule 5, Little Butte Creek and Tributaries Group	11,263.30			7.75	5,614.59	11.86	4,657.75	1.98	777.60	2.50	981.82	24.09	12,031.75
Schedule 6, Upper Butte Creek and Tributaries Claimants (above Little Butte Creek)													
John J Mahan and Wm J Doyle	21.30	6	Cirby Upper, Stephenson	0.20	144.89	0.30	117.82				0.50	262.71	
E L Franks and Ida May Franks	103.40	7, 8	Stephenson Lower	0.20	144.89	1.80	706.91				2.00	851.80	
L B Stephenson	25.00	8A, 8B, 8C	Abietene	0.50	362.23	0.50	196.36				1.00	558.60	
USDA Lassen Nat'l Forest	10.20	1, 3	Jonesville Bl 1 Pipes, Jones	0.25	181.12	0.25	98.18				0.50	279.30	
F K Mickey and J H Minderman	112.00	3, 4	Jones, Mickey-Minderman	1.50	1,086.69	1.50	589.09				3.00	1,675.79	
Edwin B Copeland	33.00	3	Jones	0.50	362.23	0.50	196.36				1.00	558.60	
J H Lucas and Estate of Wm Johnson	38.30	5	Lucas-Jones	0.20	144.89	0.50	196.36				0.70	341.26	
J H Lucas and Estate of Wm Johnson	150.00	5B	Colby Creek	0.50	362.23	1.50	589.09				2.00	951.32	
J H Lucas and Estate of Wm Johnson	70.00	5A	Willow Creek	0.25	181.12	0.35	137.45				0.60	318.57	
Anne Kennedy Anderson, Donald Mathewson, and Winifred M Kennedy	10.00	5A	Willow Creek	0.05	36.22	0.20	78.55				0.25	114.77	
W J McGann and Elizabeth T Cussick	57.90	9A	McGann Springs, Davis	0.20	144.89	0.80	314.18				1.00	459.07	

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Butte Creek Decree No. 18917

Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree		Allotments										Total, cfs		Total, AF	
Butte County Decree No. 18917		Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Total, cfs	Total, AF	
Seasons of Use	Days														
Continuous, regardless of season	365.25 days														
April 1 through October 15	198.00 days														
March 1 through October 15	229.00 days														
Claimants															
W J McGinn and Elizabeth T Cussick	36	200.00	36	Davis	0.25	181.12	0.10	39.27					0.35	220.39	
J H Lucas, G W Lucas, and C F Lucas	9, 9A	32.90	9, 9A	Lucas Springs, McGinn Springs	0.20	144.89	0.60	235.64					0.80	380.53	
J H Lucas, G W Lucas, and C F Lucas	36A	30.00	36A	Lucas	0.20	144.89	0.50	196.36					0.70	341.26	
Grace D Taylor	37	5.00	37	Thomas Welch Pipe	0.25	181.12	0.25	98.18					0.50	279.30	
Eleanor Profle Welch	39	Domestic	39	Butte	0.01	7.24							0.01	7.24	
USDA Lassen Nat'l Forest	44	Domestic	44	Meadows Pipes	0.10	72.45							0.10	72.45	
Pacific Gas & Electric Company	45	Public Service	45	Butte Creek Canal	1.18	851.24							1.18	851.24	
Pacific Gas & Electric Company	45	Domestic	45	Butte Creek Canal	0.33	235.45							0.33	235.45	
Pacific Gas & Electric Company	47	Domestic	47	Centerville Canal	0.50	362.23							0.50	362.23	
L H McLain and C J McLain	45A, 45B	Domestic	45A, 45B	Butte Bell, McLain Sluice	0.10	72.45							0.10	72.45	
Margaret A Smith	46	Domestic	46	Smith	0.03	21.73							0.03	21.73	
Electric Mining Company	49	Domestic	49	Electric Mining Co	0.10	72.45							0.10	72.45	
Subtotal Schedule 6, Upper Butte Creek and Tributaries Group		899.00			7.59	5,498.67	9.65	3,789.82	0.00	0.00	0.00	0.00	17.24	9,288.49	

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Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

**Butte Creek Decree
Butte County Decree No. 18917**

Seasons of Use
Continuous, regardless of season
April 1 through October 15
March 1 through October 15

365.25 days
198.00 days
229.00 days

Allotments

Claimants	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Total cfs	Total AF
Dayton Mutual Water Company	Parrott and Crouch Lateral	4.80	3,477.42	11.20	4,398.55					16.00	7,875.97
Donald Hale and Alice Hilby Hale	Hale Plant Garden Pump	0.90	652.02	2.10	824.73					3.00	1,476.74
USDA Bureau of Plant Industry	Plant Garden Pump	0.60	434.68	1.40	549.82					2.00	984.50
Clarence S Entler	Compton-Entler	0.33	239.07	0.78	306.33					1.11	545.40
Mary E Roth	Compton-Entler	0.17	123.16	0.39	153.16					0.56	276.32
Bee P Compton	Compton-Entler	0.50	362.23	1.17	457.53					1.67	819.76
Bee P Compton	Compton-Entler	0.50	362.23	1.17	457.53					1.67	819.76
A F Leurance and Lenore E Leurance	Marybill Colony Upper	1.20	869.36	3.80	1,492.36					5.00	2,361.72
Parrott Investment Company	Colony Upper	0.60	434.68	1.40	549.82					2.00	984.50
Edwin A. Carlson and Gladys Carlson	Colony Upper	0.14	101.42	0.34	133.53					0.48	234.95
D A Hook, W S Hook	Colony Upper	0.12	86.94	0.27	106.04					0.39	192.97
Elmo Jacks and Louise Jacks	Colony Upper	0.09	65.20	0.22	86.40					0.31	151.60
Samuel A Atkins and Barbara Ina Atkins	Colony Upper	0.11	79.69	0.26	102.11					0.37	181.80
Samuel A. Atkins and Barbara Ina Atkins	Wakefield Pump	0.13	94.18	0.30	117.82					0.43	212.00
Durham Mutual Water Company, Ltd.	Colony Upper, Colony Lower	12.00	8,693.55	32.70	12,842.18					44.70	21,535.74
The Federal Land Bank of Berkeley	Ollinger Pump	0.60	434.68	1.40	549.82					2.00	984.50
Varney F Wakefield	Wakefield Pump	0.05	36.22	0.13	51.05					0.18	87.28
Ralph J Baxter, C W Baxter, and F T Woeli, and M B Woel	Colony Upper	0.60	434.68	1.40	549.82					2.00	984.50
Stephen Vernoga Corporation of America	Colony Upper	0.30	217.34	0.70	274.91					1.00	492.25
George Setka, Anna Setka, Joe Bebach, Same Bebach, and Steve Viatkovich	Colony Upper	0.12	86.94	0.28	109.96					0.40	196.90
L E Wheelock and Nellie Wheelock	Colony Upper	0.40	289.79	0.94	369.16					1.34	658.95
George Brandt and Edna May Brandt	Colony Upper	0.08	57.96	0.18	70.69					0.26	128.65
Roy White	Brandt Pump	0.12	86.94	0.27	106.04					0.39	192.97
E L Adams and Lou R Adams	Roy White Pump	0.20	144.89	0.46	180.65					0.66	325.55
E L Adams and Lou R Adams	Colony Upper					1.48	1,072.20			1.48	1,072.20
Ralph C Gorrill	Adams Gorrill					4.52	3,274.57			4.52	3,274.57
								1.00	724.46	1.00	724.46

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Butte Creek Decree No. 18917

Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree Butte County Decree No. 18917		Allotments										Total, AF
Seasons of Use	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Total, cfs	Total, AF
365.25 days	56, 60	Colony Upper, Adams							0.75	543.35	0.75	543.35
198.00 days	62	White Pumps							1.00	724.46	1.00	724.46
229.00 days												
	665.30											
	541.60											
	13,702.40		24.66	17,865.25	63.25	24,840.00	6.00	4,346.78	2.75	1,992.27	96.66	49,044.30
Herbert W Whitten and Marjorie C Whitten												
E E White												
Subtotal, Schedule 7, Lower Butte Creek and Tributaries Claimants Group												
Additional Continuous Year-Round Usage Claimants - Special Class												
Lovie L Downs	17	Downs Spring	0.03	21.73								
Frances B Mahilton, A C Musselman, George P Morse	16A, 18	Hamilton Ditches	0.50	362.23								
Joe A Sagi	24	Sagi Pipelines	0.15	108.67								
Merritt Musselman and Florence V Musselman	18A	Musselman Springs Pipe Line	0.10	72.45								
Elsie Hume Mann	35	Mann Spring Pipeline	0.02	14.49								
Fannie M McEnespy	33, 34	McEnespy North, McEnespy Main Ditches	1.00	724.46								
Fannie M McEnespy	34A	McEnespy Pipe Line and Spring Channel	0.10	72.45								
S A Vandegrift	240	Vandegrift Spring Ditch	0.50	362.23								
S A Vandegrift	24E	Michaels Ditch	0.15	108.67								
Anna Spangler	13A	Spangler Pipe	0.05	36.22								
Estate of Ernest Duensing	14A	Duensing Spring Ditch	0.15	108.67								
Vandegrift Trust	21	Meadowbrook Ditch	1.00	724.46								
F E Whitlock	24F, 25	Hupp Canal	0.20	144.89								

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Butte Creek Decree No. 18917

Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree Butte County Decree No. 18917 Seasons of Use Continuous, regardless of season April 1 through October 15 March 1 through October 15	Claimants	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments				Total, cfs	Total, AF	
					First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)			Third Priority Class (cfs)
	Roy L Pearson, Orval Pearson, Eunice A Cartwright, and Mildred Laughlin	365.25 days 198.00 days 229.00 days	24F, 25	Hupp Canal	0.05	36.22					
	A P Kundert		24F, 25	Hupp Canal	0.05	36.22					
	Subtotal, Additional Continuous Usage Claimants				4.05	2,934.07					
	Additional Irrigation Season Usage Claimants - Special Class										
	Roy L Pearson, Orval Pearson, Eunice A Cartwright, and Mildred Laughlin		24F, 25	Hupp Canal	0.40	289.79					
	A P Kundert		24F, 26	Hupp Canal	0.05	36.22					
	The Diamond Match Company		24F, 27	Hupp Canal	0.05	36.22					
	Richard A Colgan Jr		10, 10A, 10B, 10C	Diamond Match System	2.00	1,448.93	Continuous				
	F K Mickey and J H Minderman		40	Colgan Pipe Line	0.14	101.42	Continuous				
	Edwin B Copeland		2	Mickey- Minderman Pipe Line	0.07	50.71	Continuous				
	J H Lucas		Riparian		0.20	144.89	Continuous				
	Carl Nelson Swartz and Esther M Swartz		Riparian		0.40	289.79	Continuous				
	E L Adams and Lou R Adams		Riparian		0.15	108.67	Continuous				
	E L Adams and Lou R Adams		64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	0.82	594.06	Continuous	Riparian			
	E L Adams and Lou R Adams		64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	3.00	916.36	May 1 - Oct 1				
	E L Adams and Lou R Adams		64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	1.00	724.46	Continuous	Riparian			

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Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree Butte County Decree No. 18917		Seasons of Use		Allotments									
Claimants	Acreeage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority (cfs)	Fourth Priority Face Value (AF)	Total, cfs	Total, AF
		365.25 days											
		198.00 days											
		229.00 days											
E L Adams and Lou R Adams	Irrigation	64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	3.58	1,093.53	May 1 - Oct 1							
Herbert W Whitten and Marjorie C Whitten	Domestic	64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	0.60	434.68	Continuous	Riparian						
Herbert W Whitten and Marjorie C Whitten	Irrigation	64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	3.00	916.36	May 1 - Oct 1							
Ralph C Gorrill	Domestic, Stockwater	66	Gorrill-Hamlin Ditch	1.00	724.46	Continuous	Riparian						
Ralph C Gorrill	Irrigation	66	Gorrill-Hamlin Ditch	14.00	2,138.18	Apr 15 - Jun 30							
E L Adams and Lou R Adams	Irrigation	64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	3.22	1,168.78	Apr 1 - Sep 30							
Herbert W Whitten and Marjorie C Whitten	Irrigation	64, 65	Adams Hamlin Slough Ditch, Adams Hamlin Pump	1.38	459.85	Apr 1 - Sep 15							
Ralph C Gorrill	Irrigation	66	Gorrill-Hamlin Ditch	6.70	1,209.32	Apr 1 - Jun 30							
Ralph C Gorrill	Irrig	66	Gorrill-Hamlin Ditch	21.70	3,314.18	Jul 1 - Sep 15							
Subtotal, Additional Irrigation Season Usage Claimants Surplus Class Rights Claimants				63.46	16,200.87								
Paradise Irrigation District	Irrigation	22	Magalia Reservoir	Little Butte Creek	9,500.00	completion of Permit 271							
Paradise Irrigation District	Domestic, Stockwater	22	Magalia Reservoir	Little Butte Creek	0.00	Continuous							
Ralph C Gorrill	Irrigation	61	Gorrill Ditch	14.00	2,526.94	Jul 1 - Sep 30							
E L Adams and Lou R Adams	Irrigation	56, 60	Colony Upper, Adams	9.80	3,557.16	Apr 1 - Sep 30							
Herbert W Whitten and Marjorie C Whitten	Irrigation	56, 60	Colony Upper, Adams	3.45	1,252.26	Apr 1 - Sep 30							

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Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree		Butte County Decree No. 18917		Allotments		Second Priority Face Value (AF)		Third Priority Face Value (AF)		Fourth Priority Face Value (AF)		Total, AF	
Claimants	Acres to be supplied	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Total, cfs	Total, AF
E L Adams and Lou R Adams	Irrigation	56, 60	Colony Upper, Adams	4.60	693.42	Apr 1 - Jun 15							
E L Adams and Lou R Adams	Irrigation	56, 60	Colony Upper, Adams	1.00	150.74	Apr 1 - Jun 15							
Herbert W Whitten and Marjorie C Whitten	Irrigation	56, 60	Colony Upper, Adams	2.40	361.79	Apr 1 - Jun 15							
Ralph C Gorrill	Irrigation	61	Gorrill Ditch	15.00	5,444.63	Apr 1 - Sep 30							
Ralph C Gorrill	Irrigation	61	Gorrill Ditch	6.70	2,431.93	Jul 1 - Sep 30							
E E White	Irrig	62	White Pumps	9.50	3,448.26	Apr 1 - Sep 30							
Parrott Investment Company	Domestic	50	Parrott Ditch	5.00	1,668.60	Oct 16 - Mar 31							
M & T Incorporated	Domestic	50	Parrott Ditch	5.00	1,668.60	Oct 16 - Mar 31							
Parrott Investment Company	Domestic, Stockwater, Irrigation	50	Parrott Ditch	25.00	9,818.18	Apr 1 - Oct 15							
M & T Incorporated	Domestic, Stockwater, Irrigation	50	Parrott Ditch	25.00	9,818.18	Apr 1 - Oct 15							
California Lands, Inc		2.50	Butte Creek	2.50	1,811.16	Continuous							
Yuba Consolidated Gold Fields		2.50	Butte Creek	2.50	1,811.16	Continuous							
Western Canal Company	Irrigation	63	Western Canal	33.33	5,024.29	Apr 1 - Jun 15							
Subtotal, Additional Surplus Class Claimants				164.78	60,987.30								

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Butte Creek Decree No. 18917

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Butte Creek Adjudication - Butte County Decree No. 18917, November 6, 1942

Butte Creek Decree Butte County Decree No. 18917 Seasons of Use Continuous, regardless of season April 1 through October 15 March 1 through October 15	Days	Diversion No. as per DWR Map	Name of Diversion System	Allotments				Fourth Priority Face Value (AF)	Fourth Priority (cfs)	Third Priority Face Value (AF)	Third Priority Class (cfs)	Second Priority Face Value (AF)	Second Priority Class (cfs)	First Priority Face Value (AF)	First Priority Class (cfs)	Total, AF	Total, cfs
				Acquire to be supplied	Total, cfs	Total, AF											
Summary																	
Schedule 3, Foreign Water Rediversion Group	365.25	days															
Schedule 4, Nonconsumptive Claimants on Butte Creek and Tributaries	198.00	days															
Schedule 5, Little Butte Creek and Tributaries Claimants Group	229.00	days															
Schedule 6, Upper Butte Creek and Tributaries Claimants (above Little Butte Creek)																	
Schedule 7, Lower Butte Creek and Tributaries Claimants (Below Little Butte Creek)																	
Additional Continuous Year-Round Usage Claimants - Special Class																	
Additional Irrigation Season Usage Claimants - Special Class																	
Subtotal, Consumptive Use Claimants in Butte Creek System																	
Subtotal, Basic Claimants to Butte Creek System Flows																	
Subtotal, Additional Surplus Class Claimants																	
Total, All Consumptive Use Claimants to Butte Creek System																	
Total, All Claimants to Butte Creek System																	

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total Allotments, Face Value (AF)
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	
Schedule 3, Claimants from Wolf Creek and its Tributaries							
David J. Anderson	16.40	130C	Haun Creek Camp	0.30	217.34	0.00	217.34
David J. Anderson	24.00	130D	Haun Creek Springs	0.40	289.79	0.00	289.79
Setzer Forest Products, Inc.	Domestic	59A	Setzer Camp Pipeline	0.05	36.22		36.22
Bidwell Water Company	Municipal	64	Round Valley Reservoir	2.00	1,448.93		1,448.93
Bidwell Water Company	7.10	65	Kaufman	0.10	72.45	48.60	121.04
Alford S. Calais & Nellie E. Calais	10.00	66	Short and Morel	0.07	50.71	53.45	104.17
John Rilea	4.00	66	Short and Morel	0.03	21.73	19.44	41.17
H.A. Morel & Mabel Francis Morel	24.50	66	Short and Morel	0.10	72.45	0.15	145.34
Albert E. McKeen & Randall H Smith	30.30	76	Pecks Valley Jones	0.50	362.23		362.23
Reese L Jones	1.50	76A	Jones	0.15	108.67		108.67
Delfina Taddei	12.60	77	Taddei	0.25	181.12		181.12
A P Pedretti	12.60	77	Taddei	0.25	181.12		181.12
Wolf Creek Timber Co., Inc.	Industrial	61	Cedar Mill Lower Pump	0.10	72.45		72.45
Setzer Forest Products, Inc.	Industrial	62	Clark Setzer	0.28	136.07		136.07
Setzer Forest Products, Inc.	Industrial	63	Standby Pump				0.00
Setzer Forest Products, Inc.	15.00	63A	Setzer Standby				0.00
Heleen J. Shiell	145.50	62	Pump Clark	0.70	340.17		340.17
E T Kunzler & Edna M Kunzler	125.40	62	Clark	0.70	507.12		507.12
E T Kunzler & Edna M Kunzler		78	Williams Creek	0.50	362.23	0.20	459.42
H G McCune	82.70	67, 79	Schieser Gott Williams Creek	0.10	72.45	0.75	436.91
A.O. Lewis	249.00	67	Schieser	0.45	326.01	2.25	1,419.40
Wesley T Wheeler & Idell C Wheeler	94.30	67	Schieser	0.10	72.45	0.45	534.10
United States of America	66.60	67	Schieser	0.05	36.22	0.30	352.09
C G Frederickson & Helen V Fredentickson	193.60	68	Frederickson & Forgay Hamblin Spring	0.38	271.67	1.88	1,182.83
Dan Guidici and James Guidici	334.00	68	Frederickson & Forgay	0.38	271.67	1.88	1,182.83
Dan Guidici and James Guidici		70, 72	Forgay	0.20	144.89	1.40	825.22
R Avery Sheehan and Sarah Sheehan	167.10	69, 71	McIntosh	0.15	108.67	0.87	886.19

Feather River Water Rights File.xlsx
Indian Creek Decree

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	
			First Priority Face Value (AF)	Second Priority Face Value (AF)	Third Priority Face Value (AF)	Total Allotments, Face Value (AF)	
L E Wheelock & C H Wheelock	95.60	69, 73	McIntosh, Wheelock	0.05	0.53	0.42	204.10
W B Ferry R L Perry, Ivy Mae Heald and Susie Perry (Rogers)	126.90	69, 73, 74	McIntosh, Wheelock, Perry	0.05	36.22	1.35	656.03
Subtotals, Schedule 3 - Wolf Creek Group	1,838.70			8.38	5,837.26	3.35	1,627.93
Schedule 4: Claimants from Lights Creek and Its Tributaries					10.90	5,296.86	12,762.05
United States of America	3.00	85B	Morton Creek	0.15	108.67		108.67
William M Hosken	219.00	80, 80A	Hosken Cocks Creek; Proposed Hosken Pump	0.00	1.50	728.93	728.93
Fred Ratcliffe-Smith & Mildred Ratcliffe-Smith	62.00	81	Smiths Cocks Creek	0.50	362.23	242.98	605.21
Martin A Maier & Cleo B Maier	35.00	82	Burns Cocks Creek	0.20	144.89	121.49	266.38
W S Quigley & Icie A Quigley	20.90	83	Quigley Pasture	0.20	144.89	48.60	193.49
W S Quigley & Icie A Quigley	37.00	84	Quigley Meadow	0.00	0.00	218.68	218.68
Walter E Cliff & Ruth M Cliff	66.60	85	Cliff Cocks Creek	0.10	72.45	182.23	254.68
J B Peter	157.70	96	Peter Creek	1.00	724.46	485.95	1,210.41
J B Peter		97	Peter Creek				0.00
J B Peter		98	Barn				0.00
J B Peter		99	Peter Creek				0.00
Arthur Peter and Emma A Peter	14.30	100	Peter Creek		0.20	97.19	97.19
Dora Johnson	69.10	103	Lower Field		0.75	364.46	436.91
A J Downey and D W Downey	Power	86, 87	Road Dam	0.10	72.45		
			Downey	1.50	1,086.69		1,086.69
			Upper, Downey				
			Lower				
California-Engles Mining Company	Domestic & Industrial	87A	Engels	0.10	72.45	0.00	72.45
Hattie Potts	10.00	87B	Potts	0.10	72.45	0.10	121.04
James T Freeman & Elma L Freeman	87.70	88	Freeman & Bates	0.40	289.79	1.05	800.03
E B Bates and Minnie Bates	87.80	88	Freeman & Bates	0.40	289.79	1.05	800.03
Ralph Defanti & Elvezia Defanti	195.40	89	Defanti & Smith	0.60	434.68	1.58	1,528.07
			Feather River Water Rights File.xlsx				
			Indian Creek Decree				

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments				
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)		
			First Priority Face Value (AF)	Second Priority Face Value (AF)	Third Priority Face Value (AF)	Total Allotments Face Value (AF)		
Fred Ratcliffe-Smith & Mildred Ratcliffe-Smith	65.00	89	Defanti & Smith	0.20	0.53	0.23	109.34	
Martin A Maier & Cleo B Maier	93.00	90	Burns	0.20	1.00		630.84	
W S Quigley & Icie A Quigley	247.40	91	Quigley Upper	0.20	2.90		1,554.15	
W S Quigley & Icie A Quigley	152.20	92	Quigley Middle	0.20	1.70		971.01	
J B Peter	44.30	93	Peter Upper	0.10	0.45		291.12	
Arthur Peter and Emma A Peter	100.00	93	Peter Upper	0.10	1.25		679.88	
Arthur Peter and Emma A Peter	126.90	95	Peter Lower	0.10	0.75	0.33	594.84	
W S Quigley & Icie A Quigley	69.00	94	Quigley & Cliff	0.10	0.75		436.91	
Walter E Cliff & Ruth M Cliff	168.40	94	Quigley & Cliff	0.10	0.75	0.63	740.63	
S S Openshaw, Gerald Openshaw, & Gene Openshaw	Stockwater	95A	Lights Creek	0.05			36.22	
C H Taresh & H W Ambrey Lumber Company	Industrial	104	Taresh Mill	0.20	144.89		144.89	
Subtotals, Schedule 4 - Lights Creek Group	2,131.70			6.90	4,998.79	1.85	899.01	
Schedule 5: Claimants from Streams in Upper Tributary Area							15,118.71	
Clover Valley Lumber Company	40.00	2A	Lowe	0.20	144.89	0.25	251.01	
Clover Valley Lumber Company	50.00	2B	Hallet	0.20	144.89	0.30	272.23	
United States of America	12.00	2	Boulder Creek	0.20	144.89	0.05	166.12	
Clover Valley Lumber Company	42.60	3, 4	Antelope North, Antelope East	0.10	72.45	0.35	221.01	
F W Flux and Alma A Flux	45.70	5	Flux Antelope	0.10	72.45	0.28	189.17	
W S Quigley & Icie A Quigley	39.60	6, 7	Quigley Upper Antelope, Quigley Antelope Springs, Humphrey West, Humphrey East	0.10	72.45	0.28	189.17	
Jack W Humphrey	32.80	8, 9	Humphrey West, Humphrey East	0.10	72.45	0.18	146.73	
Claude Harwood and LaVienna Harwood	43.70	7E	Fitch Canyon	0.10	72.45	0.30	199.79	
Elbert R Spraker & Roy E Harwood	8.60	7A	S & H Cabin	0.10	72.45	0.05	93.67	
Elbert R Spraker & Roy E Harwood	35.60	7B	Thompson Creek	0.10	72.45	0.20	157.34	
Clover Valley Lumber Company	13.50	7C	Doyle Upper	0.10	72.45	0.05	93.67	
Clover Valley Lumber Company	13.70	7D	Doyle Lower	0.10	72.45	0.05	93.67	
Feather River Water Rights File.xlsx Indian Creek Decree							9	10/19/12

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total Allotments, Face Value (AF)	
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)		
Clover Valley Lumber Company	63.40	9B	Doyle Last Chance	0.20	144.89	0.35	148.56	293.45
Howard Bass, Warren Bass, Dudley Bass, Claude Bass, deceased	26.50	9C	Bass	0.10	72.45	0.15	63.67	136.12
Howard Bass, Warren Bass, Dudley Bass, Claude Bass, deceased	9.80	9D	Bass Cabin	0.10	72.45	0.05	21.22	93.67
Howard Bass, Warren Bass, Dudley Bass, Claude Bass, deceased	11.00	9E	Upper Poison	0.10	72.45	0.05	21.22	93.67
Howard Bass, Warren Bass, Dudley Bass, Claude Bass, deceased	24.50	9F	Lower Poison	0.10	72.45	0.15	63.67	136.12
Clark C Rowland	38.60	10, 10A	Rowland Dixie Creek, Rowland Power	0.20	144.89	0.18	74.28	219.17
Westover Company	617.00	11, 12, 13, 14, and 15	Dixie Upper West, Dixie upper, East, Dixie Upper Meadow Dam, Dixie Middle Mdw	0.50	362.23	4.25	1,803.97	2,166.20
Westover Company	58.50	28	Dam Clover Overflow	0.30	217.34	0.25	106.12	323.45
Westover Company	24.50	105	Clover Valley Ranch Spring	0.20	144.89			144.89
George Humphrey	560.00	17 through 27	Upper Dotta Neck, North Spring Clover Upper, Clover Middle, Clover North Meadow, Clover South Meadow, Clover Lower, Spring Ch Upper Spring Ch Lower, Crocker Creek Crocker Old Channel	1.00	724.46	3.50	1,485.62	2,210.08
R H Conklin	270.00	16, 29	Guidici Dixie, Guidici Clover	0.50	362.23	2.00	848.93	1,211.16
Feather River Water Rights File.xlsx Indian Creek Decree								9 10/19/12

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diverison No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Allotments			Total Allotments Face Value (AF)
						Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	
Clover Valley Lumber Company	Industrial	-	Upper Tributary of Stream System	1.00	724.46				724.46
Subtotals, Schedule 5 - Upper Tributary Area Group	2,081.60			5.80	4,201.88	13.25	5,624.13	0.00	9,826.02
Schedule 6, Indian Creek in Genesee and Indian Valleys Group									
J LaRue Robinson & Elizabeth Evans	362.90	36	Robinson	0.78	565.08	4.50	2,186.78		2,751.86
P R Evans	14.10	36, 37	Robinson, Evans	0.02	14.49	0.20	97.19		111.68
Joseph C Kaitner	8.80	30, 31, 32	Pratt Upper, Pratt Lower, Pratt House	0.10	72.45	0.20	97.19		169.64
Department of Veteran Affairs & Edward D Riehl & Helen Riehl	116.60	33, 34, 35	Curnow Upper, Curnow Pasture, Curnow	0.50	362.23	1.35	656.03		1,018.26
J W Goodhue	Domestic & Power	38	Goodhue	0.50	362.23	9.50	4,616.53		4,978.76
John B Sobrero & Lena M Sobrero	0.50	38A, 38B	Sobrero Field, Sobrero House	0.10	72.45				72.45
Mary Sobrero, Heirs	5.30	39, 40	Sobrero East, Sobrero West	0.10	72.45	0.20	97.19		169.64
Willoughby T Grace and Helen M Grace	291.70	41, 42, 43, 44	Ward Upper West, Ward Middle West, Ward East, Ward Pipeline	1.00	724.46	4.50	2,186.78		2,911.24
Plumas Land Company	Mining	46, 47	Walker Flume, Walker Pipe	2.00	1,448.93				1,448.93
Willoughby T Grace and Helen M Grace	96.80	48, 49	Grizzly Upper, Grizzly Lower	1.00	724.46	1.40	680.33		1,404.79
Willoughby T Grace and Helen M Grace	46.80	45	Hosselkus	0.45	326.01				326.01
W J Beacom	18.00	50	Beacom	0.40	289.79	0.35	170.08		459.87
W J Beacom	Fish Culture	50	Beacom	0.50	362.23				
William F Masters	66.30	51, 52	Barnes East, Barnes West	0.50	362.23	0.83	403.34		765.57
Feather River Water Rights File.xlsx Indian Creek Decree									9 10/19/12

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total Allotments, Face Value (AF)	
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)		Second Priority Face Value (AF)
James G Young, William G Young, George W Young, and Hazel Dolphin	Municipal	53	Taylorville	1.00	724.46		724.46	
Claude E Young & Ivy M Young	28.10	54	Mill Race	0.50	362.23	1.00	848.18	
W H Dolphin	153.40	54	Mill Race	0.73	528.86	1.47	1,243.20	
H C Neer and Eva M Neer	110.00	54	Mill Race	1.00	724.46	0.60	1,016.03	
Lloyd E Hardgrave & John A Hardgrave	233.70	54	Mill Race	1.52	1,101.18	1.03	1,601.71	
Lloyd E Hardgrave & John A Hardgrave	24.30	54	Mill Race	0.15	108.67	0.30	254.45	
Colburn J Smith and Wilma T Smith	167.90	54	Mill Race	0.75	543.35	1.65	1,345.17	
Samuel F Brown, Hazel Brown and Fletcher L Brown	298.10	54	Mill Race	1.00	724.46	2.70	2,036.53	
Lee G Johnson	370.80	54	Mill Race	1.00	724.46	3.60	2,473.88	
S S Openshaw, Gerald Openshaw and Gene Openshaw	693.40	54	Mill Race	1.00	724.46	7.60	4,417.69	
Paul Sobrero & Helen Sobrero	144.50	54	Mill Race	0.67	485.39	1.13	1,034.51	
Samuel F Brown and Hazel Brown	230.60	54	Mill Race	0.50	362.23	2.40	1,528.51	
Samuel F Brown and Hazel Brown	249.20	54	Mill Race	1.00	724.46	2.10	1,744.96	
T L Hannon & H S Hannon	78.80	54	Mill Race	0.32	231.83	0.70	571.99	
George F Osmeyer & Jane Osmeyer	6.20	54	Mill Race	0.01	7.24	0.07	41.26	
L E Wheelock & Nellie Wheelock	123.50	54	Mill Race	0.50	362.23	1.00	848.18	
Albert A Toscani, Ernest J Toscani, Chester M Toscani, and Arthur F Toscani	345.60	54	Mill Race	1.00	724.46	2.70	2,328.10	
A J Sheehan & C J Sheehan	68.70	54	Mill Race	0.20	144.89	0.20	460.76	
David R Strong	57.40	54	Mill Race	0.20	144.89	0.20	412.17	
B B Gregory & Estella E Gregory	32.40	54	Mill Race	0.20	144.89	0.20	242.08	
J E Cardoza & Marion Cardoza	72.40	54	Mill Race	0.20	144.89	0.20	1,044.79	
S S Openshaw, Gerald Openshaw and Gene Openshaw	238.50	55	Snyder	0.40	289.79	3.00	1,747.64	
H C Neer and F C Neer	200.00	57A	Neer Pump			2.50	1,811.16	
Mrs. A L Gorbet	46.50	58A	Gorbet Pump			0.60	434.68	
A J Sheehan & C J Sheehan	32.00	58B	Sheehan Pump			0.40	289.79	
Subtotal, Schedule 6 - Indian Creek in Genesee and Indian Valleys Group	5,033.80			20.60	14,923.93	54.08	26,518.71	
Schedule 7, "Special Class" Rights on Indian Creek Stream System							10.65	
Marian A Flood Norma A Flood	Domestic and resort	125	Hamblin Springs	0.06	43.47		43.47	
Fred Prasun & Medie Prasun	6.00	125A	Hamblin Springs	0.15	108.67		108.67	
Alford S Calais & Nellie A Calais	See Schedule 3	127	Collecting	0.10	72.45		72.45	
Bidwell Water Company	Municipal	129	Buckeye Ravine Pipeline				0.00	
Forest Lodge Resort	Domestic and resort	130	Clark Ravine	0.50	362.23		362.23	
							6,010.17	47,452.81

Feather River Water Rights File.xlsx
Indian Creek Decree

Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	
				First Priority Face Value (AF)	Second Priority Face Value (AF)	Third Priority Face Value (AF)	Total Allotments, Face Value (AF)
Wolf Creek Timber Company, Inc.	Domestic	130A, 130B	Western Pacific Pipeline	0.08	54.33		54.33
A O Lewis	Domestic	131	Schieser Spring Pipeline	0.02	14.49		14.49
Wesley T Wheeler & Idella C Wheeler	Domestic	131	Schieser Spring Pipeline	0.01	7.24		7.24
W B Perry, R L Perry, Ivy Mae Heald, and Susie Perry	48.80	132	Perry Springs	0.55	398.45		398.45
L E Wheelock & Eva Neer	5.40	132	Perry Springs	0.05	36.22		36.22
United States of America in Trust	20.00	133	Hickerson West Springs	0.65	470.90		470.90
T L Hannon & H S Hannon	58.40	134, 134A	Hickerson East Springs, Lower Spring	0.95	688.24		688.24
W B Perry, R L Perry, Ivy Mae Heald, and Susie Perry	Domestic	133	Hickerson West Springs	0.05	36.22		36.22
United States of America in Trust	22.30	135	Chico Springs	0.62	449.17		449.17
John F Davidson & Lena Davidson	12.90	136	Leggett Springs	0.10	72.45		72.45
James T Freeman & Elma L Freeman	Domestic	139A	Remick Pipeline	0.02	14.49		14.49
J B Peter	Domestic	96A	Peter Pipeline	Entire Flow			0.00
J LaRue Robinson & Elizabeth Evans Robinson	Domestic	143	School Spring Pipeline	0.001	0.72		0.72
John Davis & Evelyn Cunningham	2.00	106	Davis Spring	0.15	108.67		108.67
Willoughby T Grace & Helen M Grace	Domestic	48A	Hossekus Spring Pipeline	Entire Flow			0.00
S S Openshaw, Gerald Openshaw, and Gene Openshaw	66.70	137	Snyder Spring	0.45	326.01		326.01
United States of America	Domestic	107A	Taylorville Suppression Camp	0.01	7.24		7.24
Burr J Sherick & Edith R Sherick	0.90	108	Hotel Pipe	0.025	18.11		18.11
G R Clark	Domestic	109	Clark Pipe	0.02	14.49		14.49
Mabel Taresh	0.20	109	Clark Pipe	0.02	14.49		14.49

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Indian Creek Decree

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Indian Creek Decree - Plumas County Case No. 4185, December 19, 1950

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	
			First Priority Face Value (AF)	Second Priority Face Value (AF)	Third Priority Face Value (AF)	Total Allotments Face Value (AF)	
W E Cooper, Ed Cooper & J A Ritchy	Mining	85C	Proposed Cooper			212.23	212.23
S S Openshaw, Gerald Openshaw, and Gene Openshaw	15.60	95A	Proposed Lights Creek			53.06	53.06
C H Tareh and H W Awbrey Lumber Company	17.00	104	Tareh Mill Pump			53.06	53.06
William F Masters	76.20	51, 52A	Barnes East, Proposed Barnes Pump			322.59	322.59
E T Kunzler & Edna M Kunzler	36.00	--	Proposed Barnes Pump			101.87	101.87
Almanor Lumber Company	8.40	--	Proposed			25.47	25.47
Subtotal, Schedule 8 - "Surplus Class" Rights	1,206.20					9.51	4,036.64
Special Class Claimants							
Bidwell Water Company	Municipal	64	Round Valley Reservoir	4,800.00	Winter season		
K R Doyle and Murray Doyle	Domestic, Stockwater, Irrigation	7F	Doyle Reservoir	45.00	Winter Season		
Subtotal, Special Class Claimants				4,845.00			
Surplus Class Claimants							
J LaRue Robinson & Elizabeth Evans	Domestic, Stockwater	1	Taylor Lake	200.00			
Charles H Bryson Sr and Estate of Kathryn Bryson	Domestic, Resort	117	Avrit Pipe Line Jackson Springs Pipe Line	0.02	11.59 Year-long		
Dawn Institute of Science & Art	Domestic, Resort	120	Jackson Springs Pipe Line	1.25	905.58 Year-long		
Subtotal, Surplus Class Claimants				1.27	1,117.17		
Summary of Indian Creek Adjudication							
Schedule 3 - Wolf Creek Group	1,838.70	8.38	5,837.26	10.90	5,296.86	3.35	1,627.93
Schedule 4 - Lights Creek Group	2,131.70	6.90	4,998.79	18.98	9,220.91	1.85	899.01
Schedule 5 - Upper Tributaries Group	2,081.60	5.80	4,201.88	13.25	5,624.13	0.00	9,826.02
Schedule 6 - Indian Creek in Genesee & Indian Valleys Group	5,033.80	20.60	14,923.93	54.08	26,518.71	10.65	6,010.17
Schedule 7 - Special Class Group	707.40	12.148	8,800.774	0.000	0.000	0.000	8,800.774
Schedule 8 - Surplus Class Group	1,206.20	0.00	0.00	0.00	0.00	9.51	4,036.64
Subtotal, Special Class Claimants							
Subtotal, Surplus Class Claimants							
Total Face Value (AF), Indian Creek Decree	12,999.40	53.83	38,762.64	97.21	46,660.61	25.36	12,573.75
							103,959.17

Feather River Water Rights File.xlsx
Indian Creek Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) Plumas County of Plumas, Case No. 3095				Allotments												
Seasons of Use	Acres to be supplied	Diversion from DWR Map	Name of Claimant	Name of Diversion System	First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	First Priority Face Value (\$)	Second Priority Face Value (\$)	Third Priority Face Value (\$)	Fourth Priority Face Value (\$)	Fifth Priority Face Value (\$)	Total Allotments, Face Value (\$)	Check, total GFS
365.25 days 245.00 days 200.00 days	180.40	1, 2, 3	C C Rowland & Ida May Rowland	Rowland Upper South, Rowland Lower South, Lower North	2.30	912.40				912.40					912.40	2.30
Conditions of season March 1 through October 31 March 15 through September 30	57.70	4	C C Rowland & Ida May Rowland	Rowland South Creek	0.70	277.69				277.69					277.69	0.70
	151.40	5, 6, 7	Alessio Ramelli & Adeline Ramelli	Ramelli, Hall & Ramelli, Spring Channel	1.90	753.72				753.72					753.72	1.90
	15.40	6, 7	Marietta Hall	Hall & Ramelli, Spring	0.25	99.17				99.17					99.17	0.25
	16.00	8	Ebbie Herz Golden	Thames Chance	0.28	111.07				111.07					111.07	0.28
	7.00	8A	Ebbie Herz Golden	Trosi Dooley Canyon Trosi Creek	0.12	47.60				47.60					47.60	0.12
	11.50	9	Ebbie Herz Golden	Trosi Gagsby Creek, Trosi Creek	0.20	79.34				79.34					79.34	0.20
	57.60	11, 11A	Ebbie Herz Golden	Trosi Gagsby Creek, Trosi Creek	0.45	198.55				198.55					376.86	0.95
	257.80	10, 12	Charles A. Galeppi, Fred E. Galeppi, Leo B. Galeppi, and Ross Galeppi	Upper Last Chance, Lower Last Chance, Galeppi Creek & Trosi Creek, North Springs, South Springs	3.25	1,289.26				1,289.26					1,289.26	3.25
	78.70	11A, 24B, 24C	Charles A. Galeppi, Fred E. Galeppi, Leo B. Galeppi, and Ross Galeppi	Galeppi, North Springs, Galeppi Creek	1.00	396.69				396.69					396.69	1.00
	111.10	13, 18	Ebbie Herz Golden	Trosi Camp, Trosi Spring Creek, Trosi	1.60	634.71				634.71					634.71	1.60
	41.00	20	Ebbie Herz Golden	Frenchman Creek	0.70	277.69				277.69					277.69	0.70
	103.30	14, 15	Fred F. Giudici and Myrtle W. Giudici	Giudici Upper Spring Creek, Giudici Lower Spring Creek	1.30	515.70				515.70					515.70	1.30
	161.10	15, 17	Charles A. Galeppi, Fred E. Galeppi, Leo B. Galeppi, and Ross Galeppi	Galeppi Upper Spring Creek, Galeppi Lower Spring Creek, Ramelli and Frenchman Creek	2.00	793.39				793.39					793.39	2.00
	76.20	19	Emilio Ramelli	Frenchman Creek	1.00	396.69				396.69					396.69	1.00

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)		County of Plumas, Case No. 3095		Allotments											Total		
Name of Claimant	Diverion to be supplied DWR Map	Acree to be supplied	Name of Diversion System	Name of Diversion System	First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Total Face Value (AF)	Check, total Face Value (AF)	GFS	Priority Face Value (AF)	Fifth Priority Class (cfs)	Total Face Value (AF)	Check, total Face Value (AF)	
																	First Priority Class (cfs)
Frank Dotta	19	64.90	Dotta and Frenchman Creeks	Dotta	0.80	317.36									317.36	0.80	
Frank Dotta	251	10.00	Frenchman Creek	Frenchman Creek	0.15	59.50									59.50	0.15	
Subtotal, Schedule 3 - Last Chance		1,401.10			18.00	7,140.50	0.50	198.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,338.84	18.50
Fred F Giudici and Myrtle W Giudici	21, 22	285.40	F F Giudici	F F Giudici	4.80	1,904.13	0.00								1,904.13	4.80	
Mauricello Giudici & Julie Giudici	21, 22	63.30	F F Giudici	F F Giudici	0.95	376.86									376.86	1.55	
Alex E Giudici	23	180.00	A E Giudici	Dams	2.00	793.39	1.00	396.69							1,190.08	3.00	
Guy Sobrio & Carmelina Sobrio	24, 25	187.10	Sobrio Upper Dam, Sobrio Lower Dam	Sobrio Upper Dam, Sobrio Lower Dam	1.00	396.69	1.40	555.37							952.07	3.00	
Eddie Herz Golden	23, 26, 27, 28	146.80	A E Giudici	Upper, Trossi Middle, Trossi Lower			1.70	674.38	0.15	59.50					733.88	1.85	
Frank Dotta	28, 29, 30, 31	370.00	Upper F V Dotta Middle, Dotta Lower	Upper F V Dotta Middle, Dotta Lower			2.70	1,071.07							1,408.26	4.40	
Emilio Ramelli	31, 32	81.20	F V Dotta Lower, Channel	F V Dotta Lower, Channel			1.05	416.53							416.53	1.05	
Emilio Ramelli	32, 37	21.50	Channel, M B Humphrey West Side	Channel, M B Humphrey West Side			0.25	99.17							99.17	0.25	
Philip E Ede & Sophia L Ede	31, 33, 34	220.20	Lower, Ede Schoolhouse, Ede Lower	Lower, Ede Schoolhouse, Ede Lower			2.75	1,090.91							1,090.91	2.75	
Edmond J Goble & Ida C Goble	35, 36, 37	251.00	Channel, Goble Middle Channel, Goble Lower	Channel, Goble Middle Channel, Goble Lower			2.65	1,051.24							1,249.59	3.15	
Daniel M Scott & Gemma Solar Scott	37, 38	126.60	Channel, North Channel	Channel, North Channel			1.65	654.55							654.55	1.65	
C D Laffranchini & Marie C Laffranchini	39	132.70	North Channel	North Channel			0.60	238.02	1.20	476.03					714.05	1.80	

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) Plumas County of Plumas, Case No. 3095			Allotments										Total				
Seasons of Use Conditions of season March 1 through October 31 March 15 through September 30	Name of Claimant	Acreage to be supplied DWR Map	Diverion Number	Name of Diversion System	Priority Class (cfs)										Total Face Value (AF)	Check, total GFS	
					First	Second	Third	Fourth	Fifth	Priority Face Value (AF)	Priority Class (cfs)	Priority Face Value (AF)	Priority Class (cfs)	Priority Face Value (AF)			Priority Class (cfs)
365.25 days 245.00 days 200.00 days	Jennie F Huntley	410.90	39, 40, 41, 42	Upper North Channel, Huntley Middle Beckwith Channel, Huntley Lower North Channel, Whiterly North, Whiterly South, Whiterly Upper Dam Whiterly South, Whiterly Lower Dam	3.05	1,209.92	1.80	714.05	1,923.97	4.85							
	Josephine Roberti	200.90	43, 44, 45	North, Whiterly South, Whiterly Upper Dam Whiterly South, Whiterly Lower Dam	1.65	654.55	0.35	138.84	793.39	2.00							
	C D Laffranchini & L A Laffranchini	295.70	43, 44, 46	Whiterly South, Whiterly Lower Dam	1.65	654.55	0.95	376.86	1,031.40	2.60							
	J A Bonta & S A Bonta	260.10	47, 48, 49	Bonta North, Bonta South, Bonta Meadow	1.00	396.69	1.60	634.71	1,031.40	2.60							
	C D Laffranchini & L A Laffranchini	174.00	50, 51	Dedmon North, Dedmon South, Maddalena South, Maddalena North			1.70	674.38	674.38	1.70							
	L D Maddalena	70.90	52, 53	Maddalena North			0.70	277.69	277.69	0.70							
	M B Humphrey	68.40	56, 57	M B Humphrey East Side, M B Humphrey West Side			0.40	158.68	158.68	0.40							
	Emilio Ramelli	72.30	58	Virton			1.10	436.36	436.36	1.10							
	Emilio Ramelli	42.00	59, 60	Ramelli Lower Dan			0.45	178.51	178.51	0.45							
	Alessio Ramelli & Adelina Ramelli	166.40	57, 58	M B Humphrey West Side, Ramelli			1.70	674.38	674.38	1.70							
	Alessio Ramelli & Adelina Ramelli	142.50	59, 60	Ramelli Lower Dan, Ramelli			1.80	714.05	714.05	1.80							
	Edmond J Gobie & Ida C Gobie	21.00	57, 58	M B Humphrey West Side, Virton			0.25	99.17	99.17	0.25							

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) Plumas County of Plumas, Case No. 3095		Allotments										Total	
Name of Claimant	Diverison to be supplied DWR Map	Diverison No. of System	Name of System	First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Total Priority Face Value (AF)	Check, total Face Value (AF)	Priority Face Value (AF)	Check, total Face Value (AF)	
													Face Value (AF)
Daniel M Scott & Gemma Solari Scott	365.25 days 245.00 days 200.00 days	61, 62, 63	Solari Upper Channel,	1.85		733.88			0.50	198.35	932.23	2.35	
			Solari Middle Channel, Solari Lower East Channel										
C D Laffranchini & Marie C Laffranchini	305.00	64, 65, 66	Laffranchini Upper East Channel, Laffranchini Middle East Channel, Laffranchini East Channel	1.35		535.54	1.95	773.55	0.50	198.35	1,507.44	3.80	
			Laffranchini East Channel										
Jennie F Huntley	288.80 65, 66, 68, 71, 72		Huntley Upper, Huntley Middle East Channel, Huntley Lower East Channel				2.55	1,011.57	1.10	436.36	1,447.93	3.65	
			Huntley Lower East Channel										
M B Humphrey	288.30	67, 70, 72	Lower Robert, Huntley, Huntley Channel				2.50	991.74	1.10	436.36	1,428.10	3.60	
			Lower East Channel										
Josephine Roberti	311.70	67, 68, 69, 70	Roberti Upper, Roberti Lower, Roberti Lower Channel				2.90	1,150.41	1.00	396.69	1,547.11	3.90	
			Roberti Lower Channel										
Bernard E Giudici & Rudolph E Giudici Freeman Creek Group Chance Creek Below Adams Neck	141.30	73, 98	Diem Dam, Giudici East Dam	13.80	5,474.38	15.60	6,186.43	19.80	7,854.55	2.35	932.23	2.35	
			Diem Dam										
Philip E Edie & Sophia L Edie	212.00	31, 33	F V Datta Lower, Edie Schoolhouse	0.45	178.51	0.45	178.51				357.02	0.90	
			Edmond J Goble & Ida C Goble	0.70	277.69	1.40	555.37					833.06	2.10
Daniel M Scott & Gemma Solari Scott	120.30	38	Solari North Channel	0.50	198.35						198.35	0.50	
Subtotal Last Chance Creek below Freman Creek Group Schedule 5, Claimants from Last Chance Creek Below Adams Neck				8.75	3,471.07	13.80	5,474.38	15.60	6,186.43	19.80	7,854.55	26,988.68	75.05

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) Plumas County of Plumas, Case No. 3095		Allotments										Total	
Name of Claimant	Acres to be supplied	Diverison No. DWR Map	Name of Diversion System	First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Total Priority Face Value (AF)	Fifth Priority Face Value (AF)	Check, total	GFS	
													First Priority Face Value (AF)
C D Laffranchini & Marie C Laffranchini	447.90	39, 64, 67	North Channel, Middle East Channel, Upper East Channel, Dicon	0.35	138.84	1.20	476.03		614.88		1.55		
Jennie F Huntley	123.50	39, 65	Laffranchini North Channel, Middle East Channel	0.45	178.51				178.51		0.45		
J A Bontia & S A Bontia	203.30	47, 48, 49	Bontia North, Bontia South, Bontia Meadow	1.75	694.21	0.10	39.67		733.88		1.85		
C D Laffranchini & L A Laffranchini	60.00	50, 51	Defmon North, Defmon South, Maddalena	0.60	238.02				238.02		0.60		
L D Maddalena	69.00	52, 53	Maddalena North, Maddalena South	0.40	158.68	0.10	39.67		198.35		0.50		
Westover Company	45.00	54, 55	Noble North, Noble South	0.45	178.51				178.51		0.45		
Alessio Ramelli & Adelina Ramelli	31.50	60	Ramelli Lower East Channel, Dicon			0.15	59.50		59.50		0.15		
M B Humphrey	380.00	67, 70, 72	Robertson Channel, Huntley Lower East Channel, Dicon	1.60	634.71				634.71		1.60		
Smithbeck Creek**		67, 73	Division, Dicon			3.50			0.00		3.50		
Antone E Dotca	45.10	67, 108	Dicon, A E Dicon, A E Dicon, A E Dicon	0.20	79.34				79.34		0.20		
Aniella Ramelli	135.80	70	Lower Channel	0.55	218.18				218.18		0.55		
Louise Sobari, Ida A Sobari, Celia D Sobari, Olivia R Sobari, Lydia H Westover	51.50	70	Robertson Channel, Lower Channel	0.20	79.34				79.34		0.20		
James L Humphrey	16.40	70	Lower Channel	0.10	39.67				39.67		0.10		
Josephine Roberti	11.00	70	Lower Channel	0.05	19.83				19.83		0.05		
Bernard F Giudici & Rudolph E Giudici	113.00	73	Dicon, Dicon	0.35	138.84	0.25	98.17		238.02		0.60		
Subtotal, Last Chance Creek Group	2,716.00			5.70	2,761.16	6.95	1,368.60	0.00	4,899.17	0.00	13.85		
Below Adams Neck Schedule 6, Claimants from Schedule 6, Tributaries				3.20	1,265.42				0.00	0.00			
Eddie John Trasi & Billy Connat	73.00	77A	Trasi Mountain	1.20	869.36				869.36		1.20		
Clover Valley Lumber Company	70.30	77, 78	Robertson, S&P, Mountain, East Side	1.20	869.36				869.36		1.20		

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)			Plumas County Case No. 3095												
Name of Claimant	Diverison to DWR Map	Name of Diversion System	Allotments					Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Total Allocations, Face Value (AF)	Check, total GFS			
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)								
Seasons of Use 365.25 days 245.00 days 200.00 days Continuous, regardless of season March 1 through October 31 March 15 through September 30	180.70	86, 89	1.40	1,014.25	0.70	507.12	0.25	99.17	1,113.42	1.65	0.70				
Clover Valley Lumber Company	46.40	79, 80	Lombardi						507.12		0.70				
Mary C Laffranchini	154.70	84, 85, 252	Turner North, Lombardi Upper Concrete Dam	2.20	1,593.82				1,593.82		2.20				
Cesar P Lombardi	Domestic	81	Concrete Dam	0.04	28.98				28.98		0.04				
Clover Valley Lumber Company	164.70	81, 82, 83	Concrete Dam, Middle East, Turner Middle East, Lewis Bros. East	1.30	941.80	1.00	724.46	0.45	178.51	1,844.78	2.75				
First National Bank of Nevada	151.80	82, 87	Middle East, Lewis Bros. East	0.20	144.89	1.05	760.69		0.35	138.84	1,044.42				
J S Rees	30.40	86, 253	Lewis Bros. Loyalton Pipe	0.50	362.23					362.23	0.50				
J S Rees	182.20	87, 89	Lewis Bros. Pond Dam	1.30	941.80	0.40	158.68		0.45	178.51	1,278.99				
J S Rees	Municipal	253	Loyalton Pipe	0.60	434.68					434.68	0.60				
Max Dory & My Dory	60.40	90, 91	Division Dams, Dory East Channel			0.95	376.86			376.86	0.95				
Max Dory & My Dory	46.90	110	Dory West	0.30	217.34	0.15	59.50			276.84	0.45				
Ode Grandi	18.00	90	Division						0.10	39.67	0.10				
Louis S Lombardi	34.70	110	Dory West						0.20	79.34	0.20				
Sierra Valley Bank	58.20	110	Dory West						0.25	99.17	0.25				
Alice Giudici, Frances Giudici, & Stephen Giudici	83.30	92	Giudici East Channel			1.05	760.69			760.69	1.05				
Leon F Dotta	87.80	92	Giudici East Channel			0.50	362.23	0.60	238.02	600.25	1.10				
Raffaele Dotta	120.00	92	Giudici East Channel, R Dotta			0.65	470.90	0.70	277.69	748.59	1.35				
Raffaele Dotta	118.00	94, 95	West, R Dotta Main			1.30	515.70			515.70	1.30				
May Dory & Corn V Keyes	66.00	93	Keyes East			0.85	337.19			337.19	0.85				
Albert C Dotta & Caesar Dotta	160.00	94, 95	West, R Dotta Main Dam			1.80	714.05			714.05	1.80				
Albert C Dotta & Caesar Dotta	299.80	96, 97	A & C Dotta East, A & C Dotta West, Dotta Dam			3.40	1,348.76			1,348.76	3.40				
Bernard E Giudici & Rudolph E Giudici	140.30	99, 99, 106	Giudici East Dam, Lower Middle			1.60	634.71			634.71	1.60				
Alice Giudici, Frances Giudici, & Stephen Giudici	62.00	100	Giudici Middle			0.85	337.19			337.19	0.85				
May Dory & Corn V Keyes	94.00	100, 101	Giudici Middle Keyes Middle			1.15	456.20			456.20	1.15				

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)		Seasons of Use		Diverion		Name of Claimant		Name of Diversion System		Allotments		Third Priority		Fourth Priority		Fifth Priority		Total	
		Days	Days	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)	Priority Class (cfs)
365.25	days	102, 103	102, 103	3.70	1,467.77	0.60	238.02	0.15	59.50	1,765.29	4.45								
245.00	days	104, 105	104, 105	3.25	1,289.26	1.05	416.53												
200.00	days	99, 106	99, 106	0.75	297.52	0.25	99.17												
		111, 112	111, 112	2.95	2,137.17	0.80	317.36												
		110, 113, 114	110, 113, 114	0.06	43.47														
		115	115	2.85	1,130.98	1.30	515.70												
		116	116	2.05	813.22	0.80	317.36												
		117	117	0.80	317.36														
		108, 109	108, 109																
		104	104	2.20	872.73	2.20	872.73												
		108	108	1.05	416.53	1.05	416.53												
		108	108	0.70	277.69	0.70	277.69												
		114	114	0.45	178.51	0.45	178.51												
		118	118	0.80	317.36	0.80	317.36												
		118	118	0.30	119.01	0.30	119.01												
		118	118	1.60	634.71	1.60	634.71												
		108, 118	108, 118	1.75	694.21	1.75	694.21												
		119	119	1.50	595.04	1.50	595.04												
		119	119	0.90	357.02	0.90	357.02												
		5,886.60	5,886.60	10.94	7,925.62	33.11	15,514.15	13.20	5,236.36	7.00	2,776.86	2.89	1,146.45	31,012.66	67.14				

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) Plumas County of Plumas, Case No. 3095	Seasons of Use Conditions (beginning of season March 1 through October 31 March 15 through September 30)	Days 365.25 days 245.00 days 200.00 days	Acreage to be supplied DWR Map	Name of Claimant	Name of Diversion System	Allotments					Total Allocations, Face Value (\$)	Check, total GFS		
						First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)				
Henry Dotta	H Dotta Upper South, Lower South, Channel, H Dotta South Channel, H Dotta Springs	158, 159, 161, 162, 261	431.80	H Dotta	2.00	1,448.93	3.05	1,209.92	0.90	357.02	0.20	79.34	3,095.21	6.15
A E Strang	H Dotta Old Power, H Dotta South Channel, Strang Upper, Strang Lower	160, 161, 163, 164	555.60	A E Strang	1.00	724.46	4.60	1,894.79	1.20	476.03	0.20	79.34	3,104.63	7.00
Deila R Martinetti	Parrett & Miller	29.60	165	Deila R Martinetti			0.40	158.68					158.68	0.40
Deila R Martinetti	Miller	238.00	165, 166	Deila R Martinetti			0.10	72.45	0.90	357.02	0.75	297.52	1,064.18	2.60
A E Strang	Miller - Strang	86.50	167	A E Strang			0.40	289.79	0.80	317.36			726.99	2.60
A E Strang	Strang & Martinetti	24.00	170, 167	A E Strang				0.35	138.84				138.84	0.35
Deila R Martinetti	Lower Field	60.00	167	Deila R Martinetti				0.80	317.36				317.36	0.80
Deila R Martinetti	Upper East	274.10	165, 169, 170	Deila R Martinetti			0.50	362.23	3.00	1,190.08			1,552.31	3.50
Deila R Martinetti	Martinetti Channel, Middle East	74.40	171, 173	Deila R Martinetti				0.95	376.86				376.86	0.95
Deila R Martinetti	Lower West	20.00	174	Deila R Martinetti					0.25	99.17			99.17	0.25
Deila R Martinetti	Channel	199.20	172	Deila R Martinetti			0.30	217.34	2.20	872.73			1,090.07	2.50
B F Myers and C B Myers	Conover Creek	20.00	174	B F Myers and C B Myers					0.25	99.17			99.17	0.25
B F Myers and C B Myers	Lower West	147.20	202	B F Myers and C B Myers			0.10	72.45	0.40	289.79	1.35	535.54	897.77	1.85
Kate L Devine	Turner	74.90	174, 175	Kate L Devine			0.10	72.45	0.40	158.68			231.12	0.50
Albert B Church	Miller Creek Mounds	105.00	175	Albert B Church			0.10	72.45	1.20	476.03			548.48	1.30

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Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) County of Plumas, Case No. 3095

Seasons of Use: 365.25 days
 Conditions: 245.00 days
 March 1 through October 31
 200.00 days
 March 15 through September 30

Name of Claimant	Acreage to be supplied	Diverion No. on DWR Map	Name of Diversion System	First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Total Allocations, Face Value (AF)	Check, total Face Value (AF)
M. O. Binninger, J. M. Binninger, & Adella L. Binninger	117.00	175	Miller Creek Mounds Channel	0.10	72.45	1.35	535.54		607.98	1.45
Frank R. Turner, Earl Turner, and Gene Turner	42.20	175, 187	Channel, Church Creek, Lower Turner Creek	0.10	72.45	0.40	158.68		231.12	0.50
Frank R. Turner, Earl Turner, and Gene Turner	80.00	175, 202	Miller Creek Meadow Channel, Turner	0.10	72.45	0.90	357.02		429.47	1.00
Honora G. Adams	120.00	176	Mounds	0.10	72.45	1.00	396.69		627.82	1.50
Della R. Martinetti	29.40	177	Martinetti Spring Brook	0.43	311.52				311.52	0.43
Della R. Martinetti	64.00	177	Martinetti Brook, Cawitt Spring Brook	0.20	144.89	0.90	357.02		501.92	1.10
Della R. Martinetti	30.00	262	Cawitt Foothill Springs		0.00	0.45	178.51		178.51	0.45
Della R. Martinetti	37.70	184, 185	Cawitt Turner Creek	0.20	144.89	0.45	178.51		323.40	0.65
Frank W. Freeman	117.50	180	Freeman Lower Meadow	0.60	434.68	1.20	476.03		910.71	1.80
T. V. Turner, Earl Turner, Frank R. Turner, & Gene Turner	88.90	188	Freeman Meadow	0.10	72.45	1.00	396.69		469.14	1.10
Frank R. Turner, Earl Turner, and Gene Turner	0.20	180	Freeman Meadow	0.02	14.49	0.65	257.85		14.49	0.02
Frank R. Turner, Earl Turner, and Gene Turner	78.60	181, 182	Turner West, Turner East	0.60	434.68	0.40	158.68		692.53	1.25
Frank R. Turner, Earl Turner, and Gene Turner	25.00	183	Turner Church, Cawitt Turner Creek		0.35	138.84			138.84	0.35
Frank R. Turner, Earl Turner, and Gene Turner	21.90	184, 185	Turner Church, Cawitt Turner Creek		0.35	138.84			138.84	0.35
Frank R. Turner, Earl Turner, and Gene Turner	109.40	187	Lower Turner Creek		0.15	59.50	0.25	98.17	158.68	1.40
Albert B. Church	58.30	184	Church		0.80	317.36			317.36	0.80
Albert B. Church	146.90	186	Upper Turner Church	0.20	144.89	1.60	634.71		779.60	1.80
Albert B. Church	134.10	187	Lower Turner Creek, Meek	0.20	144.89	1.50	595.04		739.93	1.70
Samuel Devine, Kate L. Devine, Same H. Devine, Allen B. Devine, and Bradley & Wooding Trustees, Royal Union Fund	200.80	189	Clark Turner Meadow, Turner Creek	0.20	144.89	1.30	515.70	1.00	1,057.29	2.50
Estate of C. W. Toomey & Estate of Virginia McLean	200.00	189, 190	meadow, Toomey Meadow, Clark Turner Creek	0.20	144.89	1.80	714.05	0.50	1,983.35	2.50
Isolina Pasquetti	184.70	189, 191, 202	Clark Turner Meadow, Turner Mounds	0.20	144.89	0.80	317.36	1.30	977.95	2.30

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)			Plumas County Case No. 3095											
Name of Claimant	Diverion No. on DWR Map	Acres to be supplied	Allotments											
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Priority Face Value (AF)	Priority Face Value (AF)	Priority Face Value (AF)	Priority Face Value (AF)	Check, total Face Value (AF)		
Isolina Pasquetti	204, 205	302.20	0.50	362.23	2.10	833.06	1.15	456.20					1,651.49	3.75
Frank R. Turner, Earl Turner, and Gene Turner	202	109.90	0.30	217.34	0.90	357.02								
George A Henderson	176, 203	120.00	0.50	362.23	1.00	396.69							758.93	1.50
Battista Pasquetti	176, 204	189.00	0.50	362.23	1.50	595.04	0.40	158.69					1,115.95	2.40
F E Humphrey, Jr.	205, 206, 207, 208, 209	742.30	1.50	1,086.69	5.30	2,102.48	1.60	634.71					3,823.88	8.40
F E Humphrey, Jr.	210, 214	411.50	0.75	543.35	2.50	991.74	1.35	535.54					2,070.62	4.60
F E Humphrey, Jr.	212, 214	160.00	0.50	362.23	1.10	436.36	0.30	119.01					917.60	1.90
F E Humphrey, Jr.	219, 220	270.60	3.00	1,190.08									1,190.08	3.00
John B Matley & Annie M Matley	211, 214	134.30	0.50	362.23	0.60	238.02	0.60	238.02					838.26	1.70
Fred Berry & Lillian Berry	213, 215	121.20	0.25	181.12			1.25	495.87					676.98	1.50
Fred Berry & Lillian Berry	214	110.80	0.90	357.02			0.90	357.02					555.37	1.40
E F Ghidossi	213, 216	349.40	0.25	181.12			2.55	1,011.57					1,827.40	4.40
E F Ghidossi	218	114.10	0.25	181.12			1.00	396.69					59.50	1.40
A A Viscia	216, 217	158.90	0.25	181.12			0.95	376.86					875.33	2.00
Henry Albini	220	61.80					0.80	317.36					317.36	0.80
James L Humphrey	220, 239	127.50					0.80	317.36					555.37	1.40
Subtotal Schedule 7 - Claimants from West Side Canal and Its Tributaries (Albini, Miller and Turner Creeks)		7,712.40	8.35	6,049.26	30.85	14,352.12	29.00	11,504.13	22.50	6,528.93	5.45	2,161.98	41,997.02	96.15

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Feather River Water Rights File.xlsx
Middle Fork Feather Decree

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Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)	County of Plumas, Case No. 3095	Seasons of Use	Diversions to be supplied	Diversions to be supplied	Diverions to be supplied	Name of Claimant	Name of Diversion System	Allotments					Total Allotments, Face Value (AF)	Check, total GFS		
								First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)				
		365.25 days 245.00 days 200.00 days	194, 193, 197	194, 193, 197	194, 193, 197	Davies-Johnson Lumber Company	Davies-House, Davies-Johnson, Johnson, Challen	0.85	615.79	0.85	337.19			952.98	1.70	
		196	196	196	196	Davies-Johnson Lumber Company	Calpine Pipe Spring							0.00	0.00	
		194, 198	194, 198	194, 198	194, 198	Estate of William Freeman, Frank W Freeman, Administrator	Freeman Freeman Fletcher Creek Meadow	0.10	72.45	0.60	238.02			310.46	0.70	
		195, 199	195, 199	195, 199	195, 199	Samuel Devine & Kate L. Devine	Spring Devine Meadow	0.40	289.79	1.00	396.69	0.35	138.84	825.32	1.75	
		199, 200	199, 200	199, 200	199, 200	Samuel Devine, Kate L. Devine, Sam H Devine, Allen B. Devine, and Bradley & Wooding, Trustees Royal Union Land	Spring Devine Creek Meadow	0.20	144.89	1.45	575.21	0.28	111.07	831.17	1.93	
Subtotal Schedule 8, Claimants from Fletcher Creek and Spring Channels								1.55	1,122.92	3.90	1,547.11	0.63	249.92	0.00	6.08	
Subtotal Schedule 8, Claimants to Shareholders in Sierra Valley Water Company for Redemption from Little Truckee River Water Right of Feather River Stream System																
		700.00	7	7	7	Anna B. Miller	Devine									
		200.00	2	2	2	G. Maddalena	Devine									
		200.00	2	2	2	Francesca G. Bonny & Marcel J. Bonny	Devine									
		200.00	2	2	2	Fred F. Albers	Devine									
		300.00	3	3	3	Ken Terri	Devine									
		125.00	1	1	1	Shall	Devine									
		200.00	2	2	2	Mabel Eur	Devine									
		200.00	2	2	2	Van Vleck	Devine									
		100.00	1	1	1	Melo	Devine									
		200.00	2	2	2	A. Venetti	Devine									
		200.00	2	2	2	George Filippini	Devine									
		300.00	3	3	3	Russel	Devine									
		200.00	2	2	2	Francis A. Brelliev, Jr	Devine									
		125.00	1	1	1	S. J. Carmichael	Devine									
		525.00	5	5	5	Paul Noble	Devine									
		150.00	1	1	1	Bryce Eur	Devine									
		200.00	2	2	2	Paul Noble	Devine									
		6,175.00	60	60	60	Subtotal Schedule 9										

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

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Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) County of Plumas, Case No. 3095	Seasons of Use	Divercion to be supplied	Divercion to be supplied	Name of Claimant	Name of Diversion System	First Priority Class (cfs)	Allotments						Check, total Face Value (AF)	Check, total CFS			
							First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	Sixth Priority Class (cfs)			Total Allotments, Face Value (AF)	Total Allotments, CFS	
S C Lumbough	365.25 days	6.00	127	S C Lumbough	Treasure and Camp Springs	0.04	28.98	0.08	31.74							66.71	0.12
	245.00 days	1.30	134		Town Pumps Amoldi	0.02	14.49										14.49
John Arnoldi & Anna Amoldi	200.00 days	144.60	155	James W Morgan	Morgan East Channel, North East Channel	1.50	1,086.69	1.00	396.69							1,483.39	2.50
	March 1 through October 31	67.70	156, 157		Morgan, Johnson & Holmison Cold Creek, Cook	1.10	796.91										796.91
Dell L Johnson	March 1 through September 30	16.90	133	Dell L Johnson	Morgan, Johnson & Holmison Cold Creek, Cook	0.10	72.45			0.18	71.40					143.85	0.28
		50.50	128, 128A		Johnson Cold Creek, Johnson & Johnson, Hobo Springs	0.20	144.89			0.80	317.36					462.25	1.00
Dell L Johnson		146.70	131, 132, 145, 258	Dell L Johnson	Johnson Cold Creek, Johnson & Johnson, Hobo Springs	0.20	144.89	2.00	793.39	0.25	99.17					1,037.45	2.45
		60.70	133		Morgan, Johnson & Adams	0.20	144.89			0.80	317.36					462.25	1.00
Keso N Dellera & Columbine Dellera		181.60	129	Anna B Miller	Miller-Dellera	0.50	362.23	1.35	535.54							1,076.28	2.30
		129.60	129, 258A		Miller-Dellera	0.50	362.23	1.35	535.54			0.45	178.51			897.77	1.85
Anna B Miller		20.00	133	Anna B Miller	Morgan, Johnson & Adams	0.27	195.60									195.60	0.27
		12.80	130		Randolph	0.50	362.23									362.23	0.50
Annie Dora Adams		2.90	133	Thomas E Miller	Morgan, Johnson & Adams	0.04	28.98									28.98	0.04
		9.90	134		Town Pumps	0.04	28.98			0.15	59.50					88.46	0.19
C D Johnson		13.40	134	John A Mcintosh	Town Pumps	0.05	36.22			0.20	78.34				115.56	0.25	
		0.00	134		Town Pumps	0.02	14.29									14.29	0.02
Carmichael		5.40	135	Bony Upper Dam, Bony Middle Dam	Wilson Dam	0.10	72.45			0.50	198.35					270.79	0.60
		388.70	136, 137, 138, 139		Bony Upper Dam, Bony Middle Dam	0.50	362.23			5.05	2,003.31					2,365.54	5.55
Fred F Alpers & Christina Alpers		173.80	140	Fred F Alpers & Christina Alpers	Lower Dam	0.20	144.89			2.00	793.39					938.28	2.20
		80.00	256		Alpers Springs	0.20	144.89	0.80	317.36							462.25	1.00
Giulio Torri		321.90	142, 143, 255	Giulio Torri	Tori Upper, Tori Lower, Henderson Springs	0.20	144.89			3.80	1,507.44					1,652.33	4.00
		236.00	137		Bony	0.20	144.89					1.90	753.72	0.90	357.02	1.00	396.69
Anna B Miller		251.80	146	Anna B Miller	Miller Upper	0.50	362.23			2.60	1,031.40					1,790.33	4.10
		132.50	147		Schoonhouse					1.90	753.72					753.72	1.90

Feather River Water Rights File.xlsx
Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)				Plumas County Case No. 3095											
Name of Claimant	Diversions to be supplied	Diversions to be supplied DWR Map	Name of Diversion System	Allotments					Fourth Priority Class (cfs)	Fourth Priority Face Value (\$)	Fifth Priority Class (cfs)	Fifth Priority Face Value (\$)	Total Allotments, Face Value (\$)	Check, total GFS	
				First Priority Class (cfs)	Second Priority Face Value (\$)	Second Priority Class (cfs)	Third Priority Face Value (\$)	Third Priority Class (cfs)							
Anna B Miller	326.00	149, 152	Perry Creek Division, Miller Lower Creek, Webber & Johnson	0.05	36.22	0.10	39.67	2.00	793.39	2.00	793.39	1,586.78	4.00		
William A Diltz	8.00	145	Diltz & Johnson	0.05	36.22	0.10	39.67					75.89	0.15		
Mary Ella Webber	7.00	145	Diltz & Johnson	0.05	36.22	0.10	39.67					75.89	0.15		
Francesca G Bony & Marcel J Bony	91.60	147, 148A	Schuler Bony Perry Dam	0.05	362.23	1.19	472.07	1.30	515.70	1.30	515.70	515.70	1.30		
Vernice C Adams	152.60	148	Adams	0.50	362.23	1.19	472.07	0.21	123.08	0.21	123.08	852.27	2.00		
Seth Law & Florence M Law	130.00	148	Perry Creek Division	0.20	144.89	0.20	144.89	0.21	123.31	0.21	123.31	917.20	1.90		
Seth Law & Florence M Law	123.00	149	Upper Webber	0.20	144.89	0.20	144.89	1.55	614.88	1.55	614.88	614.88	1.55		
Seth Law & Florence M Law	119.40	150, 151	Upper Webber Lower	0.20	144.89	0.20	144.89	1.45	575.21	1.45	575.21	575.21	1.45		
George A Henderson	156.60	144, 154	Upper Webber, Perry Creek, Henderson	0.20	144.89	0.20	144.89	1.80	714.05	1.80	714.05	858.94	2.00		
Battista Rasquetti	232.20	221	Perry Creek Dam	0.20	144.89	0.20	144.89	2.15	852.89	2.15	852.89	1,096.96	2.60		
Robert L Henderson	134.70	222	East Side Slough	0.20	144.89	0.20	144.89	1.30	515.70	1.30	515.70	660.60	1.50		
Alice Vanetti	227.40	222, 223	East Side Slough, Vanetti	0.20	144.89	0.20	144.89	2.05	813.22	2.05	813.22	958.12	2.25		
F E Humphrey Jr	1,309.70	224, 225, 226, 227, 228, 229	Humphrey Upper River, North River, East Side, Humphrey Concrete Dam, Humphrey Lower River, Robbins Dam	0.70	507.12	0.80	579.57	5.20	2,062.81	3.70	1,467.77	2.70	1,071.07	5,688.35	13.10
Perpetua Gemaser & Raffaele Dotta	143.10	226, 229	East Side, Robbins Dam					0.85	337.19	0.60	238.02	575.21	1.45		
Cesare C Dotta	184.70	225	Humphrey North River									952.07	2.40		
Cesare C Dotta	122.80	226, 230, 231	East Side, Meadow					1.40	555.37			845.16	1.80		
Julius Filippini	158.40	226	Dams, Dotta East Side, Filippini					1.05	416.53			793.39	2.00		
Julius Filippini	364.80	232, 233	Meadow Upper, Filippini					2.30	912.40			1,611.82	3.65		
M B Humphrey	222.90	226	Lower Humphrey, Dams					2.20	872.73			872.73	2.20		
M B Humphrey	698.70	235, 236	Mickey East Side Dam					3.20	1,269.42			2,776.86	7.00		

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Middle Fork Feather Decree

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith) Plumas County of Plumas, Case No. 3095	Seasons of Use Conditions: 365.25 days March 1 through October 31 245.00 days March 15 through September 30 200.00 days	Acreage to be supplied	Diverion No. on DWR Map	Name of Diversion System	Name of Diversion System	Allotments					Total Allocations, Face Value (AF)	Check, total Face Value (AF)	
						First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)			
F E Humphrey Jr			201	Domestic, Stockwater, Irrigation	Craycroft Lower	0.22	87.27	Irrigation Season					
Henry Allini			201	Domestic, Stockwater, Irrigation	Craycroft Lower	0.18	71.40	Irrigation Season					
James L Humphrey			201	Domestic, Stockwater, Irrigation	Craycroft Lower	0.60	238.02	Irrigation Season					
James L Humphrey			201	Domestic, Stockwater, Irrigation	Craycroft Lower	0.20	75.34	Irrigation Season					
F E Humphrey Jr			201A	Domestic, Stockwater, Irrigation	Craycroft Upper	0.75	297.52	Irrigation Season					
Subtotal, Additional Special Class Claimants, West Side Canal Group						1.95	773.55						
Fletcher Creek Group													
Isolina Pasquetti				Domestic, Stockwater, Irrigation	Fletcher Creek and Spring Channels	0.25	99.17	Irrigation Season					
Subtotal, Additional Surplus Class Claimants, Fletcher Creek Group						0.25	99.17						
Middle Fork Feather River Group													
Cesar P Lombardi			120, 121, 122	Domestic, Stockwater, Irrigation	Antelope Upper, Antelope East Channel, Antelope Lower Ditches	4.00	1,586.78	Irrigation Season					
Julius Filippini and Perpetua Genasid				Domestic, Stockwater, Irrigation	Antelope Creek	2.00	793.29	Irrigation Season					
Anna B Miller			123 to 126	Domestic, Stockwater, Irrigation	Blissman Spring Channel, Lemmon West, Lemmon Lower Ditches	5.00	3,622.31	Continuous					
Fred F Alpers & Christina Alpers				Domestic, Stockwater, Irrigation	Lemon Creek	2.70	1,956.05	Continuous					
Marie Mattarola and B V Mattarola			257, 258	Domestic, Stockwater, Irrigation	Campbell Springs, East Springs Ditches	0.80	579.57	Continuous					
Frank Carmichael			267, 268	Domestic, Stockwater, Irrigation	Agaves West Meadow, Agaves East Meadow Ditches	5.00	3,622.31	Continuous					
Veste Nelson			265	Domestic, Stockwater, Irrigation	Nelson Ditches	1.30	941.80	Continuous					
Giocomo Rulchi and M Rulchi			266	Domestic, Stockwater, Irrigation	Nelson Ditches	1.70	1,231.59	Continuous					

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Middle Fork Feather Decree

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Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)		Seasons of Use		Diversions to be supplied		Name of Claimant		Diversions to be supplied		Name of Diversion System		First Priority Class (cfs)		Second Priority Class (cfs)		Third Priority Class (cfs)		Fourth Priority Class (cfs)		Fifth Priority Class (cfs)		Total Allocations, Face Value (AF)		Check, total Face Value (AF)			
		Days of season		DWR Map				DWR Map				AF		AF		AF		AF		AF		AF		AF			
Westover Company		365,25 days		266		Westover Company		266		Unopened Spring		1,80		1,304.03 Continuous													
Westover Company		245,00 days		Unopened Spring		Westover Company		Unopened Spring		Unopened Spring		0.01		3.62 Continuous													
John Anzolei & Anna Anzolei		259, 260 days		259, 260		John Anzolei & Anna Anzolei		259, 260		Anzolei Meadow Spring		1.20		869.36 Continuous													
A E Strang		259, 260 days		259, 260		A E Strang		259, 260		Anzolei Meadow Spring		0.20		144.89 Continuous													
A E Strang		Irrigation		Anzolei Springs		A E Strang		Anzolei Springs		Anzolei Springs		0.80		579.57 Continuous													
Subtotal, Additional Special Class Claimants - Middle Fork Feather River						Subtotal, Additional Special Class Claimants - Middle Fork Feather River						265.1		17,235.28													
Anna B Miller		155 days		155		Anna B Miller		155		Anzolei Ditch		3.00		1,190.08 Irrigation Season													
Westover Company		243, 244, 245 days		243, 244, 245		Westover Company		243, 244, 245		Noble Fish Ditches		3.30		1,305.09 Irrigation Season													
Westover Company		263 days		263		Westover Company		263		Noble Reservoir				200.00													
Frank Carmichael		Mange Creek & Tributaries		Mange Creek & Tributaries		Frank Carmichael		Mange Creek & Tributaries		Mange Creek & Tributaries				80.00													
Subtotal, Additional Surplus Class Claimants - Middle Fork Feather River Group						Subtotal, Additional Surplus Class Claimants - Middle Fork Feather River Group						6.30		2,779.17													

Middle Fork Feather River and Its Tributaries above Beckwith Decree - Plumas County Case No. 3095, January 19, 1940

Middle Fork Feather River (and Its Tributaries Above Beckwith)	Seasons of Use	Diverion	Name of Diversion System	Allotments					Total	Check, total
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)		
Subtotal, Schedule 3 - Last Chance	365.25 days	18.50	7,338.84							
Subtotal, Schedule 4	245.00 days	75.05	28,958.68							
Schedule 5, Claimants from Last Chance Creek Below Adams Neck		15.85	4,899.17							
Schedule 6, Claimants from Smitmeck Creek and Tributaries		67.14	31,012.66							
Schedule 7, Claimants from West Side Canal and Its Tributaries (Hamlin, Miller and Fletcher)		96.15	41,997.02							
Schedule 8, Claimants from Fletcher Creek and Spring Channels		6.08	2,939.94							
Schedule 9, Allocations to Shareholders		60.00	23,801.65							
Water Conveyed Into Middle Fork of Feather River Stream System		117.65	50,437.14							
Subtotal, Schedules 3-10		456.42	191,365.11							
Subtotal, Additional Special Class Claimants - Last Chance Creek Group		13.48	8,344.71							
Subtotal, Additional Special Class Claimants - Smitmeck Creek Group		0.00	240.00							
Subtotal, Additional Special Class Claimants - West Side Canal Group		1.95	773.55							
Subtotal, Additional Special Class Claimants - Middle Fork Feather River Group		26.51	17,235.28							
Special Class Claimants		498.35	217,958.65							
Subtotal, Additional Surplus Class Claimants - Last Chance Creek Group		0.00	331.00							
Subtotal, Additional Surplus Class Claimants - Smitmeck Creek Group		0.00	240.00							
Subtotal, Additional Surplus Class Claimants - Fletcher Creek Group		0.25	99.17							
Subtotal, Additional Surplus Class Claimants - Middle Fork Feather River Group		6.30	2,779.17							
Subtotal, All Surplus Class Claimants		6.55	3,449.35							
Grand Total, All Schedules and Classes of Claimants		504.90	221,408.00							

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Middle Fork Feather Decree

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Summary of Pit River Decrees

Pit River Decrees	Face Amount
Ash Creek	66,518.40
Burney Creek	11,308.76
Big Valley of Pit River	102,467.90
Franklin Creek	4,230.48
Hat Creek	93,210.83
Rattlesnake Creek	37,023.47
North Fork Pit River	46,856.17
South Fork Pit River	68,097.30
Roaring Creek	5,289.43
Willow Creek	552.02
Total Pit River Decrees	435,554.75

Pit River Water Rights File.xlsx
Summary of Decrees

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Ash Creek Decree Water Rights

Modoc County Judgment and Decree No. 3670

Seasons of Use
 Continuous, regardless of season
 April 1 through October 15
 March 1 through October 15

Acreage to be supplied
 365.25 days
 196.00 days
 229.00 days

Name of Claimant	Diversion No. as per DWR Map	Name of Diversion System	Allotments					Total (cfs) Total (AF)
			First Priority Class (cfs) (AF)	Second Priority Class (cfs) (AF)	Third Priority Class (cfs) (AF)	Fourth Priority Face Value (AF)	Fifth Priority (cfs) (AF)	
Rush Creek Group (Schedule 3)								
Joe F Walker and Elsie D Walker	7.00	Walker Upper, Walker Lower	0.18	70.69				0.18
Thomas J McClure	5.00	Higgins	0.12	47.13				0.12
C L Harper and Meta Harper	35.80	Higgins	0.60	235.64				0.60
Audrey Rice	62.80	Audrey Rice, T J Rice	1.05	412.36				1.05
Irene Jennings, Lillian Rice, May Lillian Rice, Clarence Rice, Mary Ash, and Rose Battle	14.00	T J Rice	0.25	98.18				0.25
N S Kresge and Laura Kresge	49.50	Kresge-Holbrook, Kresge East	0.85	333.82				0.85
Joseph H Holbrook, Ervin E Triplett, Henry O Triplett, and Grace Gordon	131.60	Kresge-Holbrook, Holbrook-Barrows, Holbrook-East Dams, Holbrook West, Holbrook Lower	2.20	864.00				2.20
Subtotal, Rush Creek Group	305.70		5.25	2,061.82	0.00	0.00	0.00	5.25
Butte Creek Group (Schedule 4)								
Herbert S Bath and Anne Bath	53.50	H S Bath Upper, H S Bath Lower	0.40	157.09				0.40
S J Niles and Myrtle Niles	106.50	Niles Upper Meadow, Niles and Auble, Niles Middle Meadow, Niles Lower	1.60	628.36				1.60
E M Auble and Ivy Auble	56.40	Niles and Auble, Auble Upper, Auble Lower	0.40	157.09				0.40
E J Schmidt and Emma B Schmidt	75.20	Elzea	0.10	39.27	0.90	353.45		1.00
Subtotal, Butte Creek Group	291.60		2.50	981.82	0.90	353.45	0.00	3.40
Willow Creek Group (Schedule 5)								
Alton, P. Avilla, Lloyd Avilla, Irene Totten, Ida D Copper	15.00	Avilla Upper Springs				58.91		0.15
E V Wing	105.30	Avilla West Side, Avilla East Side				333.82		0.85
Ira Gray	94.50	Gray				314.18		0.80
Ed Armstrong and Wilhelmina R Armstrong	70.00	Armstrong				196.36		0.50
Floyd E Walker	71.20	Knight	0.07	50.71	0.63	247.42		0.70
J E Albaugh	356.90	Knight	0.32	231.83	2.88	1,131.05		3.20
Frank Studley and Hattie Studley	355.80	Studley Johnson	0.32	231.83	2.88	1,131.05		3.20
R L Holmes and May L Holmes	210.90	Studley Johnson	0.16	115.91	1.44	565.53		1.60
Kasper Weigand and Etta Weigand	153.10	Weigand Upper Dams, Weigand Lower Dams	0.10	72.45		589.09		1.60
Subtotal, Willow Creek Group	1,432.70		0.97	702.73	7.83	3,075.05	2.30	12.60
Ash Creek Group (Schedule 6)								
John T Bath, Alice B Walker, Carrie Robert Fleming and Ora Lee Fleming	126.60	Bath Dam, Bath North Springs	1.95	765.82				1.95
John T Bath, Alice B Walker, Carrie F Stone	131.20	Fulstone Springs	2.00	785.45				2.00
John T Bath, Alice B Walker, Carrie F Stone	219.10	Bath (West Ranch)	3.30	1,296.00				3.30
John T Bath, Alice B Walker, Carrie F Stone	13.50	Bath	0.20	78.55				0.20
John T Bath, Alice B Walker, Carrie F Stone, Robert Fleming, Mary Fleming, and Ora Lee Fleming	142.20	Bath, Bath North	2.20	864.00				2.20
G H Perkins and Ethel A Perkins	263.30	Perkins Springs, Perkins	3.90	1,531.64				3.90
T A Barrows and Lulu M Barrows	305.10	Barrows Upper, Barrows Dam #2, Barrows Slough, Barrows Lower Dams	4.70	1,845.82				4.70
John A Kresge and May E Kresge	28.00	John A Kresge Dam	0.45	176.73				0.45
R E Clark and Donnie Clark	23.90	Subirrigation	0.35	158.98				0.35

Pit River Water Rights File.xlsx
 Ash Creek Decree

Modoc County Judgment and Decree No. 3670			Ash Creek Decree Water Rights														
Seasons of Use	Name of Claimant	Acreage to No. as per be supplied DWR Map	Diversion No. as per DWR Map	Name of Diversion System	Allotments	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Fifth Priority Class (cfs)	Fifth Priority Face Value (AF)	Total (cfs)	Total (AF)
365.25 days Continuous, regardless of season April 1 through October 15	J E Yowell, Addie Yowell, F E Yowell and Dorothy Yowell	24.50	17	Vogt		0.35	158.98									0.35	158.98
196.00 days March 1 through October 15	Louise Vogt and John Vogt	353.50	17, 18	Vogt, Vogt Lower Dam		5.45	2,475.47									5.45	2,475.47
	W H Hunt Estate Co.	739.10	19	Clarke Co Upper Support Dams, New Canal Swamp Head Dams		8.80	3,997.09									8.80	3,997.09
	A J Weeks and Mary A Weeks	93.20	19	Clark Canyon Dams													
	J C Lane and Nora Lane	278.20	20, 21, 22, 48	North Slough, New Canal Swamp Head, Cannon Box, Lane Death Slough Dam						1.00	454.21	1.45	658.61	1.10	499.64	2.10	953.85
	A L Cannon	110.00	22	Cannon Box						1.40	635.90					1.40	635.90
	Indian Allotment	61.80	22	Cannon Box						0.80	363.37					0.80	363.37
	W H Hunt Estate Co.	1,997.90	21, 22, 23, 24, 46, 47, 48, 49, 50, 51	New Canal Swamp Head, Cannon Box, Jenkins-Cannon, Death Slough Head Box, North Branch South Channel Lower, Island Taps, Lane Death Slough Dams, Death Slough, Death Slough Bypass, Death Slough, New Canal						25.00	11,355.37			0.10	45.42	25.10	11,400.79
	W H Hunt Estate Co.	88.00	23	Jenkins-Cannon				0.50	362.23	0.60	272.53					1.10	634.76
	A L Cannon	88.00	23	Cannon Box, Jenkins-Cannon				0.50	362.23	0.60	272.53					1.10	634.76
	Wm Kramer and Rachel R Kramer	25.00	22, 23	Cannon Box, Jenkins-Cannon								0.30	136.26			0.30	136.26
	W H Hunt Estate Co.	1,855.00	25, 26, 27, 28, 29, 32, 36, 37, 38, 42, 43, 44, 45	South Channel Head Box, Big Valley Drainage Canal, North Branch South Channel, Middle Branch South Channel, Chisholm Upper Dam, Wayman Support Dam, C W Clarke Co Upper South Channel Dam, C W Clarke Co Middle South Channel Dam, C W Clarke Co Lower South Channel Dam, Weigand-Gerig Dam, Gerig Swamp Dam, South Branch South Channel Dam, Middle Branch South Channel Dam						23.20	10,537.79					23.20	10,537.79
	Wm H Bean	38.90	25, 29, 30	South Channel Head Box, Chisholm Upper Dam, Chisholm Lower Dam						0.50	227.11					0.50	227.11
	M D Wayman and Alice M Wayman	232.90	25, 26, 31, 32, 33	South Channel Head Box, Big Valley Drainage Canal, Wayman Upper Dam, Wayman Support Dam, Wayman Lower Dam						2.90	1,317.22					2.90	1,317.22
	R L Holmes and May L Holmes	94.00	25, 34, 35	South Channel Head Box, Holmes Upper Dam, Holmes Lower Dam						1.20	545.06					1.20	545.06
	J P Miller and Clara Miller	172.40	25, 39, 40, 41	South Channel Head Box, Miller Upper Dam, Miller Middle Dam, Miller Lower Dam						2.15	976.56					2.15	976.56
	Kasper Weigand and Etta Weigand	141.10	25, 42	South Channel Head Box, Weigand-Gerig Dam						1.75	794.88					1.75	794.88
	Charles A Gerig	200.70	25, 42, 43	South Channel Head Box, Weigand-Gerig Dam, Gerig Swamp Dam						2.50	1,135.54					2.50	1,135.54
	W H Hunt Estate Co.	97.90	26	Big Valley Drainage Canal								1.25	567.77			1.25	567.77
	W H Hunt Estate Co.	36.00	52, 53	Gerig, Mouth of Ash Creek								0.20	90.84			0.20	90.84
	James A Hollenbeak and Lela Hollenbeak	207.00	52, 54, 55	Gerig, Watson, Hollenbeak Swale								1.15	522.35			1.15	522.35
	Ardella Babcock and Estate of Andrew Babcock	12.00	52, 54	Gerig, Watson								0.07	31.80			0.07	31.80
	Arad Babcock	91.00	52, 54	Gerig, Watson								0.50	227.11			0.50	227.11

Pit River Water Rights File.xlsx
Ash Creek Decree

Big Valley Pit River (Canby Bridge to Muck Valley Gage, and Excepting Ash Creek) - Modoc County Decree No. 6395

Big Valley Pit River Decree - Between Canby Bridge to Muck Valley Modoc County Decree No. 6395

Seasons of Use
 Continuous, regardless of season
 April 1 through September 30

Name of Claimant	Tributary Group	Diversion No. as per DWR Map	Name of Diversion System	Allotments				Total (cfs)	Total (AF)
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)		
R. M. Bushey		4a	Unnamed Spring	0.05	18.15			0.05	18.15
Merlin Kennedy and Erna Kennedy		5, 6	Upper Turner Creek	0.72	261.34			0.72	261.34
E. W. Caldwell and Rose Marie Caldwell		6a	Hulbert Creek	0.86	312.16			0.86	312.16
Robert Sherer and A. F. Gerig		12a	Stone Coal Creek	1.15	417.42			1.15	417.42
W. O. Graveler		11	Stone Coal Creek	--				0.00	0.00
Robert Sherer and A. F. Gerig		10a	Tom Delains Creek	1.36	493.65			1.36	493.65
George W. Hines, Marvin A. Hines, and Mason Hines		14a	Holl Creek	0.07	25.41			0.07	25.41
H. S. Loreoz and Flora Richards, Executrix		5, 6	Holl Creek	0.07	25.41			0.07	25.41
George W. Hines, Marvin A. Hines, and Mason Hines		14f	Holl Creek	1.14	413.79			1.14	413.79
J. H. Duncan and Marian Duncan		14d	Holl Creek	0.57	206.90			0.57	206.90
Gladys Troy		15a	Lower Turner Creek	2.28	827.58			2.28	827.58
George W. Hines, Marvin A. Hines, and Mason Hines		15b	Lower Turner Creek	0.57	206.90			0.57	206.90
R. E. Potter, Joe L. Potter, L. J. Potter, and Forrest D. Potter		29b	Egg Lake Slough-Taylor Creek	2.28	827.58			2.28	827.58
Albert W. Joiner and Lillian B. Joiner		29c	Egg Lake Slough-Taylor Creek	0.33	119.78			0.33	119.78
R. E. Potter, Joe L. Potter, L. J. Potter, and Forrest D. Potter		29a	Egg Lake Slough-Taylor Creek	1.22	442.83			1.22	442.83
L. W. Kramer		29d	Egg Lake Slough-Taylor Creek	1.86	675.13			1.86	675.13
J. H. Holl and Kenneth K. Holl		204.00	Egg Lake Slough-Taylor Creek			2.92	1,059.89	2.92	1,059.89
Richard Hemsted and Karl Hemsted		46, 43a	Egg Lake Slough-Taylor Creek						
W. Lee Jr.		30, 31, 32, 33, 34, 35	Widow Valley Creek	5.72	2,076.22			5.72	2,076.22
L. W. Kramer		4.00	Widow Valley Creek	0.06	21.78			0.06	21.78
L. W. Kramer		36	Widow Valley Creek			2.86	1,038.11	2.86	1,038.11
W. L. Gray		1,075.00	Widow Valley Creek					15.40	5,589.82
W. L. Gray		1.00	Knox Spring	0.02	7.26			0.02	7.26
W. L. Gray		47b	Knox Spring Channel	0.01	3.63			0.01	3.63
Gerald G. Packwood		76.00	Bassett Hot Springs	1.08	392.01			1.08	392.01
Charles A. Gerig and W. L. Gray		28.00	Bassett Hot Springs			0.40	145.19	0.40	145.19
Norris Gerig		133.00	Bull Run Slough	1.90	689.65			1.90	689.65
Alvin E. Watson and Mary V. Watson		28, 43	Bull Run Slough					2.28	827.58
Andrew C. Babcock and Dorothy J. Babcock		160.00	Bull Run Slough			2.40	871.14	2.40	871.14
S. J. Thompson		168.00	Bull Run Slough					0.57	206.90
Frank Iverson		40.00	Bull Run Slough					5.33	1,934.66
Frank Iverson		372.50	Juniper Creek	5.33	1,934.66			5.33	1,934.66
Subtotal, Tributary Group				23.79	8,635.18	10.45	3,793.09	34.99	12,667.83
Big Valley Pit River Group				17.75	6,442.81	10.45	3,793.09	34.99	12,667.83
Klaus Holey		37.00	Widow Valley Creek	0.53	192.38			0.53	192.38
R. M. Bushey		152.00	Widow Valley Creek	2.17	787.66			2.17	787.66
Alden Miller		211.00	Widow Valley Creek	3.02	1,096.19			3.02	1,096.19
Robert Sherer and A. F. Gerig		100.00	Widow Valley Creek	1.43	519.05			1.43	519.05
C. M. Shaw and R. Shaw		134.50	Widow Valley Creek	1.92	696.91			1.92	696.91
R. A. Blair		60.50	Bull Run Slough	0.86	312.16			0.86	312.16
R. D. Kerley and Angel E. Kerley (Cris Ranch)		110.00	Bull Run Slough	1.57	569.87			1.57	569.87
R. D. Kerley and Angel E. Kerley (Home Ranch)		880.00	Bull Run Slough	1.94	704.17			1.94	704.17
J. H. Duncan and Marian Duncan		200.00	Bull Run Slough	2.86	1,038.11			2.86	1,038.11
Kenneth K. Gould		84.00	Bull Run Slough	1.20	435.57			1.20	435.57

Y required.

Pit River Water Rights File.xlsx
 Big Valley Pit River Decree

Big Valley Pit River (Canby Bridge to Muck Valley Gage, and Excepting Ash Creek) - Modoc County Decree No. 6395

Big Valley Pit River Decree - Between Canby Bridge to Muck Valley Modoc County Decree No. 6395

Seasons of Use
 Continuous, regardless of season
 April 1 through September 30

Name of Claimant	Diversion No. as per DWR Map	Name of Diversion System	Allotments				Total (cfs)	Total (AF)
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)		
George A Hines, Marvin A Hines, and Mason Hines	508.00		7.26	2,635.20	4.10	1,488.20	7.26	2,635.20
Gladys Troy	112.00		1.60	580.76	3.06	1,110.70	1.60	580.76
Albert W Joiner and Lillian B Joiner (Upper Ranch)	160.00		2.28	827.58	2.84	1,030.85	2.28	827.58
Albert W Joiner and Lillian B Joiner (Miller Ranch)	263.00		3.76	1,364.79	0.85	308.53	3.76	1,364.79
Albert W Joiner and Lillian B Joiner (Home Ranch)	66.00		0.94	341.20	1.00	362.98	0.94	341.20
Ernest C Robinson	178.00		1.77	642.47	9.68	3,513.60	1.77	642.47
F E Vonchampi	31.00		1.73	627.05	3.85	1,397.45	1.73	627.05
F E Roberts	287.00		0.21	76.22	4.10	1,488.20	0.21	76.22
H M Roberts	299.00		3.83	1,390.20	2.84	1,030.85	3.83	1,390.20
Cyril R Mamath	609.00		1.49	540.83	0.85	308.53	1.49	540.83
D J Leventon (Courtright Ranch)	200.00		1.00	362.98	1.00	362.98	1.00	362.98
D J Leventon (Courtright Ranch)	140.00		1.66	602.54	9.68	3,513.60	1.66	602.54
Cornelius Iest	794.00		0.59	214.16	3.85	1,397.45	0.59	214.16
E K Brown and Leila A Brown	331.00		4.50	1,633.39	1.17	424.68	4.50	1,633.39
R E Potter, Joe L Potter, Forrest D Potter, and L J Potter	314.00		2.89	1,049.00	1.17	424.68	2.89	1,049.00
C R Brown, A G Brown, and E K Brown	202.00		3.37	1,223.23	1.17	424.68	3.37	1,223.23
H L Hayes, Jessie Hayes, and Emma Hayes	537.00		2.27	823.95	6.30	2,280.44	2.27	823.95
Oral Geng and Gertrude M Geng	159.00		6.30	2,280.44	6.30	2,280.44	6.30	2,280.44
W H Hunt Estate Co.	77a		5.74	1,801.99	5.74	1,801.99	5.74	1,801.99
W H Hunt Estate Co.	305.50		5.74	1,801.99	5.74	1,801.99	5.74	1,801.99
L W Kramer	640.50		0.87	315.79	0.33	119.78	0.87	315.79
E J Raab	61.00		0.33	119.78	0.33	119.78	0.33	119.78
James H Pirzen and Verma L Pirzen	23.00		3.83	1,390.20	3.83	1,390.20	3.83	1,390.20
Peter Geng (Knox Ranch)	268.00		4.66	1,691.46	4.84	1,756.80	4.66	1,691.46
Peter Geng (Home Ranch)	339.00		2.08	754.99	2.08	754.99	2.08	754.99
E V Wing	146.00		0.39	141.56	0.39	141.56	0.39	141.56
Norris Geng	27.00		0.21	76.22	0.21	76.22	0.21	76.22
Alvin E Watson and Mary V Watson	15.00		0.44	159.71	0.44	159.71	0.44	159.71
Ralph T Yordy	31.00		0.17	61.71	0.17	61.71	0.17	61.71
Andrew C Babcock and Dorotha J Babcock	12.00		2.23	809.43	2.23	809.43	2.23	809.43
Aster Babcock	268.00		0.81	294.01	0.81	294.01	0.81	294.01
Arthur Geng	42.00		5.82	2,112.52	5.82	2,112.52	5.82	2,112.52
J H Holl and Kenneth K Holl	407.00		0.47	170.60	0.47	170.60	0.47	170.60
J H Holl and Kenneth K Holl	160.00		0.43	156.08	0.43	156.08	0.43	156.08
Merlin Kennedy	32.50		1.61	584.39	2.74	994.55	1.61	584.39
Aubrey C Bieber and Carmen B Conner	30.00		2.51	911.07	2.51	911.07	2.51	911.07
W M Snipes	193.00		4.56	1,655.17	0.76	275.86	4.56	1,655.17
Mary DeWange Kennedy	176.00		2.20	798.55	2.20	798.55	2.20	798.55
Kenneth McArthur and John R McArthur	320.00		1.71	620.69	1.71	620.69	1.71	620.69
Andrew C Babcock	53.00		9.67	3,509.97	9.67	3,509.97	9.67	3,509.97
Chester Babcock	154.00		5.44	1,974.56	5.44	1,974.56	5.44	1,974.56
R A Babcock	49.00		4.56	1,655.17	4.56	1,655.17	4.56	1,655.17
Krist G Babcock and Beasie J Babcock	120.00		7.58	2,751.35	2.14	776.77	7.58	2,751.35
Ernest G Babcock and Beatrice Stubbfield	49.00		11.23	4,076.21	11.23	4,076.21	11.23	4,076.21
King A of Wales Estate Co	320.00		1.28	464.61	1.28	464.61	1.28	464.61
Kenneth McArthur and John R McArthur	67.00		0.43	156.08	0.43	156.08	0.43	156.08
Kenneth McArthur and John R McArthur, Anna McArthur	320.00		11.23	4,076.21	11.23	4,076.21	11.23	4,076.21
Kenneth McArthur and John R McArthur	66.00		1.28	464.61	1.28	464.61	1.28	464.61
E J Britten and Thelma Britten	876.00		11.50	4,174.21	11.50	4,174.21	11.50	4,174.21
W L Campbell	120.00		0.43	156.08	0.43	156.08	0.43	156.08
S J Thompson	803.50		11.50	4,174.21	11.50	4,174.21	11.50	4,174.21

15 cubic feet per second to maintain channel storage and supply stock water or such amounts as may be reasonable

Pit River Water Rights File.xlsx
 Big Valley Pit River Decree

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Big Valley Pit River (Canby Bridge to Muck Valley Gage, and Excepting Ash Creek) - Modoc County Decree No. 6395

Big Valley Pit River Decree - Between Canby Bridge to Muck Valley Modoc County Decree No. 6395

Seasons of Use
 Continuous, regardless of season
 April 1 through September 30

365.25 days
 183.00 days
 49 days

Name of Claimant	Diversion No. as per DWR Map	Name of Diversion System	Allotments				Total (cfs)	Total (AF)			
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)					
S J Thompson and W H Thompson	304.00		15.00	5,444.63	29.59	10,740.44	43.00	15,607.93	4.34	1,575.31	
Subtotal, Big Valley Pit River Group	15,819.00			154.23	55,981.67	29.59	10,740.44	43.00	15,607.93	241.82	82,330.04
Surplus Class Claimants (in order of priority)	cfs	Acre-feet									
Albert W Joiner and Jillian B Joiner	0.09	28.00	Nov 1 - Apr 1								
Oral Babcock, H W Killebrew, Richard B Keene, Homer C Orland	10.00	892.56	Apr 1 - May 15								
Jack Babcock, H W Killebrew, Richard B Keene, Homer C Orland	11.84	3,600.00	Jan 15 - May 15								
Big Valley Mutual Water Company	8.67	2,635.00	Oct 1 - June 1								
Big Valley Mutual Water Company	0.33	100.00	Oct 1 - June 1								
Big Valley Mutual Water Company	8.60	2,615.00	Oct 1 - June 1								
L W Kramer	6.75	2,476.86	May 1 - Nov 1								
L W Kramer	0.28	86.50	Feb 1 - Apr 1								
L W Kramer	0.09	27.80	Nov 1 - Apr 30								
Russell M Bushey	500 gpd	0.56	Jan 1 - Dec 31								
United States, Modoc Nat'l Forest	1800 gpd	2.02	Apr 1 - Nov 30								
United States, Modoc Nat'l Forest	650 gpd	0.73	May 1 - Oct 30								
United States, Modoc Nat'l Forest	493 gpd	1,500.00	May 1 - Oct 30								
United States, Modoc Nat'l Forest	375 gpd	0.42	May 1 - Oct 30								
United States, Modoc Nat'l Forest	650 gpd	0.73	May 15 - Oct 15								
Clinton Peltier and Do-Be Melton Peltier	0.63	190.00	Nov 1 - Apr 1								
George W Hines, Marvin A Hines and Mason M Hines	0.66	200.00	Oct 1 - May 1								
Alden Miller	0.60	182.00	Oct 1 - Apr 30								
United States, DOI, BLM	0.01	2.23	Oct 1 - May 31								
United States, DOI, BLM	0.00	0.21	Oct 1 - May 31								
California Dept of Water Resources	263.19	80,000.00	Jan 1 - Dec 31								
Pit Soil Conservation District	252.00	76,600.00	Oct 1 - Apr 30								
Total, Surplus Water Claims	568.67	171,140.62									

Name of Claimant	Diversion No. as per DWR Map	Name of Diversion System	Allotments				Total (cfs)	Total (AF)			
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)					
Stone Coal Reservoir project on Big Valley Irrigation District											
Total, Surplus Water Claims	568.67	171,140.62									

Summary
 Tributary Group
 Big Valley Pit River Group
 Total Senior Claimant Groups
 Surplus Water Claimants
Total, Big Valley Pit River Decree Claims
 55.48 20,137.86
 241.82 82,330.04
 297.30 102,467.90
 568.67 171,140.62
865.97 273,608.52

Pit River Water Rights File.xlsx
 Big Valley Pit River Decree

Burney Creek Decree		Burney Creek Decree		Burney Creek Decree	
Burney Creek Decree Shasta County, Decree No. 5111		Burney Creek Decree		Burney Creek Decree	
Seasons of Use		Diversion No. as per DWR Map		Allotment During Irrigation Period	
Continuous, regardless of season		365.25 days		Allotment Face Value (AF)	
May 5 through November 1		181.00 days		Value (AF)	
Name of Claimant	Acres to be supplied	Name of Diversion System	Allotment During Irrigation Period	Allotment Face Value (AF)	
West Side Users					
Richard W Haynes	376.00	Haynes or Creek Laterals	9.45	1,696.31	
J C Erickson	21.00	Erickson	0.60	107.70	
John Snooks	18.00	Snooks	0.50	89.75	
Timothy Desmond	75.00	Cayton or Natural Channel of Burney Creek	1.88	337.47	
Karl Elling	314.00	Cayton or Elling	7.85	1,409.11	
Mary Ann Cornaz	150.00	Greer-Cornaz or Natural Channel of Burney Creek	3.75	673.14	
Ray Vedder	75.00	Greer-Cornaz or Natural Channel of Burney Creek	1.87	335.67	
Subtotal, West Side Users	1,029.00		25.90	4,649.16	
East Side Users					
A R Haynes	50.00	A R Haynes	1.25	224.38	
Fred Greer	87.00	Greer-Cornaz	2.50	448.76	
Mary Ann Cornaz	137.00	Greer-Cornaz	3.42	613.90	
Red River Lumber Co.	175.00	Greer-Cornaz	4.33	777.25	
Ednah M Black	320.00	Greer-Cornaz	8.80	1,579.64	
Karl Elling	200.00	Cayton or Elling	5.00	897.52	
Subtotal, East Side Users	969.00		25.30	4,541.45	
Surplus Water Users					
Karl Elling	71.00	Cayton or Elling	0.90	323.11	
Timothy Desmond	8.00	Cayton or Natural Channel of Burney Creek	0.10	35.90	
Fred Greer	10.00	Greer-Cornaz	0.12	43.08	
Mary Ann Cornaz	32.00	Greer-Cornaz or Natural Channel of Burney Creek	0.40	143.60	
Red River Lumber Co.	150.00	Greer-Cornaz	1.88	674.94	
Ednah M Black	137.00	Greer-Cornaz	1.70	610.31	
Ray Vedder	64.00	Greer-Cornaz or Natural Channel of Burney Creek	0.80	287.21	
Subtotal, Surplus Water Users	472.00		5.90	2,118.15	
Total, Burney Creek Decree	2,470.00		31.50	11,308.76	

Franklin Creek Adjudication - Modoc County Decree No. 3118

Franklin Creek Decree Modoc County Decree No. 3118		Allotments													
Seasons of Use		365.25 days	183.00 days												
		Continuous, regardless of season April 1 through September 30		Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Total (cfs)	Total Face Value (AF)
Name of Claimant		Acreage to be supplied													
Allotments from Franklin Creek															
Earl & Mary Ehrman		15.20			Ehrman	0.18	63.52							0.18	63.52
Ira A & Ida M Hanson		12.80			Hanson North, and/or Hanson Middle			0.16	58.08					0.16	58.08
P Indart		20.55			Indart Main and/or Indart South			0.26	94.37					0.26	94.37
G R Stone		12.80			Stone			0.16	58.08					0.16	58.08
John & Fannie Morrison		20.80			Morrison			0.26	94.37					0.26	94.37
Earl & Bernice Sherer and Bank of America NT&SA		8.00			North Channel			0.10	36.30					0.10	36.30
Paulina Lee		20.80			North Channel			0.26	94.37					0.26	94.37
J G & Mattie M Dawson		20.80			North Channel			0.26	94.37					0.26	94.37
P Indart		50.80			North Channel					0.63	228.67			0.63	228.67
Paulina Lee		52.00			North Channel					1.05	381.12			1.05	381.12
J G & Mattie M Dawson		83.90			North Channel					1.05	381.12			1.05	381.12
Ella M Shartel		10.30			North Channel					0.14	50.82			0.14	50.82
C E & Mary A Crowder		114.20			North Channel					1.43	519.05			1.43	519.05
G R Stone		21.80			Stone Morrison, Morrison, Middle, and/or Morrison Lower					0.28	101.63			0.28	101.63
John & Fannie Morrison		124.60			Morrison, Middle, and/or Morrison Lower					1.56	566.24			1.56	566.24
Earl & Bernice Sherer and Bank of America NT&SA		8.00			Morrison, Middle, and/or Morrison Lower						36.30			0.10	36.30

PIT River Water Rights File.xlsx
Franklin Creek Decree

Franklin Creek Adjudication - Modoc County Decree No. 3118

**Franklin Creek Decree
Modoc County Decree No. 3118**

Seasons of Use
Continuous, regardless of season
April 1 through September 30

365.25 days
183.00 days
days

Name of Claimant	Acreage to be supplied	Diversions No. as per DWR Map	Name of Diversion System	Allotments				Total Face Value (AF)											
				First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)												
Ira A & Ida M Hanson	9.60		Hanson North, Middle, and/or South		43.56														
P Indart	30.80		South Channel	0.12		145.19			0.12		43.56								
Paulina Lee	79.90		South Channel	0.40		308.53			0.40		145.19								
C E & Mary A Crowder	70.50		South Channel	0.85		319.42			0.85		308.53								
Ira A & Ida M Hanson	19.50		Hanson North, Middle, and/or South	0.88					0.88		319.42								
P Indart Paulina Lee	15.60 12.00		Indart Main Lee Upper Morrison																
John & Fannie Morrison	22.50		and/or Morrison Middle																
Earl & Bernice Sherer and Bank of America NT&SA	51.60		Morrison Middle, and/or Morrison Lower																
Total Franklin Creek Allotments	909.35			0.18	63.52	1.46	529.94	8.49	3,081.66	1.53	555.35	0.65	235.93	11.66	4,230.48				

PIT River Water Rights File.xlsx
Franklin Creek Decree

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Hat Creek Adjudication - Shasta County Decree Nos. 5724 and 7858

**Hat Creek Decree
Shasta County Decree No. 5724
Shasta County Decree No. 7858**

Seasons of Use
Continuous, regardless of season
May 1 through October 27
October 28 through April 30

**Summer Season
Winter Season**

365.25 days
180.00 days
185.25 days

Name of Claimant	Name of Diversion System	Allotments	
		Allotment (cfs)	Allotment (AF)
Summer Season Decree No. 5724			
Upper Users, First Rotation - Schedule I			
Harvey W Wilcox	Harvey Wilcox Upper or Lower	2.13	379.34
Vint W Stevenson	Stevenson	2.38	423.97
Carrie Klots Hall and W P Hall	Hall	2.75	490.91
Alec Brown (Indian)	Alec Brown	0.50	89.26
Charles Hawkins	Hawkins	2.25	401.65
Charles Hawkins	Harry Wilcox Middle	1.88	334.71
Harry M Wilcox	Harry Wilcox Upper	5.63	1,004.13
Harry M Wilcox	Harry Wilcox Middle	8.25	1,472.73
R A Wilcox and Amy Wilcox	Harry Wilcox Upper	1.50	267.77
R A Wilcox and Amy Wilcox	Harry Wilcox Middle	13.00	2,320.66
R A Wilcox and Amy Wilcox	Harry Wilcox Lower	1.00	178.51
R A Wilcox and Amy Wilcox	Rube Wilcox	2.88	513.22
Felice Kelly Davis	Rube Wilcox - Davis	2.13	379.34
Holliday Brown (Indian)	Harry Wilcox Middle	1.13	200.83
William Valentine	Valentine Upper	1.13	200.83
William Valentine	Valentine Lower	0.50	89.26
Charles Heryford	Heryford Upper	1.50	267.77
Charles Heryford	Heryford Middle	0.50	89.26
Charles Heryford	Heryford Lower	1.50	267.77
Edith Snook (Indian)	Edith Snook	0.50	89.26
J S Ratledge	Ratledge-Henry Lonquist	3.50	624.79
J S Ratledge	Ratledge-Opdyke-Forest Service	0.88	156.20
Olive Opdyke	Ratledge-Opdyke-Forest Service	5.88	1,048.76
Perry Opdyke, Percy Opdyke	Opdyke	11.88	2,119.83
Henry Lonquist	Ratledge-Henry Lonquist	1.88	334.71
H Morris	Morris Upper or Morris Lower	16.13	2,878.51
Iva Morris (Mrs A L Doty, Iva Doty)	Morris Upper or Morris Lower	6.13	1,093.39
Clare Brown, Fay Brown	Reiger	3.25	580.17
Charles Sidney Gray	Gray	1.00	178.51
Subtotal, Schedule I, First Rotation		103.50	18,476.03
Upper Users, Second Rotation - Schedule II			
	Harvey Wilcox Upper	0.25	44.63
	Harvey Wilcox Lower	0.25	44.63
	Stevenson	0.25	44.63
	Gray	0.13	22.31
	Hall	0.50	89.26
	Alec Brown	0.13	22.31
	Hawkins	0.25	44.63
	Harry Wilcox Upper	0.75	133.88
	Harry Wilcox Middle	1.00	178.51
	Rube Wilcox - Davis	0.50	89.26
	Harry Wilcox Lower	0.25	44.63
	Valentine Upper	0.25	44.63
	Valentine Lower	0.25	44.63
	Heryford Upper	0.25	44.63
	Heryford Middle	0.25	44.63
	Heryford Lower	0.25	44.63
	Edith Snook	0.13	22.31
	Ratledge-Henry Longquist	0.75	133.88
	Ratledge-Opdyke-Forest Service	0.75	133.88
	Opdyke	1.00	178.51
	Morris Upper	0.75	133.88
	Morris Lower	0.75	133.88
	Reiger (for Clare and Fay Brown)	0.50	89.26
Subtotal, Schedule II, Second Rotation		10.13	1,807.44
Lower Users, First Rotation - Schedule III			
Vernon March	Morris Upper or Morris Lower	13.50	2,409.92
Harry A Lonquist	Harry Lonquist	0.75	133.88
Harry A Lonquist	Rieger	3.75	669.42
Harry A Lonquist	Harry Lonquist-Reynolds-Bidwell	2.50	446.28
Harry A Lonquist	Harry Lonquist-Reynolds-East Side	2.25	401.65
Harry A Lonquist	Harry Lonquist-Reynolds-Middle	0.50	89.26
N Reynolds, A N Reynolds (F Allen)	Harry Lonquist-Reynolds-East Side	1.25	223.14

Hat Creek Adjudication - Shasta County Decree Nos. 5724 and 7858

Hat Creek Decree Shasta County Decree No. 5724		Summer Season	
Shasta County Decree No. 7858		Winter Season	
Seasons of Use			
Continuous, regardless of season		365.25	days
May 1 through October 27		180.00	days
October 28 through April 30		185.25	days
Name of Claimant	Name of Diversion System	Allotments	
		Allotment (cfs)	Allotment (AF)
N Reynolds, A N Reynolds (F Allen)	Reynolds Canal	4.00	714.05
N Reynolds, A N Reynolds (F Allen)	Harry Lonquist-Reynolds-Middle	2.50	446.28
N Reynolds, A N Reynolds (F Allen)	Harry Lonquist-Reynolds-Bidwell	3.75	669.42
Henry Lonquist	Henry Lonquist	1.75	312.40
Henry Lonquist	Opdyke	0.13	22.31
Henry Lonquist	Henry & Fritz Lonquist Upper or Henry & Fritz Lonquist Lower	4.50	803.31
Fritz Lonquist	Henry & Fritz Lonquist Upper or Henry & Fritz Lonquist Lower	2.88	513.22
R E Bidwell	Harry Lonquist-Reynolds-Bidwell	8.75	1,561.98
Jeff Bone & Lee Bone (Indians)	Jeff Bone Upper	0.50	89.26
Jeff Bone & Lee Bone (Indians)	Jeff Bone Lower	0.50	89.26
Jeff Bone & Lee Bone (Indians)	Lee Bone	0.50	89.26
Sam Williams (Indian)	Lee Bone	0.50	89.26
Sam Williams (Indian)	Sam Williams	0.75	133.88
Julia Wilson (Indian)	Julia Wilson	2.00	357.02
Joe Wilson (Indian)	Joe Wilson	2.75	490.91
Harry Bob (Indian)	Julia Wilson	3.50	624.79
Ellen Brown (Alan Brown as successor)	Ellen Brown Upper	3.00	535.54
Ellen Brown (Alan Brown as successor)	Ellen Brown Lower	3.25	580.17
Ellen Brown (Alan Brown as successor)	Ellen Brown - W W Brown	4.00	714.05
Ellen Brown (Alan Brown as successor)	Hat Creek (no ditch)	2.00	357.02
W W Brown	Ellen Brown - W W Brown	7.50	1,338.84
W W Brown	Hat Creek (no ditch)	0.50	89.26
Charley Snooks (Indian)	Charley Snooks	0.50	89.26
David Doyel	Doyel	4.50	803.31
David Doyel	Hat Creek (no ditch)	0.50	89.26
David Doyel, Catherine Doyel, Effie May Doyel	Doyel	13.50	2,409.92
David Doyel, Catherine Doyel, Effie May Doyel	Hat Creek (no ditch)	5.75	1,026.45
Bertha Geissner	Bertha Geissner	10.25	1,829.75
Bertha Geissner	Doyel	2.00	357.02
Otto Geissner	Otto Geissner or Hat Creek (No Ditch)	8.00	1,428.10
Subtotal, Schedule III, First Rotation		129.00	23,028.10
Lower Users, Second Rotation - Schedulee IV			
	Henry Lonquist	0.75	133.88
	Henry & Fritz Lonquist Upper	0.38	66.94
	Henry & Fritz Lonquist Lower	0.38	66.94
	Harry Lonquist	0.25	44.63
	Harry Lonquist-Reynolds-Bidwell	1.00	178.51
	Harry Lonquist-Reynolds-East Side	0.75	133.88
	Harry Lonquist-Reynolds-Middle	0.25	44.63
	Reynolds Canal	0.75	133.88
	Jeff Bone Upper	0.13	22.31
	Jeff Bone Lower	0.13	22.31
	Lee Bone	0.25	44.63
	Julia Wilson	0.25	44.63
	Sam Williams	0.25	44.63
	Joe Wilson	0.25	44.63
	Ellen Brown Upper	0.25	44.63
	Ellen Brown - W W Brown	1.00	178.51
	Ellen Brown Lower	0.25	44.63
	Charley Snooks	0.13	22.31
	Doyel	1.00	178.51
	Bertha Geissner	0.25	44.63
	Otto Geissner	0.50	89.26
Subtotal, Schedule IV, Second Rotation		9.13	1,628.93
Schedule 2 - Decree No. 7858			
Harvey W Wilcox	Harvey Wilcox Upper, Harvey Wilcox Middle, and/or Harvey Wilcox Lower	3.06	1,124.36
Vint W Stevenson	Upper Ranch, Stevenson Channel and/or Stevenson	5.20	1,910.68
Ruby F Hencrat and Charles W Gray	Gray	0.75	275.58
Carrie Klotz Hall and W P Hall	Hall	2.79	1,025.15

Hat Creek Adjudication - Shasta County Decree Nos. 5724 and 7858

**Hat Creek Decree
Shasta County Decree No. 5724
Shasta County Decree No. 7858**

**Summer Season
Winter Season**

Continuous, regardless of season
May 1 through October 27
October 28 through April 30

365.25 days
180.00 days
185.25 days

Name of Claimant	Name of Diversion System	Allotments	
		Allotment (cfs)	Allotment (AF)
Mrs M H Shearin	Shearin Upper and/or Shearin Lower	0.96	352.74
Alex Brown (Indian)	Alex Brown	0.25	91.86
Estate of Harry M Wilcox and Emma E Wilcox	Hawkins, Harry Wilcox Upper and/or Harry Wilcox Middle	9.40	3,453.92
Gladys Gertrude Smith, Ermyl Roberta Ward, Ida May Wilcox	Harry Wilcox Middle, Wilcox Lower and/or Wilcox Davis	10.54	3,872.80
Holiday Brown (Indian)	Harry Wilcox Middle, and/or Holiday Brown	0.56	205.77
Dessie Snooks (Indian)	Wilcox-Davis	1.06	389.48
William Valentine and Fred Valentine	Valentine Upper and/or Valentine Lower	0.81	297.62
Charles Heryford	Heryford Upper, Herford Middle, and/or Herford Lower	1.75	643.02
Edith Snooks (Indian)	Edith Snooks	0.25	91.86
J S Ratledge and Sabilla J Ratledge	Ratledge-Lonquist and/or Ratledge-Opdyke-Forest Service	2.19	804.69
Perry Opdyke	Opdyke and/or Ratledge-Opdyke-Forest Service	8.88	3,262.85
Henry Lonquist	Ratledge-Lonquist, Henry Lonquist Upper and/or Henry Lonquist Lower	5.56	2,042.96
Iva Doty and Asa L Doty	Morris Upper and/or Morris Lower	11.12	4,085.91
S E Korns	Reiger	1.63	598.92
Vernon March	Morris Upper and/or Morris Lower	6.75	2,480.21
Harry A Lonquist	Harry Lonquist, Reiger, Lonquist-Reynolds-Bidwell, and/or Lonquist Reynolds	4.88	1,793.10
Sofia U Lonquist	Lonquist-Reynolds-Bidwell and/or Reynolds Dam	5.75	2,112.77
R E Bidwell	Lonquist-Reynolds-Bidwell and/or Bidwell	4.98	1,829.84
L H Sullivan and Eva B Sullivan	Reiger	2.30	845.11
Jackson Bone (Indian)	Bone Upper and/or Bone Lower	0.50	183.72
Lee Bone (Indian)	Lee Bone	0.50	183.72
Sam Williams (Indian)	Lee Bone and/or Williams	0.60	220.46
Julia Wilson (Indian)	Julia Wilson	1.00	367.44
Harry Bob (Indian)	Julia Wilson	1.75	643.02
Lorena Wilson Mitchell, Alta Wilson Mullen, Hattie Wilson, Flora Wilson, and Ira Wilson (Indians)	Joe Wilson	1.38	507.06
Alan Brown	Brown Upper, Brown Lower and/or Ellen Brown-W W Brown	6.13	2,252.40
W W Brown	Ellen Brown, W W Brown	4.60	1,690.21
Kate Snooks, Greely Snooks, Cecilia Barnes, and Dessie Snooks (Indians)	Charley Snooks	0.25	91.86
David Doyel, Catherine Doyel and Effie May Doyel	Doyel and/or Doyel East	12.12	4,453.35
Bertha Geissner	Bertha Geissner and/or Doyel	6.12	2,248.72
Otto Geissner	Otto Geissner	4.00	1,469.75
W E Dunwoody	Jones	0.50	183.72
Clara Grant (Indian)	Grant Upper and/or Grant Lower	0.50	183.72
Subtotal, Schedule 2, Decree No. 7858		131.37	48,270.33

Summary		Allotment (AF)	
Upper Users, First Rotation - Schedule I	Summer Irrigation, Stockwater, Domestic	103.50	18,476.03
Upper Users, Second Rotation - Schedule II		10.13	1,807.44
Lower Users, First Rotation - Schedule III	Summer Irrigation, Stockwater, Domestic	129.00	23,028.10
Lower Users, Second Rotation - Schedule IV		9.13	1,628.93
Schedule 2 - Decree No. 7858	Winter Irrigation, Stockwater, Domestic	131.37	48,270.33
Total, Hat Creek Decrees		383.12	93,210.83

North Fork Pit River Adjudication (Except Franklin Creek) - Modoc County Decree No. 4074

Name of Claimant	Diversion No. as per DWR Map	Acres to be supplied	Allotments					Total cfs	Total AF		
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)				
North Fork Pit River (and all its tributaries except for Franklin Creek) Modoc County Decree No. 4074											
Seasons of Use											
Continuous, regardless of season											
April 1 to September 30											
April 15 to September 30											
Linville Creek and Its Tributaries Claimants											
Grace F Bommer	4.90	1	0.10	72.45					0.10	72.45	
J W Watkins and Dottie Watkins	112.60	2, 3, 4, 5	1.60	1,159.14					1.60	1,159.14	
C C Clarke and Belle Clarke	150.70	6, 7, 8, 9, 10	1.10	796.91	1.10	399.27			2.20	1,196.18	
Milan S Renner	70.00	11, 12	1.01	731.71					1.01	731.71	
Lake Shore Cattle Company	323.20	12, 14b, 14c, 150	0.10	72.45	3.29	1,194.19			3.39	1,266.63	
Subtotal, Linville Creek Group Joseph Creek and Its Tributaries Claimants	661.40		3.91	2,832.65	4.39	1,593.46	0.00	0.00	8.30	4,426.11	
Martin Espil and Lucie Espil	80.00	14, 15, 16, 17, 18	0.65	470.90			0.50	181.49	1.15	652.39	
V L Jacobs and Georgia Jacobs	29.10	19, 152	0.40	289.79					0.40	289.79	
Irvin K Wilson	89.00	20, 21, 22	1.19	862.11			0.09	32.67	1.28	894.78	
LeRoy G Black	21.60	23	0.20	144.89					0.40	145.19	
Carl William Blac	16.40	24	0.20	144.89					0.50	253.79	
Walter Vernon Black, Mildred Black, LeRoy G Black and Capitola Nunn Black	234.20	24, 25	2.15	1,557.60			1.25	453.72	3.40	2,011.31	
Carl William Black, Mable Sophia Black, Walter Vernon Black, Mildred Black, LeRoy G Black and Capitola Nunn Black	62.80	26			1.30	471.87			1.30	471.87	
Walter Vernon Black, Mildred Black, LeRoy G Black and Capitola Nunn Black	253.50	27, 28, 29, 30			1.30	471.87	0.55	199.64	3.55	1,288.56	
Subtotal, Joseph Creek Group Thoms Creek and Its Tributaries Claimants	786.60		4.59	3,325.28	3.30	1,197.82	1.70	617.06	0.00	11.98	6,007.67
Philip W McKinney	2.40	31, 31A, 31B, 32	0.10	72.45					0.10	72.45	
Herman Acty	9.00	38 to 40	0.20	144.89					0.20	144.89	
Robert T Johnstone and Jeanne Mary Johnstone	18.90	33, 34, 35, 36	0.10	72.45	0.38	127.38			0.48	199.82	
Alfred DeWitt	69.10	37, 41 to 45	0.30	217.34	1.05	351.97			1.35	569.31	
Clyde Hays and Ruth Hays	33.20	46, 47 to 53, 57 to 59, 61	0.27	195.60	0.98	328.50			1.25	524.11	
Howard Royce and Pearl Royce	38.40	54, 55, 56	0.04	28.98	0.42	140.79			0.46	169.77	
Clara May DeWitt and Willie DeWitt	4.00	56A			0.06	20.11			0.06	20.11	

Pit River Water Rights File.xlsx
North Fork Pit River Decree

North Fork Pit River Adjudication (Except Franklin Creek) - Modoc County Decree No. 4074

North Fork Pit River (and all its tributaries except for Franklin Creek) Modoc County Decree No. 4074

Seasons of Use
 Continuous, regardless of season
 April 1 to September 30
 April 15 to September 30

Acres to be supplied
 365.25 days
 183.00 days
 169.00 days

Name of Claimant	Diversions to be supplied	Name of Diversion System	Allotments					Total cfs	Total AF	
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)			
J M Royce	14.60	Royce Upper Thoms, Royce Lower Thoms	0.10	33.52	0.15	50.28		0.25	83.80	
Albert Stiner, Harold A Stiner, and Howard J Stiner	20.00	Stiner Upper, Stiner Lower			0.40	134.08		0.40	134.08	
C A Spaulding and Elsie Spaulding	42.30	Spaulding			0.84	281.57		0.84	281.57	
Rufus S Carter, Charles M Carter, George Carter, Jacob M Carter, Oliver W Carter, Mrs. Jake McJintener, and Mrs T A Read	21.10	Spaulding Lower North			0.30	100.56		0.30	100.56	
The Federal Land Bank of Berkeley	32.40	Baker Upper, Baker North, Baker Lower			0.05	201.12		0.05	217.88	
W F Dukas	1.30	Dukas			0.10	33.52		0.10	33.52	
Subtotal, Thoms Creek Group	306.70		1.01	3.14	2.29	767.62	0.00	0.00	2,551.88	
Ella Russell	64.60	Russell Upper, Russell Middle, Russell Lower	0.20	144.89			0.80	290.38	435.27	
Georgia M Jones	133.00	Jones North, Jones Upper South, Jones Pasture, Jones Middle South, Jones Lower		0.20	144.89	1.80		2.00	144.89	
J B Faulkner	10.00	Faulkner Upper, Faulkner Middle, Faulkner Lower					0.20	72.60	72.60	
United States in Trust	94.30	X L Gleason	0.20	0.40	1.80	0.00	1.15	1.35	562.31	
Subtotal, Gleason Creek Group	301.90						0.80	290.38	4.55	
Parker Creek and Its Tributaries Claimants										
P D McDowell and L Gayle McDowell	155.00	Pepperdine-McDowell, McDowell Upper, McDowell House, McDowell Upper Meadow, McDowell Lower Meadow	0.21	152.14	1.89	686.02	0.15	54.45	2.25	892.61
Wheeler E Pepperdine & Nettie L Pepperdine	46.50	Pepperdine Upper, Pepperdine Lower, Pepperdine House	0.07	50.71	0.63	228.67		0.70	279.39	
W S Trumbo	111.50	Trumbo Upper Shields, Trumbo Lower Shields, Trumbo Upper Isle, Trumbo Lower Isle	0.20	144.89	1.50	544.46		1.70	689.36	
W S Trumbo	12.40	Page Upper, Page Lower			0.20	72.60		0.20	72.60	
Martha E Page	135.20	Page Upper, Page Lower	0.20	144.89	1.70	617.06		1.90	761.95	
Myrtle O Stanton	15.00	Page Upper, Page Lower			0.20	72.60		0.20	72.60	
Martha E Page	23.00	Pepperdine Upper, Pepperm Canyon Reservoir					0.25	90.74	90.74	
Leland Chester Porter, Floyd Eldon Porter, and Oakley Willis Porter	65.00	Plum Creek					0.50	181.49	181.49	
James C Porter, Cleve Smith, and Carlton Porter	40.00	Nikobi	0.10	72.45			0.90	326.68	399.12	
Estate of A R Conklin	72.00	Conklin					0.63	228.67	228.67	
G B Dorris	129.00	Payne Upper, Payne Noth, Payne Lower	0.20	144.89	1.60	580.76		1.80	725.65	

Pit River Water Rights File.xlsx
 North Fork Pit River Decree

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North Fork Pit River Adjudication (Except Franklin Creek) - Modoc County Decree No. 4074

North Fork Pit River (and all its tributaries except for Franklin Creek) Modoc County Decree No. 4074

Seasons of Use
 Continuous, regardless of season
 April 1 to September 30
 April 15 to September 30

365.25 days
 183.00 days
 169.00 days

Acres to be supplied
 100.00
 105, 107, 108, 109
 110.00
 109
 113
 113
 114
 114
 115
 116, 117, 118, 120, 121, 122, 123, 124
 123, 124
 121, 121
 123
 120
 120
 130, 130A
 125, 126
 127, 129A, 130, 131A, 131B, 131B
 131B

Diversion No. as per DWR Map

Name of Claimant

Name of Diversion System

First Priority Class (cfs)

Second Priority Face Value Class (cfs)

Third Priority Face Value Class (cfs)

Fourth Priority Face Value Class (cfs)

Fifth Priority Face Value Class (cfs)

Total cfs

Total AF

Name of Claimant	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	Second Priority Face Value Class (cfs)	Third Priority Face Value Class (cfs)	Fourth Priority Face Value Class (cfs)	Fifth Priority Face Value Class (cfs)	Total cfs	Total AF			
W S Trumbo	100.00	Payne North, Trumbo South Parker, Trumbo North Parker, Stanton	0.20	144.89	1.30	471.87		1.30	471.87			
Myrtle O Stanton	110.00	Stanton	0.20	144.89	1.40	508.17		1.60	653.06			
Electa Fogarty	105.00	Fogarty-Porter	0.20	144.89	1.25	453.72		1.45	598.61			
Martha E Page	24.00	Fogarty Upper	0.35	127.04	0.35	127.04		0.35	127.04			
Electa Fogarty	10.00	Fogarty Lower	0.15	54.45	0.15	54.45		0.15	54.45			
Leland Chester Porter, Floyd Eldon Porter, and Oakley Willis Porter	153.00	Alice Porter, Alice Porter Upper North, Alice Porter Lower North, Parker, Pearl Porter, Alice Porter, Slough Reservoir Pearl Porter	0.20	144.89	1.78	646.10	0.20	72.60	863.58			
Pearl F Gibson and C C Gibson	159.00	Porter-Porter, Porter Upper	0.20	144.89	0.63	228.67	0.29	105.26	478.83			
Pearl F Gibson and C C Gibson	33.50	Parker	0.40	289.79	0.50	181.49		0.50	181.49			
James C Porter and Estate of Phear E Porter	86.00	X L Parker	0.95	344.83	0.95	344.83		1.35	634.61			
United States in Trust	160.00	Arnold P & J Porter Middle Board Dam, Porter West	0.20	144.89	2.77	1,005.44		2.97	1,150.33			
Pearl F Gibson and C C Gibson	41.50	Porter Lower	0.65	235.93	0.65	235.93		0.65	235.93			
James C Porter and Estate of Phear E Porter	67.50	Porter West, X L Parker, J C Porter Lower	0.20	144.89	0.95	344.83		1.15	489.72			
James C Porter	81.00	Porter Lower	1.30	471.87	1.30	471.87		1.30	471.87			
Subtotal, Parker Creek Group North Fork of Pit River Claimants	1,935.10		2.58	1,869.11	15.58	5,655.15	2.92	1,059.89	0.00	27.20	10,805.56	
M R Woody	19.50	Woody	0.35	253.56				0.35	253.56			
United States in Trust	423.00	X L Upper Lauer, Lauer, X L Middle, X L Lower	7.00	5,071.24				7.00	5,071.24			
C J Clarke Co	10.30	X L Upper Lauer, Lauer, X L Middle, X L Lower Lauer	0.20	144.89				0.20	144.89			
Frank McArthur	635.20	North Fork	0.20	144.89				0.20	144.89			
Charles Bettendorff and George Bettendorff	36.70	North Fork	0.20	144.89				0.20	144.89			
Reagan M Hoesch	16.00	North Fork	0.80	290.38				0.80	290.38			
A Bolliger and A Keller	55.20	North Fork	0.20	144.89				0.20	144.89			
Sarah Laird, Eda Laird, James R Laird, Milfred (Laird) Kenfield, and Fannie F Laird	136.90	North Fork	0.20	144.89				0.20	144.89			
Estate of B F Lympp, deceased	550.70	North Fork	0.20	144.89				0.20	144.89			
C A Raker	130.50	North Fork	0.20	144.89				0.20	144.89			
A Bolliger and A Keller	236.70	Gloster, Hughes	0.20	144.89				0.20	144.89			
John C Noer	10.00	Gloster, Hughes	0.16	58.08				0.16	58.08			
M J Gloster & Annie G Gloster	68.30	Gloster, Hughes, Walls Pump, Walls & Gloster	2.00	725.95				2.00	725.95			
Mary E Walls & Eleanor W Asher	85.80	Gloster, Hughes, Walls Pump, Walls & Gloster	1.44	522.68				1.44	522.68			
Kirk Williams	5.00	Gloster, Walls Pump, Walls & Gloster	0.40	145.19				0.40	145.19			
P S Dorris	1,985.90	Hughes	6.33	2,297.63				6.33	2,297.63			
G B Dorris and Beryl Parker Dorris	1,626.20	Hughes	6.33	2,297.63				6.33	2,297.63			
W E Minard	26.50	Hughes	0.30	108.89				0.30	108.89			
O D Austin and Thelma Austin	132.30	Butcher	0.73	264.97				0.73	264.97			
Subtotal, North Fork of Pit River Group	6,378.90		8.15	5,904.37	8.00	2,903.80	16.79	6,094.35	2.94	1,067.15	52.08	21,849.87
Special Class Continuous Usage	2.55											
C T Watkins	1,847.38											

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 North Fork Pit River Decree

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North Fork Pit River Adjudication (Except Franklin Creek) - Modoc County Decree No. 4074

North Fork Pit River (and all its tributaries except for Franklin Creek) Modoc County Decree No. 4074

Seasons of Use
 Continuous, regardless of season
 April 1 to September 30
 April 15 to September 30

365.25 days
 183.00 days
 169.00 days

Name of Claimant	Diversion No. as per DWR Map	Name of Diversion System	Allotments					Total cfs	Total AF
			First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (AF)	Fifth Priority Class (AF)		
Grace F Bommer	0.03	21.73							
Electa Fogarty	1.00	724.46							
United States in Trust	0.10	72.45							
Subtotal, Special Class Continuous	3.68	2,666.02							
Surplus Class (Apr 1 - Sep 30)									
James C Porter	1.15	417.42							
Subtotal, Surplus Class	1.15	417.42							
Special Class (Apr 15 - Sep 30)									
J. W. Koenig	2.40	804.50							
F. L. Wallace and A.H. Koenig	0.20	67.04							
F. L. Wallace and Jane Wallace	2.40	804.50							
Subtotal, Special Class Apr 15-Sep 30	5.00	1,676.03							

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 North Fork Pit River Decree

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North Fork Pit River Adjudication (Except Franklin Creek) - Modoc County Decree No. 4074

North Fork Pit River (and all its tributaries except for Franklin Creek) Modoc County Decree No. 4074

Seasons of Use
 Continuous, regardless of season
 April 1 to September 30
 April 15 to September 30

365.25 days
 183.00 days
 169.00 days

Name of Claimant	Name of Diversion System	Allotments					Total AF
		First Priority Class (cfs)	Second Priority Class (cfs)	Third Priority Class (cfs)	Fourth Priority Class (cfs)	Fifth Priority Class (cfs)	
	Acquire to DWR Map						
	No. as per DWR Map						
	Total cfs	8.30	4,426.11				
Summary							
Linville Creek Group		11.98	6,007.67				
Joseph Creek Group		6.44	2,551.88				
Thoms Creek Group		4.55	1,215.07				
Gleason Creek Group		27.20	10,805.56				
Parker Creek Group		52.08	21,869.87				
North Fork Pit River Group		1.48	2,167.42				
Special Class Apr 15-Sep 30 Group		1.15	417.42				
Total, All Groups		110.55	46,856.17				

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 North Fork Pit River Decree

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Rattlesnake Creek/Pit River in Hot Spring Valley Adjudication - Modoc County (Book 17, Page 151)

**Rattlesnake Creek Decree (Pit River in Hot Springs Valley)
Modoc County Decree Recorded in Book 17, page 171**

Seasons of Use

Continuous, regardless of season	365.25	days
April 1 through September 30	183.00	days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments	
				Allotment (cfs)	Allotment (AF)
Schedule 2, Allotments from Rattlesnake Creek and Pit River					
Spicer Corporation	399.00		Rattlesnake	2.00	725.95
P S Dorris and Bank of Modoc County (Hoy & Christen)	167.00		Butcher	1.15	417.42
Emma Godfrey	71.00		Barnes	0.90	326.68
Emma Godfrey, Estate of J W Cummins, A H Layton, John Strawn	124.00		Cummins	0.20	72.60
Hot Spring Valley Irrigation District, Estate of McBrien and McConnell, John Lybarger	225.00		McBrien	2.45	889.29
James M Edwards, Estate of G C Lindauer, Hot Spring Valley Irrigation District (Lindauer)	521.00		Lindauer Upper	0.80	290.38
Estate of G C Lindauer, Hot Spring Valley Irrigation District	242.00		Lindauer Lower	0.55	199.64
Estate of G C Lindauer, Frank McArthur, John Kelley, C S Baldwin, Hot Springs Valley Irrigation District	492.00		McArthur Upper	0.60	217.79
Frank McArthur	140.00		McArthur Lower	0.45	163.34
Frank McArthur, Bank of Modoc County (Claussen), Federal Land Bank of Berkeley	253.00		Claussen	0.40	145.19
Bank of Modoc County (Claussen), Ira Hulbert, Bank of Modoc County (Connelly), George Fellencer, Katherine E Hazelton, California Joint Stock Land Bank (Fitzhugh)	538.00		Fellencer	0.20	72.60
California Joint Stock Land Bank (Fitzhugh), Bank of Modoc County (Connelly)	273.00		Fitzhugh	0.65	235.93
California Joint Stock Land Bank (Fitzhugh), Bank of Modoc County (Connelly), George Fellencer, Estate of G L Kramer	220.00		Marie Caldwell Upper	0.40	145.19
Estate of G L Kramer	100.00		Marie Caldwell Lower	0.55	199.64
G B Wilcox	166.00		Warren Caldwell	1.10	399.27
G B Wilcox	99.00		Hughes	0.40	145.19
Federal Land Bank of Berkeley	28.00		Howe	0.80	290.38
Federal Land Bank of Berkeley (Howe), Lizzie D Pope	89.00		Lizzie Pope	0.40	145.19
Hot Spring Valley Irrigation District (Shelton)	0.00		No Dam	Stockwater	0.00
Hot Spring Valley Irrigation District (Anklin)	0.00		No Dam		0.00
Hot Spring Valley Irrigation District (Mohr)	0.00		No Dam		0.00
Mary L Elledge	0.00		No Dam		0.00
Dora H Kelley	0.00		No Dam		0.00
Subtotal, Schedule 2	4,147.00			14.00	5,081.65
Schedule 3 Allotments from Pit River and Rattlesnake Creek					
Estate of J M Clark	22.00		Kelley Ditch	0.44	159.71
Emma Godfrey	3.00		Kelley Ditch	0.06	21.78
Estate of J W Cummins	37.00		Kelley Ditch	0.74	268.60
S B and B L Kelley	43.00		Kelley Ditch	0.86	312.16
S B Kelley	4.00		Kelley Ditch	0.08	29.04
Dora B Kelley	82.00		Kelley Ditch	1.64	595.28
A H Layton	1.00		Kelley Ditch	0.02	7.26
T W Lush	15.00		Kelley Ditch	0.30	108.89
Spicer Corporation	35.00		Rattlesnake Canal	0.70	254.08
Pickering Lumber Company	39.00		Rattlesnake Canal	0.78	283.12
Spicer Corporation	364.00		Rattlesnake Creek and/or Rattlesnake Canal	7.28	2,642.46
Bank of Modoc County	4.00		Rattlesnake Creek and/or Rattlesnake Canal	0.08	29.04
P S Dorris	39.00		Butcher Dam	0.78	283.12
Bank of Modoc County	128.00		Butcher Dam	2.56	929.22
Emma Godfrey	71.00		Barnes Dam	1.42	515.42
Estate of J W Cummins	35.00		Barnes Dam, Cummins Dam, and/or Kelley Ditch	0.70	254.08

Rattlesnake Creek/Pit River in Hot Spring Valley Adjudication - Modoc County (Book 17, Page 151)

**Rattlesnake Creek Decree (Pit River in Hot Springs Valley)
Modoc County Decree Recorded in Book 17, page 171**

Seasons of Use

Continuous, regardless of season	365.25	days
April 1 through September 30	183.00	days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments	
				Allotment (cfs)	Allotment (AF)
A H Layton	32.00		Barnes Dam, Cummins Dam, and/or Kelley Ditch	0.64	232.30
Emma Godfrey	57.00		Barnes Dam, Cummins Dam, and/or Kelley Ditch	1.14	413.79
John Strawn	3.00		Barnes Dam, Cummins Dam, and/or Kelley Ditch	0.06	21.78
Hot Spring Valley Irrigation District	179.00		McBrien Dam	3.58	1,299.45
Estates of McBrien and McConnell	30.00		McBrien Dam	0.60	217.79
John Lybarger	16.00		McBrien Dam	0.32	116.15
James M Edwards	44.00		Lindauer Upper Dam	0.88	319.42
Estate of G C Lindauer	136.00		Lindauer Upper Dam	2.72	987.29
Hot Spring Valley Irrigation District	83.00		Lindauer Upper Dam	1.66	602.54
Estate of G C Lindauer	59.00		Lindauer Upper and/or Lower Dam	1.18	428.31
Hot Spring Valley Irrigation District	441.00		Lindauer Upper and/or Lower Dam	8.82	3,201.44
Estate of G C Lindauer	20.00		Lindauer Upper Dam, Lindauer Lower Dam, and/or McArthur Upper Dam	0.40	145.19
Frank McArthur	542.00		McArthur Upper and/or Lower Dam	10.84	3,934.65
John Kelley	12.00		McArthur Upper and/or Lower Dam	0.24	87.11
C S Baldwin	47.00		McArthur Upper and/or Lower Dam	0.94	341.20
Hot Spring Valley Irrigation District	65.00		McArthur Upper and/or Lower Dam	1.30	471.87
Frank McArthur	122.00		McArthur Upper Dam, McArthur Lower Dam, and/or Claussen Dam	2.44	885.66
Federal Land Bank of Berkeley	37.00		Claussen Dam	0.74	268.60
Bank of Modoc County	65.00		Claussen Dam, and/or Fellencher Dam	1.30	471.87
Katherine E Hazelton	94.00		Fellencher Dam	1.88	682.39
George Fellencher	259.00		Fellencher Dam	5.18	1,880.21
Bank of Modoc County	107.00		Fellencher Dam	2.14	776.77
Ira Hulbert	23.00		Fellencher Dam	0.46	166.97
California Joint Stock Land Bank	50.00		Fellencher Dam and/or Fitzhugh Dam	1.00	362.98
California Joint Stock Land Bank	228.00		Fitzhugh Dam	4.56	1,655.17
Bank of Modoc County	25.00		Fitzhugh Dam	0.50	181.49
California Joint Stock Land Bank	4.00		Marie Caldwell Upper Dam	0.08	29.04
Bank of Modoc County	73.00		Marie Caldwell Upper Dam	1.46	529.94
George Fellencher	54.00		Marie Caldwell Upper Dam	1.08	392.01
Estate of G L Kramer	89.00		Marie Caldwell Upper Dam	1.78	646.10
Estate of G L Kramer	100.00		Marie Caldwell Lower Dam	2.00	725.95
G B Wilcox	166.00		Warren Caldwell Dam	3.32	1,205.08
G B Wilcox	10.00		Hughes Dam	0.20	72.60
Annie Hughes	89.00		Hughes Dam	1.78	646.10
Federal Land Bank of Berkeley	28.00		Howe Dam	0.56	203.27
Federal Land Bank of Berkeley	25.00		Lizzie Pope Dam	0.50	181.49
Lizzie D Pope	64.00		Lizzie Pope Dam	1.28	464.61
Subtotal Schedule 3	4,400.00			88.00	31,941.82
Summary		Allotment (cfs)	Allotment (AF)		
Schedule 2		14.00	5,081.65		

Rattlesnake Creek/Pit River in Hot Spring Valley Adjudication - Modoc County (Book 17, Page 151)

**Rattlesnake Creek Decree (Pit River in Hot Springs Valley)
Modoc County Decree Recorded in Book 17, page 171**

Seasons of Use

Continuous, regardless of season	365.25	days
April 1 through September 30	183.00	days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments	
				Allotment (cfs)	Allotment (AF)
Schedule 3	88.00	31,941.82			
Total	102.00	37,023.47			

Roaring Creek Stream System Adjudication - Shasta County Decree No. 83723

Roaring Creek Decree Shasta County, Decree No. 83723		Seasons of Use		Allotments		First Priority		Second Priority		Third Priority		Fourth Priority		Total AF	
Name of Claimant	Diversion No. as per DWR Map	Acreage to be supplied	Days	First Priority Class (cfs)	Face Value (AF)	Second Priority Class (cfs)	Face Value (AF)	Third Priority Class (cfs)	Face Value (AF)	Fourth Priority Class (cfs)	Face Value (AF)	Total cfs	Face Value (AF)	Total AF	
Continuous, regardless of season	365.25	days	215.00	0.06	43.47	0.00	0.00	0.00	0.00	0.00	0.00	0.06	43.47	43.47	
April 1 through November 1	150.25	days	150.25	0.05	36.22	0.00	0.00	0.00	0.00	0.00	0.00	0.05	36.22	36.22	
November 1 through April 1		days		0.11	79.69	0.00	0.00	0.00	0.00	0.00	0.00	0.11	79.69	79.69	
Miscellaneous Claims															
Subtotal, Schedule 6,															
Paragraph 19; Winter Season Domestic and Stockwater Entitlement															
Schedule 3, Roaring Creek															
Claimants															
U S Forest Service				0.01	2.98										
Roseberg Lumber Co				0.05	2.98										
Reich, Walter H and Annabel	3	16.00		0.01	2.98										
Vopat, Frank		10.00		0.01	2.98										
Parham, Eugene and Linda et al	3	19.00		0.01	2.98										
Epperson, Ronald T and Theresa M	3	4.00		0.01	2.98										
Henry, Lynn and Christine	5	15.00		0.01	2.98										
Carroll, Jerry T and Charlene C	5	25.00		0.01	2.98										
Miller, Jack O and Helen	6	2.00		0.01	2.98										
Leonard, Vernon I and Leona J	6	10.00		0.01	2.98										
Caldwell, F B III and Easton, R B	6	5.00		0.01	2.98										
Easton, Robert B and Constance C	6	3.00		0.01	2.98										
Cantrell, Gloria	6	2.00		0.01	2.98										
Bay Histology Service	2	2.00		0.01	2.98										
Meckley, Chester and Mary J	6	Domestic													
Terry, Eugene F and Marsha P		Domestic													
Van Steene, Jack L and Doris A		Domestic													
Nipper, Jack J and Grace M		Domestic													
Reddick, Arthur C and Sally		Domestic													
Swain, Susan Marie Wimble		Domestic													
Garnett, Bernard E and Ruth M		Domestic													
Close, James and Lucille	1	1.00		0.01	2.98										
Wilson, Thomas E and Gayle A		Domestic													
Richard, Charles L and Evelyn A	3	3.00		0.01	2.98										
Roderick, James C and Delores J	5	5.00		0.01	2.98										
Subtotal, Schedule 3, Roaring Creek Claimants		122.00		0.15	44.70										
Schedule 4, Jake Creek															
Claimants															
Reich, Walter H and Annabel	4	16.00		0.01	2.98										
Vopat, Frank		10.00		0.01	2.98										
Parham, Eugene and Linda et al	4	19.00		0.01	2.98										
Epperson, Ronald T and Theresa M	4	4.00		0.01	2.98										
Subtotal, Schedule 4, Jake Creek Claimants		49.00		0.04	11.92										
Schedule 5, Browns Creek															
Claimants															
Parham, Eugene and Linda et al		19.00		0.01	2.98										
Epperson, Ronald T and Theresa M		4.00		0.01	2.98										
Parham, Eugene and Linda et al		15.00		0.01	2.98										
Henry, Lynn and Christine		25.00		0.01	2.98										
Carroll, Jerry T and Charlene C		25.00		0.01	2.98										

Pit River Water Rights File.xlsx
Roaring Creek Decree

Roaring Creek Stream System Adjudication - Shasta County Decree No. 83723

Roaring Creek Decree Shasta County, Decree No. 83723		Allotments		Allotments		Allotments		Allotments		Allotments		Allotments	
Seasons of Use	365.25 days Continuous, regardless of season April 1 through November 1 November 1 through April 1	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Third Priority Class (cfs)	Third Priority Face Value (AF)	Fourth Priority Class (cfs)	Fourth Priority Face Value (AF)	Total cfs	Total AF
Acreage to be supplied	65.00			0.05	14.90								
Subtotal, Schedule 5, Browns Creek Claimants													
Subtotal, Winter Season Domestic & Stockwater Allotments	236.00			0.24	71.52								
Summary		Total cfs	Total AF										
Subtotal, Schedule 3, Roaring Creek Claimants	6.57	2,822.61											
Subtotal, Schedule 4, Jake Creek Claimants	2.30	980.83											
Subtotal, Schedule 5, Browns Creek Claimants	3.13	1,334.78											
Subtotal, Schedule 6, Miscellaneous Claimants	0.11	79.69											
Subtotal, Winter Season Domestic & Stockwater Allotments	0.24	71.52											
Total, Roaring Creek Stream System Decree Claims	12.35	5,289.43											

South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use

Continuous, regardless of season	365.25	days
April 1 to June 30	91.00	days
April 1 to October 15	198.00	days
July 1 to July 21	21.00	days
July 22 to August 11	21.00	days
August 12 to October 15	65.00	days

Name of Claimant

Acres to be supplied

Diversion No. as per DWR Map

Allotments

First Priority Class (cfs)

Second Priority Class (cfs)

Total AF

Schedule 2, Fitzhugh Creek and Its Tributaries

Claimants

John Blevins, Cecil Blevins, and Willetta L Blevins (Bowman)	67.50	124	North Fitzhugh Creek	0.60	235.64		0.60	235.64
Cornelia A Hershey, Davidella Hershey, Grace H Hershey, D N Hershey, and Florence F Hershey	104.50	125	North Fitzhugh Creek	1.00	392.73	0.60	1.60	628.36
Minnie Derevan	20.10	126, 127	North Fitzhugh Creek	0.50	362.23		0.50	362.23
Walter Cantrall, Elsie A Cantrall, A E Sweeney, and Frances E Sweeney	77.40	128 to 131	Middle and South Fitzhugh Creeks	0.50	362.23		1.20	637.14
Minnie Derevan	46.50	132 to 135	South Fitzhugh Creek	0.60	434.68		0.70	274.91
George M Clark and J E Clark	322.00	137 to 141	Fitzhugh Creek	0.20	144.89	4.40	5.00	2,162.68
Frank McArthur and Ethel M McArthur	316.50	142	Fitzhugh Creek	0.20	144.89	4.70	4.90	1,990.71
W E Armstrong	30.00	142	Fitzhugh Creek	0.20	144.89	0.30	0.50	262.71
Subtotal, Schedule 2, Fitzhugh Creek Claimants	984.50			3.60	2,077.29	11.40	15.00	6,554.38

South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use

Continuous, regardless of season	365.25 days
April 1 to June 30	91.00 days
April 1 to October 15	198.00 days
July 1 to July 21	21.00 days
July 22 to August 11	21.00 days
August 12 to October 15	65.00 days

Schedule 3, South Fork of Pit River and Its Tributaries

Claimants

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total cfs	Total AF	
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)			Second Priority Face Value (AF)
John McGarva, Peter B McGarva, and Phyllis McGarva	121.80	40 to 46	North and South Forks of Parsnip Creek	0.85	615.79	0.90	162.45	1.75	778.24
J C Van Loan	572.20	47, 48, 49	West Valley Creek	3.65	2,644.29	4.50	812.23	8.15	3,456.52
Frank McArthur and Ethel M McArthur	293.30	1	Mill Creek	1.90	746.18			1.90	746.18
John Blevins, Cecil Blevins, and Willetta L Blevins	152.30	5, 6, 7, 9	Mill Creek	0.44	318.76			0.44	318.76
A J Cantrall and Ida Cantrall	22.00	5, 6, 7, 9	Mill Creek	0.85	615.79	1.65	297.82	2.50	913.61
W S Brooks and Ada H Brooks	176.50	2, 3, 4, 7, 8, 9	Mill Creek	0.85	615.79	1.85	333.92	2.70	949.71
Walter Cantrall, Elsie A Cantrall	10.50	2, 3, 4, 7, 8, 9	Mill Creek					0.00	0.00
W S Brooks and Ada H Brooks	114.20	10 to 13	Mill Creek	0.85	615.79	1.15	207.57	2.00	823.36
Bessie Whitman and Della Johnson	24.20	21, 22	Soup Creek					0.00	0.00
Arthur Flournoy	91.90	4	Mill Creek	0.85	615.79	1.15	207.57	2.00	823.36
Bessie Whitman and Della Johnson	48.80	4	Mill Creek					0.00	0.00
Felice Leoni	148.00	2, 3, 4	Mill Creek	0.85	615.79	1.25	225.62	2.10	841.41
Bessie Whitman and Della Johnson	10.20	14	Mill Creek					0.15	27.07
Arthur Flournoy	178.10	23, 24	Mill Creek					2.80	505.39
Bessie Whitman and Della Johnson	19.30	23, 24	Mill Creek					0.00	0.00
George Campbell	52.40	27 to 32	East Creek	0.85	615.79	0.25	45.12	1.10	660.92
Arthur Flournoy	23.70	27 to 32	East Creek					0.00	0.00
Arthur Flournoy	1,736.50	27, 30, 33 to 39	East Creek	5.00	3,622.31	19.80	3,573.82	24.80	7,196.13
Verdi Lumber Company	73.00	50	South Fork of Pit River	0.25	181.12	1.53	276.16	1.78	457.27
Royal E Williams, Marion G Williams and Ann Eliza Duke	150.00	50	South Fork of Pit River					0.70	126.35
Arthur Flournoy	56.70	50	South Fork of Pit River	0.40	289.79	0.70	126.35	0.40	289.79
Arthur Flournoy	80.00	50	South Fork of Pit River	0.33	239.07	1.27	229.23	1.60	468.30
A T Coffman and Eppa W Coffman	171.70	50	South Fork of Pit River	0.18	130.40	1.90	342.94	2.08	473.35
A L Stinson, and Mary E Stinson	7.00	50	South Fork of Pit River	0.08	57.96			0.08	57.96
Douglas McGarva and Margaret McGarva	33.00	50	South Fork of Pit River	0.50	362.23			0.50	362.23
Town of Likely	97.00	51	South Fork of Pit River	0.06	43.47			0.06	43.47
Verdi Lumber Company	93.00	51	South Fork of Pit River	0.40	289.79	0.80	144.40	1.20	434.18
Homer Blevins	101.20	51	South Fork of Pit River	0.40	289.79	0.80	144.40	1.20	434.18
John Blevins, Cecil Blevins, and Willetta L Blevins	101.20	51	South Fork of Pit River	0.40	289.79	0.80	144.40	1.20	434.18

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South Fork Pit River Decree

South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use

Continuous, regardless of season	365.25 days
April 1 to June 30	91.00 days
April 1 to October 15	198.00 days
July 1 to July 21	21.00 days
July 22 to August 11	21.00 days
August 12 to October 15	65.00 days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total cfs	Total AF	
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)			Second Priority Face Value (AF)
Dolph E Van Loan and Eva Van Loan	1.00	51	South Fork of Pit River	0.17	123.16	1.28	231.03	0.00	0.00
W H Flournoy and Gladys W Flournoy	160.50	52	South Fork of Pit River	0.51	369.48	3.84	693.10	4.35	354.19
Gary Williams and Theresa Williams	286.30		South Fork of Pit River	0.68	492.63	5.12	924.14	5.80	1,062.58
J A Hughes and Willie W Hughes	426.60		South Fork of Pit River	0.68	492.63	5.12	924.14	5.80	1,416.77
Frank McArthur and Ethel M McArthur	515.50		South Fork of Pit River	0.25	181.12	1.35	243.67	1.60	1,416.77
Dolph E Van Loan and Eva Van Loan	111.00	53	South Fork of Pit River	0.75	543.35	4.05	731.01	4.80	4,24.79
Dolph E Van Loan and Eva Van Loan	345.00		South Fork of Pit River	0.50	362.23	2.70	487.34	3.20	1,274.36
W H Flournoy and Gladys W Flournoy	294.10		South Fork of Pit River	0.50	362.23	2.70	487.34	3.20	849.57
Arthur Flournoy	10.00		South Fork of Pit River	1.50	1,086.69	3.50	631.74	5.00	0.00
F E Humphrey and Charlotte E Christensen	400.00	54	South Fork of Pit River	0.25	181.12	1.35	243.67	1.60	1,718.43
F E Humphrey, V F Christensen and Charlotte E Christensen	400.00		South Fork of Pit River	0.25	181.12	1.35	243.67	1.60	902.48
Gary Williams and Theresa Williams	170.10	55	South Fork of Pit River	1.25	905.58	43.55	7,860.60	44.80	388.07
Frank McArthur and Ethel M McArthur	3,414.80	56, 58, 59, 61 to 77, 87 to 91	East Side Canal	0.25	181.12	6.65	1,200.30	6.90	8,766.17
Frank McArthur and Ethel M McArthur	230.60	92 to 96, 98	East Side Canal	0.25	181.12	6.65	1,200.30	6.90	541.49
S J Vaughn	17.30	92 to 96, 98	East Side Canal	0.25	181.12	6.65	1,200.30	6.90	45.12
Dolph E Van Loan and Eva Van Loan	480.00	57	East Side Canal	0.25	181.12	6.65	1,200.30	6.90	1,273.12
Mrs Kate H Nelson	526.30	60	East Side Canal	0.25	181.12	6.65	1,200.30	6.90	1,381.41
W E Armstrong	206.00	78 to 86	East Side Canal	0.10	72.45	1.45	261.72	1.55	623.33
W E Armstrong	144.60	97	East Side Canal	0.10	72.45	1.45	261.72	1.55	342.94
Dolph E Van Loan and Charlotte E Christensen	122.30	99	West Side Canal	0.10	72.45	1.45	261.72	1.55	334.17
F E Humphrey, V F Christensen and Charlotte E Christensen	140.00	99	West Side Canal	0.10	72.45	1.45	261.72	1.55	370.26
Dolph E Van Loan and Eva Van Loan	161.80	99	West Side Canal	0.10	72.45	1.45	261.72	1.55	370.26
Frank McArthur and Ethel M McArthur	1,251.10	100 to 104	West Side Canal	0.10	72.45	1.45	261.72	1.55	424.41
F E Humphrey, V F Christensen and Charlotte E Christensen	219.50	105	West Side Canal	0.90	652.02	14.95	2,698.41	15.85	3,350.43
John McGarva, Peter B McGarva, and Phyllis McGarva	175.00	106, 107	West Side Canal	0.15	108.67	2.65	478.31	2.80	586.98
R J Gaustad and Nellie Gaustad	77.00	106, 107	West Side Canal	0.05	36.22	0.95	171.47	1.00	478.69
R O Gaustad	75.00	108	West Side Canal	0.05	36.22	0.95	171.47	1.00	207.69
Raymond Stepp Bertha L Stepp, Lena Graham and Herbie Graham	90.00	108	West Side Canal	0.10	72.45	1.05	189.52	1.15	198.67
Frank McArthur and Ethel M McArthur	1,161.20	109 to 123	West Side Canal	0.80	579.57	13.90	2,508.89	14.70	2,611.97
Subtotal, Schedule 3, South Fork Pit River and Tributaries Claimants	16,271.10			29.48	20,074.85	182.71	30,279.99	196.34	50,354.84
Schedule 3, Surplus Rotational Allotments for Second Priority Class Claimants, July 1 through July 21									

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South Fork Pit River Decree

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South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use

Continuous, regardless of season
 April 1 to June 30 365.25 days
 April 1 to October 15 198.00 days
 July 1 to July 21 21.00 days
 July 22 to August 11 21.00 days
 August 12 to October 15 65.00 days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total cfs	Total AF
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)		
John McGarva, Peter B McGarva, and Phyllis McGarva	121.80	40 to 46	North and South Forks of Parsnip Creek	0.90	37.49			
J C Van Loan	572.20	47, 48, 49	West Valley Creek	4.50	187.44			
Frank McArthur and Ethel M McArthur	293.30	1	Mill Creek					
John Blevins, Cecil Blevins, and Willetta L Blevins	152.30	5, 6, 7, 9	Mill Creek	1.65	68.73			
A J Cantrall and Ida Cantrall	22.00	5, 6, 7, 9	Mill Creek					
W S Brooks and Ada H Brooks	176.50	2, 3, 4, 7, 8, 9	Mill Creek	1.85	77.06			
Walter Cantrall, Elsie A Cantrall								
W S Brooks and Ada H Brooks	10.50	2, 3, 4, 7, 8, 9	Mill Creek					
W S Brooks and Ada H Brooks	114.20	10 to 13	Mill Creek	1.15	47.90			
Bessie Whitman and Della Johnson	24.20	21, 22	Soup Creek					
Arthur Flournoy	91.90	4	Mill Creek	1.15	47.90			
Bessie Whitman and Della Johnson	48.80	4	Mill Creek					
Felice Leoni	148.00	2, 3, 4	Mill Creek	1.25	52.07			
Bessie Whitman and Della Johnson	10.20	14	Mill Creek	0.15	6.25			
Arthur Flournoy	178.10	23, 24	Mill Creek	2.80	116.63			
Bessie Whitman and Della Johnson	19.30	23, 24	Mill Creek					
George Campbell	52.40	27 to 32	East Creek	0.25	10.41			
Arthur Flournoy	23.70	27 to 32	East Creek					
Arthur Flournoy	1,736.50	27, 30, 33 to 39	East Creek	19.80	824.73			
Subtotal, July 1 to 21 Surplus Rotation Claimants	3,795.90			35.45	1,476.60			
Schedule 3, Surplus Rotational Allotments for Second Priority Class Claimants, July 22 through August 11								
Verdi Lumber Company	73.00	50	South Fork of Pit River	1.53	63.73			
Royal E Williams, Marion G Williams and Ann Eliza Duke	150.00	50	South Fork of Pit River	0.70	29.16			
Arthur Flournoy	56.70	50	South Fork of Pit River					
Arthur Flournoy	80.00	50	South Fork of Pit River	1.27	52.90			
A T Coffman and Eppa W Coffman	171.70	50	South Fork of Pit River	1.90	79.14			
A L Stinson, and Mary E Stinson	7.00	50	South Fork of Pit River					
Douglas McGarva and Margaret McGarva	33.00	50	South Fork of Pit River					
Town of Likely								
Verdi Lumber Company	97.00	51	South Fork of Pit River	0.80	33.32			
Homer Blevins	93.00	51	South Fork of Pit River	0.80	33.32			

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 South Fork Pit River Decree

South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use

Continuous, regardless of season	365.25 days
April 1 to June 30	91.00 days
April 1 to October 15	198.00 days
July 1 to July 21	21.00 days
July 22 to August 11	21.00 days
August 12 to October 15	65.00 days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	Allotments			Total cfs	Total AF
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)		
John Blevins, Cecil Blevins, and Willetta L Blevins	101.20	51	South Fork of Pit River	0.80	33.32			
Dolph E Van Loan and Eva Van Loan	1.00	51	South Fork of Pit River			1.28	53.32	
W H Flournoy and Gladys W Flournoy	160.50	52	South Fork of Pit River			3.84	159.95	
Gary Williams and Theresa Williams	286.30		South Fork of Pit River			5.12	213.26	
J A Hughes and Willie W Hughes	426.60		South Fork of Pit River			5.12	213.26	
Frank McArthur and Ethel M McArthur	515.50		South Fork of Pit River			1.35	56.23	
Dolph E Van Loan and Eva Van Loan	111.00	53	South Fork of Pit River			4.05	168.69	
Dolph E Van Loan and Eva Van Loan	345.00		South Fork of Pit River			2.70	112.46	
W H Flournoy and Gladys W Flournoy	294.10		South Fork of Pit River					
Arthur Flournoy	10.00		South Fork of Pit River					
Arthur Flournoy	400.00	54	South Fork of Pit River			3.50	145.79	
F E Humphrey, V F Christensen and Charlotte E Christensen	400.00		South Fork of Pit River			5.00	208.26	
Gary Williams and Theresa Williams	170.10	55	South Fork of Pit River			2.15	89.55	
Frank McArthur and Ethel M McArthur	3,414.80	56, 58, 59, 61 to 77, 87 to 91	East Side Canal	43.55	1,813.98			
Frank McArthur and Ethel M McArthur	230.60	92 to 96, 98	East Side Canal			3.00	124.96	
S J Vaughn	17.30	92 to 96, 98	East Side Canal			0.25	10.41	
Dolph E Van Loan and Eva Van Loan	480.00	57	East Side Canal			6.05	252.00	
Mrs Katie H Nelson	526.30	60	East Side Canal			6.65	276.99	
W E Armstrong	206.00	78 to 86	East Side Canal			2.45	102.05	
W E Armstrong	144.60	97	East Side Canal			1.90	79.14	
F E Humphrey, V F Christensen and Charlotte E Christensen	122.30	99	West Side Canal			1.45	60.40	
Dolph E Van Loan and Eva Van Loan	140.00	99	West Side Canal			1.65	68.73	
Frank McArthur and Ethel M McArthur	161.80	99	West Side Canal			1.95	81.22	
F E Humphrey, V F Christensen and Charlotte E Christensen	1,251.10	100 to 104	West Side Canal	14.95	622.71			
John McGarva, Peter B McGarva, and Phyllis McGarva	219.50	105	West Side Canal			2.65	110.38	
R J Gaustad and Nellie Gaustad	175.00	106, 107	West Side Canal			2.05	85.39	
R O Gaustad	77.00	106, 107	West Side Canal			0.95	39.57	
R O Gaustad	75.00	108	West Side Canal			0.90	37.49	

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South Fork Pit River Decree

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South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use

Continuous, regardless of season	365.25	days
April 1 to June 30	91.00	days
April 1 to October 15	198.00	days
July 1 to July 21	21.00	days
July 22 to August 11	21.00	days
August 12 to October 15	65.00	days

Allotments

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Name of Diversion System	First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	Second Priority Face Value (AF)	Total cfs	Total AF
Raymond Stepp Bertha L Stepp, Lena Graham and Herbie Graham	90.00	108	West Side Canal			1.05	43.74		
Frank McArthur and Ethel M McArthur	1,161.20	109 to 123	West Side Canal			13.90	578.98		
Subtotal, July 22 to August 11 Rotations Claimants	12,475.20					147.26	6,133.80		

Surplus Class Claimants, South Fork Pit River and Tributaries - Rotation Schedule from Paragraph 38 from August 12 to October 15

Name of Claimant	Cubic Feet per Second	Acre-Feet
Mill Creek Ditches	3.00	386.78
East Creek Ditches	3.20	412.56
Parship Creek Ditches	0.50	64.46
West Valley Creek Ditches	1.35	174.05
Masters Ditch	2.00	257.85
Jackson Ditch	1.00	128.93
Corporation Ditch	4.00	515.70
Van Loan Ditch	2.00	257.85
Flourmoy Ditch	2.00	257.85
Williams Ditch	0.70	90.25
East and West Side Canals	8.00	1,031.40
Subtotal, August 12 to October 15 Rotations Claimants	27.75	3,577.69

South Fork Pit River and Its Tributaries Adjudication - Modoc County Decree No. 3273

**South Fork Pit River Decree
Modoc County Decree No. 3273**

Seasons of Use
 Continuous, regardless of season
 April 1 to June 30
 April 1 to October 15
 July 1 to July 21
 July 22 to August 11
 August 12 to October 15

365.25 days
 91.00 days
 198.00 days
 21.00 days
 21.00 days
 65.00 days

Name of Claimant	Acreage to be supplied	Diverison No. as per DWR Map	Name of Diverison System	Allotments			Total cfs	Total AF
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)		
	Cubic Feet per Second	Acre-Feet						
Subtotal, Schedule 2, Fitzhugh Creek Claimants	15.00	6,554.38						
Subtotal, Schedule 3, South Fork Pit River and Tributaries Claimants	196.34	50,354.84						
Subtotal, Basic South Fork Claimants Before Surplus Rotations	211.34	56,909.22						
Subtotal, July 1 to 21 Surplus Rotation Claimants	35.45	1,476.60						
Subtotal, July 22 to August 11 Rotations Claimants	147.26	6,133.80						
Subtotal, August 12 to October 15 Rotations Claimants	27.75	3,577.69						
Grand Total, All Claimants, Basic Plus Surplus Rotations	421.80	68,097.30						

Willow Creek Adjudication - Shasta County Decree No. 87524

**Willow Creek Decree
Shasta County, Decree No.
87524**

Seasons of Use
Continuous, regardless of season
April 1 through November 1
365.25 days
215.00 days
days

Name of Claimant	Acreage to be supplied	Diversion No. as per DWR Map	Use	Allotments		Second Priority Face Value (AF)	Total cfs	Total AF
				First Priority Class (cfs)	First Priority Face Value (AF)			
Schedule 3, Willow Creek Claimants								
Buffington, John L Jr		1	Domestic	Entire Flow of Spring				
Buffington, John L Jr	8.00	2	Irrigation	Entire Flow of Spring				
Buffington, John L Jr		3	Domestic	Entire Flow of Spring				
Bull, Charles E	10.00	21	Irrigation, Fire	Entire Flow of Spring				
Stanbro, Phillip W and Sharon A		5	Domestic, Stockwater	0.01	7.24		0.01	7.24
Stanbro, Phillip W and Sharon A	8.00	5	Irrigation			0.13	0.13	55.44
Colbert, Louis E and Wilma C	15.00	6	Irrigation			0.15	0.15	63.97
Gates, Robert L and Marjorie S		7, 8	Domestic	0.01	7.24		0.01	7.24
Gates, Robert L and Marjorie S	6.00	9	Irrigation, Recreation			0.06	0.06	25.59
Gabriele, Julius and Linda		11	Domestic, Irrigation	0.01	7.24		0.01	7.24
Gabriele, Julius and Linda	30.00	11	Irrigation			0.30	0.30	127.93
Pacific Gas & Electric Co		22	Stockwater	350 gpd	0.39		0.39	0.39
Bertagna, Joseph and Marian L		12	Domestic	0.01	7.24		0.01	7.24
Bertagna, Joseph and Marian L	10.00		Irrigation, Stockwater			0.10	0.10	42.64
Harber, Virgil and Pauline	1.00	15	Domestic	0.01	7.24		0.01	7.24
	88.00		Irrigation	0.05	36.62	0.75	0.80	356.45
Subtotal, Schedule 3 Willow Creek Claimants								
Schedule 4, Minnow and Dunn Creeks Claimants								
Bertagna, Joseph and Marian L	10.00	13	Irrigation			0.10	0.10	42.64
Bertagna, Joseph and Marian L		14	Domestic	0.01	7.24		0.01	7.24
Bertagna, Joseph and Marian L	10.00	14	Irrigation			0.10	0.10	42.64
Bertagna, Paul J and Mary E	4.00	13	Irrigation			0.04	0.04	17.06
Webb, Joyce J		16	Domestic	0.01	7.24		0.01	7.24
Webb, Joyce J	2.00	16	Irrigation			0.02	0.02	8.53
	26.00			0.02	14.49	0.26	0.28	125.37
Subtotal, Schedule 4 Minnow and Dunn Creeks Claimants								
Schedule 5, Post-1914 Appropriate Water Rights								
Puhman, Albert E and Carol J		4	Stockwater		2.30			

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Willow Creek Decree

Willow Creek Adjudication - Shasta County Decree No. 87524

**Willow Creek Decree
Shasta County, Decree No.
87524**

Seasons of Use
Continuous, regardless of season
April 1 through November 1

365.25 days
215.00 days
days

Name of Claimant	Acreage to be supplied	Diversions No. as per DWR Map	Use	Allotments		Total cfs	Total AF
				First Priority Class (cfs)	Second Priority Face Value (AF)		
Gates, Robert L and Marjorie S	2.00		Irrigation, Domestic, Stockwater	10.00			
Lincoln, Richard G and Michele L	10.00		Irrigation, Domestic, Stockwater	20.00			
Gabriele, Julius and Linda	30.00		Irrigation, Domestic, Stockwater	14.40			
Wheeler, Ernest L			Stockwater	10.00			
Shaw, Veldon et al			Stockwater	10.00			
Klein, Frederick & Phyllis	3.00		Irrigation, Domestic	3.00			
Truman, John C and Helen G			Recreation, Fire	0.50			
Subtotal, Post-1914 Appropriate Water Rights	45.00			70.20		0.00	
Summary	Total cfs	Total AF					
Subtotal, Schedule 3 Willow Creek Claimants	0.80	356.45					
Subtotal, Schedule 4 Minnow and Dunn Creeks Claimants	0.28	125.37					
Subtotal, Post-1914 Appropriate Water Rights		70.20					
Total, Willow Creek Decree Claimants	1.08	552.02					

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Willow Creek Decree

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Willow Creek Adjudication - Shasta County Decree No. 87524

**Willow Creek Decree
Shasta County, Decree No. 87524**

Seasons of Use

Continuous, regardless of season
April 1 through November 1

365.25 days
215.00 days

Name of Claimant	Acres to be supplied	Diversions No. as per DWR Map	Use	Allotments			Total cfs	Total AF
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)		
Schedule 3, Willow Creek Claimants								
Burffington, John L Jr	8.00	1	Domestic	Entire Flow of Spring	7.24	0.01	7.24	0.01
Burffington, John L Jr		2	Domestic, Irrigation	Entire Flow of Spring				0.13
Burffington, John L Jr		3	Domestic	Entire Flow of Spring				0.15
Bull, Charles E	10.00	21	Domestic, Irrigation, Fire	Entire Flow of Spring	7.24	0.13	7.24	0.15
Stanbro, Phillip W and Sharon A	8.00	5	Domestic, Stockwater	0.01				55.44
Stanbro, Phillip W and Sharon A		5	Irrigation					63.97
Colbert, Louis E and Wilma C	15.00	6	Irrigation					7.24
Gates, Robert L and Marjorie S	6.00	7, 8	Domestic	0.01	7.24	0.06	25.59	0.01
Gates, Robert L and Marjorie S		9	Irrigation, Recreation	0.01	7.24	0.06	25.59	0.01
Gabriele, Julius and Linda	30.00	11	Domestic, Irrigation					7.24
Gabriele, Julius and Linda		11	Domestic, Irrigation					7.24
Pacific Gas & Electric Co		22	Stockwater	350 gpd	0.39	0.30	127.93	0.30
Bertagna, Joseph and Marian L		12	Domestic	0.01	7.24	0.01	0.39	0.01
Bertagna, Joseph and Marian L	10.00	12	Irrigation, Stockwater	0.01	7.24	0.10	42.64	0.10
Harber, Virgil and Pauline	1.00	15	Domestic	0.01	7.24	0.01	7.24	0.01
Harber, Virgil and Pauline		15	Irrigation					4.26
Subtotal, Schedule 3 Willow Creek Claimants	88.00			0.05	36.62	0.75	319.83	0.80
Schedule 4, Minnow and Dunn Creeks Claimants								
Bertagna, Joseph and Marian L	10.00	13	Irrigation	0.01	7.24	0.10	42.64	0.10
Bertagna, Joseph and Marian L		14	Domestic					0.01
Bertagna, Joseph and Marian L	10.00	14	Irrigation					0.10
Bertagna, Paul J and Mary E	4.00	13	Irrigation					0.04
Webb, Joyce J		16	Domestic	0.01	7.24	0.04	17.06	0.04
Webb, Joyce J		16	Irrigation					0.01
Subtotal, Schedule 4 Minnow and Dunn Creeks Claimants	26.00			0.02	14.49	0.26	110.88	0.28
Schedule 5, Post-1914 Appropriative Water Rights								
Puhlman, Albert E and Carol J	2.00	4	Stockwater		2.30			
Gates, Robert L and Marjorie S			Irrigation, Domestic, Stockwater		10.00			
Lincoln, Richard G and Michele L	10.00		Irrigation, Domestic, Stockwater		20.00			
Gabriele, Julius and Linda	30.00		Irrigation, Domestic, Stockwater		14.40			
Wheeler, Ernest L			Stockwater		10.00			
Shaw, Veldon et al			Stockwater		10.00			
Klein, Frederick & Phyllis	3.00		Stockwater		3.00			
Truman, John C and Helen G			Irrigation, Domestic		0.50			
Subtotal, Post-1914 Appropriative Water Rights	45.00			0.00	70.20			

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Willow Creek Decree

Willow Creek Adjudication - Shasta County Decree No. 87524

**Willow Creek Decree
Shasta County, Decree No. 87524**

Seasons of Use
Continuous, regardless of season
April 1 through November 1

365.25 days
215.00 days

Name of Claimant	Acres to be supplied	Diversion No. as per DWR Map	Use	Allotments			Total AF
				First Priority Class (cfs)	First Priority Face Value (AF)	Second Priority Class (cfs)	
Summary		Total cfs					
Subtotal, Schedule 3 Willow Creek Claimants	0.80	356.45					
Subtotal, Schedule 4 Minnow and Dunn Creeks Claimants	0.28	125.37					
Subtotal, Post-1914 Appropriative Water Rights		70.20					
Total, Willow Creek Decree Claimants	1.08	552.02					

**Deer Creek Decree
Tehama County Suit No. 2449
Stanford Vina Ranch, plaintiff**

	Cubic Feet Per Second	Acre-feet	Source
Total Diversions in Decree	150	108,669	Deer Creek, thence Sacramento River

These rights were subsequently deeded over to Deer Creek Irrigation District in the late 1920s.

Source: Deer Creek Irrigation District Water RightsOperation Model.xls
Deer Creek Decree No. 2449

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Appendix D

**Section D.4
Consumptive Statements of Diversion and Use**

Trinity River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Right Type Claimed	Year of First Use	Season	Purpose of Use	County	Source
S012967	Dept of Fish and Game	109,500.00	Riparian	1963	All	Fish Culture	Trinity	TRINITY RIVER
	Dept of Fish and Game Total	109,500.00						
S013092	EDGAR MURRISON	724.46	Pre-14	1900	All	Irrigation, Stockwater	Trinity	BIG CREEK
S013093	EDGAR MURRISON	1,224.00	Pre-14	1900	All	Irrigation, Stockwater	Trinity	BIG CREEK
S013094	EDGAR MURRISON	2,408.00	Pre-14	1900	All	Irrigation, Stockwater, Hydropower	Trinity	BIG CREEK
	EDGAR MURRISON Total	4,356.46						
S002528	KEITH L GROVES	2,400.00	Pre-14	1866	All	Irrigation, Stockwater, Domestic	Trinity	HALLS GULCH
	KEITH L GROVES Total	2,400.00						
S010724	ROGER P ECKART	2,062.00	Riparian	1875	All	Irrigation, Stockwater, Domestic, Hydropower	Trinity	DYER CREEK
S010725	ROGER P ECKART	12,000.00	Riparian/Pre-14	1875	All	Irrigation, Stockwater, Domestic, Hydropower	Trinity	BELL CREEK
S010726	ROGER P ECKART	265.00	Riparian	1875	All	Irrigation, Stockwater, Domestic, Hydropower	Trinity	UNST AKA GOODWIN CREEK
S012609	ROGER P ECKART	270.00	Riparian	1875	All	Irrigation, Stockwater, Domestic, Hydropower	Trinity	ROBARDS CREEK
S013923	ROGER P ECKART	1,700.00	Pre-14	1875	All	Irrigation, Stockwater, Domestic, Hydropower	Trinity	DIXIE CREEK
	ROGER P ECKART Total	16,297.00						
S000327	WEAVERVILLE COMMUNITY SERVICES DISTRICT	777.29	Pre-14	1891	All	Irrigation, Stockwater, Domestic	Trinity	WEST WEAVER CREEK
S000361	WEAVERVILLE COMMUNITY SERVICES DISTRICT	753.72	Pre-14	1852	All	Domestic	Trinity	EAST WEAVER CREEK
	WEAVERVILLE COMMUNITY SERVICES DISTRICT Total	1,531.01						
	Grand Total	134,084.47						

Trinity River:ixis
SDUs

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Pit River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claimed Amt	Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S001453	ALBERT E PUHLMAN JR	466.00	Pre-14	1884	All	Irrigation, Stockwatering, Domestic	Shasta	NORTH FORK MONTGOMERY CREEK
S001454	ALBERT E PUHLMAN JR	466.00	Pre-14	1884	All	Irrigation, Stockwatering, Domestic	Shasta	SOUTH FORK MONTGOMERY CREEK
S001455	ALBERT E PUHLMAN JR	466.00	Pre-14	1884	All	Irrigation, Stockwatering, Domestic	Shasta	SAWDUST CREEK
S002265	ALBERT E PUHLMAN JR Total	1,398.00						
S002266	CLIFFORD K OILAR	490.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering, Domestic	Modoc	OILAR SPRINGS
S010786	CLIFFORD K OILAR	493.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering, Domestic	Modoc	UNST
S010814	CLIFFORD K OILAR	470.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering, Domestic	Modoc	UNSP
S010815	CLIFFORD K OILAR	490.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering, Domestic	Modoc	OILAR SPRINGS
S010816	CLIFFORD K OILAR	100.00	Riparian/Pre-14	1957	May-Dec	Irrigation, Stockwatering, Domestic	Modoc	UNST
S008735	CLIFFORD K OILAR Total	200.00	Riparian/Pre-14	1940	May-Oct	Irrigation, Stockwatering, Domestic	Modoc	WHIPPLE SPRINGS
S008912	CRAIG MCARTHUR	2,243.00						
S015104	CRAIG MCARTHUR	19,528.00	Riparian/Pre-14	1875	All	Irrigation, Stockwatering, Domestic	Shasta	TULE RIVER
S014558	CRAIG MCARTHUR	1,130.00	Riparian/Pre-14	1875	All	Irrigation, Stockwatering, Domestic	Shasta	PEACOCK CREEK
S014731	CRAIG MCARTHUR	7,242.00	Pre-14	1911	All	Irrigation, Stockwatering, Domestic	Shasta	LEE DRAIN CANAL
S004691	CRAIG MCARTHUR Total	27,900.00						
S012964	Dennis Hoffman	1,135.49	Riparian	1995	Mar-Oct	Irrigation	Lassen	PIT RIVER
S009112	Dennis Hoffman	1,150.83	Riparian	2003	Apr-Sept	Irrigation	Shasta	PIT RIVER
S009113	Dennis Hoffman	2,286.32	Pre-14	1904	All	Fish Culture, Domestic Recreation, Fishing	Modoc	PINE CREEK
S009114	Dennis Hoffman	36,135.00	Riparian	1965	All	Fish Culture, Domestic Recreation, Fishing	Shasta	ROCK CREEK SPRINGS
S009115	Dennis Hoffman	37,599.00	Riparian	1873	All	Irrigation, Stockwatering	Lassen	DAVIS CREEK
S009116	Dennis Hoffman	4,000.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering	Lassen	INDIAN CREEK
S009117	Dennis Hoffman	4,000.00	Riparian	1977	All	Irrigation, Stockwatering	Lassen	UNST
S009118	Dennis Hoffman	2,000.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering	Lassen	LITTLE DAVIS CREEK
S009119	Dennis Hoffman	2,000.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering	Lassen	RUSSEL DAIRY SPRING
S009120	Dennis Hoffman	5,000.00	Riparian/Pre-14	1873	All	Irrigation, Stockwatering	Lassen	BIG JACK LAKE
S009121	Dennis Hoffman	2,173.39	Riparian/Pre-14	1873	All	Irrigation, Stockwatering	Lassen	BIG SPRING
S008053	ED DEVAUL	1,620.00	Riparian	1949	All	Irrigation, Stockwatering, Domestic	Shasta	UNST
S013170	ED DEVAUL	1,620.00	Pre-14	1885	All	Irrigation, Stockwatering	Shasta	CAYTON CREEK
S013171	EDWARD A BOSWORTH JR	0.00	Pre-14	1885	All	Irrigation, Stockwatering, Domestic	Shasta	NORTH FORK CLARK CREEK
S013172	EDWARD A BOSWORTH JR	2,421.17	Pre-14	1885	All	Irrigation, Stockwatering, Domestic	Shasta	CLARK CREEK
S000798	EDWARD A BOSWORTH JR	4,824.34	Pre-14	1885	All	Irrigation, Stockwatering, Domestic	Shasta	CLARK CREEK
S000798	EDWARD A BOSWORTH JR Total	7,245.51						
S000798	ELLEN E TAYLOR	1,451.90	Pre-14	1913	Apr-Nov	Irrigation, Stockwatering	Shasta	LOST CREEK
S000798	ELLEN E TAYLOR Total	1,451.90						

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Pit River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claimed Amt	Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S014380	Glenn A Nader	2,279.00	Riparian	1876	Apr-Sept	Irrigation, Stockwatering	Modoc	WITCHER CREEK
S014381	Glenn A Nader	1,505.00	Pre-14	1873	Jun-Oct	Irrigation, Stockwatering	Modoc	WITCHER CREEK
S014382	Glenn A Nader	2,334.00	Riparian/Pre-14	1876	Mar-Oct	Irrigation, Stockwatering	Modoc	WITCHER CREEK
S014383	Glenn A Nader	420.00	Riparian	1876	Apr-Oct	Irrigation, Stockwatering	Modoc	WITCHER CREEK
S014384	Glenn A Nader	1,021.00	Pre-14	1876	Nov-Mar	Irrigation, Stockwatering	Modoc	WITCHER CREEK
S013765	Glenn A Nader Total	7,559.00		1983	All	Irrigation, Domestic	Shasta	BAKER CREEK
S013766	JOSEPH SCOTT VERMILYEA	8,789.00	Riparian	1914	Mar-Nov	Irrigation, Stockwatering, Domestic	Shasta	STUMP CREEK
S013767	JOSEPH SCOTT VERMILYEA	2,076.00	Pre-14	1914	All	Irrigation, Stockwatering, Domestic	Shasta	LITTLE SHOTGUN CREEK
S001050	JOSEPH SCOTT VERMILYEA Total	720.00		1909	All	Irrigation, Stockwatering	Shasta	FALL RIVER
S008540	KNOCH INC	11,585.00	Riparian/Pre-14	1909	All	Irrigation, Stockwatering	Lassen	TULE LAKE RESERVOIR AKA MOON LAKE
S012914	KNOCH INC Total	19,560.00		1890	All	Irrigation, Stockwatering	Lassen	CEDAR CREEK
S008627	LOWELL L NOVY	0.00	Riparian/Pre-14	1902	May-Oct	Irrigation, Stockwatering	Modoc	DUNCAN RESERVOIR
S014308	LOWELL L NOVY Total	2,920.00		1890	Apr-Sept	Irrigation, Stockwatering	Tehama	UNSP
S014309	MILANO LAND AND CATTLE CO LLC	2,500.00	Pre-14	1900	Apr-Oct	Irrigation, Stockwatering	Shasta	SPRING CREEK
S014310	MILANO LAND AND CATTLE CO LLC Total	850.00		1900	Apr-Oct	Irrigation, Stockwatering	Shasta	SPRING CREEK
S014311	Outfitter Properties LLC-Oasis Springs	195.00	Riparian	1900	Apr-Oct	Irrigation	Shasta	UNSP (AKA VINEYARD SPRING)
S014311	Outfitter Properties LLC-Oasis Springs	500.00	Riparian	1875	Apr-Oct	Irrigation	Shasta	
S002509	Outfitter Properties LLC-Oasis Springs Total	1,700.00		1898	All	Irrigation, Stockwatering, Domestic	Shasta	EAST FORK NELSON CREEK
S016096	R HAMBY	1,600.00	Pre-14	1886	Mar-Oct	Irrigation	Shasta	LITTLE TULE RIVER TO FALL RIVER
S016097	R HAMBY Total	1,000.00		1896	Mar-Oct	Irrigation	Shasta	LITTLE TULE RIVER TO FALL RIVER
S014780	Raymond J Paige	600.00	Riparian/Pre-14	1885	Apr-Oct	Irrigation, Stockwatering	Modoc	PIT RIVER
S014781	Raymond J Paige Total	5,250.00		1900	Apr-Oct	Irrigation, Stockwatering	Modoc	PIT RIVER
S014782	RICHARD L JENNINGS	2,800.00	Riparian/Pre-14	1870	Apr-Oct	Irrigation, Stockwatering	Modoc	RAINSTON GULCH
S014783	RICHARD L JENNINGS	4,500.00	Riparian/Pre-14	1912	Apr-Oct	Irrigation, Stockwatering	Modoc	CANYON CREEK
S014784	RICHARD L JENNINGS Total	22,300.00		1965	Apr-Sept	Irrigation	Shasta	FALL RIVER
S014913	Western Agricultural Services (River Butte Ranch)	150.00	Riparian	1965	Apr-Sept	Irrigation	Shasta	FALL RIVER
S014914	Western Agricultural Services (River Butte Ranch)	400.00	Riparian	1965	Apr-Sept	Irrigation	Shasta	FALL RIVER
S014193	Western Agricultural Services (River Butte Ranch) Total	550.00		1900	Apr-Oct	Irrigation, Stockwatering	Shasta	FALL RIVER
S014194	Western Agricultural Services (Fall River Ranch)	375.00	Riparian	1900	Apr-Oct	Irrigation, Stockwatering	Shasta	FALL RIVER
S014937	Western Agricultural Services (Fall River Ranch) Total	435.00		1930	Apr-Oct	Irrigation	Shasta	FALL RIVER

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Pit River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claimed Amt	Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S014938	Western Agricultural Services (River Ranch L P)	15.00	Riparian	1872	All	Stockwatering, Domestic	Shasta	FALL RIVER
S014939	Western Agricultural Services (River Ranch L P)	550.00	Riparian	1920	Apr-Oct	Irrigation	Shasta	FALL RIVER
S014940	Western Agricultural Services (River Ranch L P)	75.00	Riparian	1950	Apr-Sept	Irrigation	Shasta	FALL RIVER
S014941	Western Agricultural Services (River Ranch L P)	15.00	Riparian	1900	All	Stockwatering, Domestic	Shasta	FALL RIVER
S014942	Western Agricultural Services (River Ranch L P)	15.00	Riparian	1870	All	Stockwatering	Shasta	FALL RIVER
S014943	Western Agricultural Services (River Ranch L P)	425.00	Riparian	1920	Apr-Oct	Irrigation, Stockwatering	Shasta	FALL RIVER
S014944	Western Agricultural Services (River Ranch L P)	70.00	Riparian	1950	Apr-Oct	Irrigation	Shasta	FALL RIVER
S014945	Western Agricultural Services (River Ranch L P)	1,200.00	Riparian	1870	Apr-Oct	Irrigation, Stockwatering	Shasta	FALL RIVER
	Western Agricultural Services (River Ranch L P) Total	2,850.00						
S012933	ROBERT G BAIRD	1,149.00	Pre-14	1872	Apr-Nov	Irrigation, Stockwatering	Modoc	TOMS CREEK
	ROBERT G BAIRD Total	1,149.00						
S012446	ROBERT H MACKEY & SONS INC	570.00	Riparian	1871	Apr-Oct	Irrigation, Stockwatering	Modoc	CANYON CREEK
S012447	ROBERT H MACKEY & SONS INC	570.00	Riparian	1890	Apr-Oct	Irrigation, Stockwatering	Modoc	CANYON CREEK
S014303	ROBERT H MACKEY & SONS INC	720.00	Riparian	1880	All	Irrigation, Stockwatering, Domestic	Modoc	UNSP
	ROBERT H MACKEY & SONS INC Total	1,860.00						
S004672	RONALD L SCHLUTER	1,500.00	Pre-14	1906	May-Oct	Irrigation, Stockwatering	Modoc	BIG DOBIE SOUTH
S004673	RONALD L SCHLUTER	900.00	Pre-14	1906	Apr-Sept	Irrigation	Modoc	BIG DOBIE NORTH
	RONALD L SCHLUTER Total	2,400.00						
S000106	S X RANCH INC	1,000.00	Riparian	1947	Apr-Sept	Irrigation	Lassen	PIT RIVER
S000107	S X RANCH INC	340.00	Riparian	1947	Apr-Oct	Irrigation, Stockwatering	Lassen	PIT RIVER
	S X RANCH INC Total	1,340.00						
S015534	SX Lowry Ranch	2,000.00	Pre-14	1897	Nov-Apr	Irrigation, Stockwatering	Modoc	SALISBURY GULCH AKA UNST
	SX Lowry Ranch Total	2,000.00						
S002877	WILLIAM K HAGGE	525.00	Riparian	1964	May-Sept	Irrigation, Stockwatering	Modoc	PIT RIVER
S002879	WILLIAM K HAGGE	150.00	Riparian	1947	May-Sept	Irrigation, Stockwatering	Modoc	PIT RIVER
S002880	WILLIAM K HAGGE	1,140.00	Riparian/Pre-14	1880	May-Sept	Irrigation, Stockwatering	Modoc	PIT RIVER
S014183	WILLIAM K HAGGE	380.00	Riparian	1945	May-Sept	Irrigation, Stockwatering	Modoc	PIT RIVER
	WILLIAM K HAGGE Total	2,195.00						
	Grand Total	193,565.12						

Feather River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claim Amt	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S013390	A L HANSEN	2,800.00	Pre-14	1860	Apr-Nov	Irrigation	Plumas	GREENHORN CREEK
S000267	A L HANSEN Total	2,800.00						
	ALBANO P BRESCIANI	700.00	Riparian/Pre-14	1857	All	Stockwater	Plumas	CLEAR STREAM
	ALBANO P BRESCIANI Total	700.00						
S001884	Phillip A Bresciani	300.00	Pre-14	1904	May-Sep	Irrigation, Stockwater	Plumas	SPANISH CREEK
	Phillip A Bresciani Total	300.00						
S001885	ALBANO P BRESCIANI	360.00	Riparian/Pre-14	1878	May-Sep	Stockwater	Plumas	MILL CREEK
S001886	ALBANO P BRESCIANI	300.00	Riparian/Pre-14	1878	Apr-Sep	Stockwater	Plumas	MILL CREEK
S002099	ALBANO P BRESCIANI	350.00	Riparian/Pre-14	1872	Apr-Oct	Stockwater	Plumas	GREENHORN CREEK
S002100	ALBANO P BRESCIANI	540.00	Riparian/Pre-14	1877	May-Oct	Stockwater	Plumas	SPANISH CREEK
S002101	ALBANO P BRESCIANI	150.00	Riparian/Pre-14	1873	May-Sep	Stockwater	Plumas	HAUN CREEK
S002102	ALBANO P BRESCIANI	250.00	Riparian/Pre-14	1877	Apr-Aug	Stockwater	Plumas	MILL CREEK
S002103	ALBANO P BRESCIANI	70.00	Riparian/Pre-14	1877	Apr-Oct	Stockwater	Plumas	MILL CREEK
S002104	ALBANO P BRESCIANI	182.00	Riparian/Pre-14	1877	Apr-Oct	Stockwater	Plumas	MILL CREEK
	ALBANO P BRESCIANI Total	2,202.00						
S010594	BERRY CREEK WATER USERS INCORPORATED	2,477.66	Pre-14	1852	All	Irrigation, Stockwater	Butte	BERRY CREEK
	BERRY CREEK WATER USERS INCORPORATED Total	2,477.66						
S002956	BROOKS WALKER ET AL	60.00	Riparian/Pre-14	1900	May-Jun	Irrigation, Stockwater	Lassen	UNNAMED STREAM
S002957	BROOKS WALKER ET AL	90.00	Riparian/Pre-14	1900	May-Jul	Irrigation, Stockwater	Lassen	HOMER CREEK
S002958	BROOKS WALKER ET AL	30.00	Riparian/Pre-14	1900	May-Jun	Irrigation, Stockwater	Lassen	UNNAMED STREAM
S002960	BROOKS WALKER ET AL	30.00	Riparian/Pre-14	1900	May-Jun	Irrigation, Stockwater	Lassen	UNNAMED STREAM
S002962	BROOKS WALKER ET AL	9,306.00	Riparian/Pre-14	1900	May-Oct	Irrigation, Stockwater	Lassen	GOODRICH CREEK
S002963	BROOKS WALKER ET AL	7,866.00	Riparian/Pre-14	1900	May-Oct	Irrigation, Stockwater	Lassen	GOODRICH CREEK
	BROOKS WALKER ET AL Total	17,382.00						
S002315	DEAN PANFILI	225.00	Riparian/Pre-14	1957	Apr-Sep	Irrigation, Stockwater, Domestic	Plumas	LONG VALLEY CREEK
S002316	DEAN PANFILI	175.00	Riparian/Pre-14	1870	May-Sep	Irrigation	Plumas	LONG VALLEY CREEK
S002317	DEAN PANFILI	0.00	Riparian/Pre-14	1856	Apr-Sep	Irrigation, Stockwater	Plumas	LONG VALLEY CREEK

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Feather River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claim Amt	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S002318	DEAN PANFILI	613.78	Riparian/Pre-14	1870	Mar-Sep	Irrigation, Stockwater, Domestic	Plumas	LITTLE LONG VALLEY CREEK
	DEAN PANFILI Total	1,013.78						
S015506	GRAEAGLE LAND & WATER COMPANY	1,279.11	Pre-14	1820	Mar-Oct	Irrigation, Stockwater	Plumas	MOHAWK CREEK
S015913	GRAEAGLE LAND & WATER COMPANY	1,400.64	Pre-14	1820	All	Irrigation, Stockwater, Domestic	Plumas	MOHAWK CREEK
S015914	GRAEAGLE LAND & WATER COMPANY	607.64	Pre-14	1820	Mar-Oct	Irrigation, Stockwater	Plumas	MOHAWK CREEK
	GRAEAGLE LAND & WATER COMPANY Total	3,287.39						
S008734	GRAEAGLE WATER COMPANY A CALIF CORP	990.71	Riparian	1941	All	Irrigation, Stockwater, Domestic	Plumas	GRAY EAGLE CREEK
	GRAEAGLE WATER COMPANY A CALIF CORP Total	990.71						
S013351	MOHAWK VALLEY RANCH, INC	485.80	Pre-14	1880	Mar-Oct	Irrigation, Domestic	Plumas	UNST
S013352	MOHAWK VALLEY RANCH, INC	1,457.72	Riparian	1950	Mar-Oct	Golf Course Irrigation	Plumas	SULPHUR CREEK
S013353	MOHAWK VALLEY RANCH, INC	2,171.85	Riparian	1950	All	Golf Course Irrigation	Plumas	BOULDER CREEK
S013354	MOHAWK VALLEY RANCH, INC	485.96	Pre-14	1880	Mar-Oct	Irrigation	Plumas	BOULDER CREEK
S013355	MOHAWK VALLEY RANCH, INC	485.96	Pre-14	1880	Mar-Oct	Irrigation	Sierra	BOULDER CREEK
S013356	MOHAWK VALLEY RANCH, INC	723.95	Pre-14	1880	All	Golf Course Irrigation	Plumas	UNST
S013357	MOHAWK VALLEY RANCH, INC	1,447.90	Pre-14	1880	All	Golf Course Irrigation	Plumas	UNST
	MOHAWK VALLEY RANCH, INC Total	7,259.15						
S009189	PLUMAS PINES GOLF RESORT	10,700.00	Pre-14	1877	May-Oct	Irrigation	Plumas	JAMISON CREEK
	PLUMAS PINES GOLF RESORT Total	10,700.00						
S002953	RED RIVER FORESTS PARTNERSHIP	894.00	Riparian/Pre-14	1900	May-Oct	Irrigation, Stockwater	Lassen	MOUNTAIN MEADOWS CREEK
S002954	RED RIVER FORESTS PARTNERSHIP	5,660.00	Riparian/Pre-14	1900	May-Oct	Irrigation, Stockwater	Lassen	COTTONWOOD CREEK
	RED RIVER FORESTS PARTNERSHIP Total	6,554.00						

Feather River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claim Amt	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S000262	REID LAND & CATTLE COMPANY	4,346.00	Pre-14	1857	May-Nov	Irrigation, Stockwater	Plumas	GREENHORN CREEK
S000263	REID LAND & CATTLE COMPANY	1,336.00	Pre-14	1857	All	Irrigation, Stockwater, Domestic	Plumas	CHANDLER CREEK
S000264	REID LAND & CATTLE COMPANY	1,217.00	Pre-14	1857	Jun-Nov	Irrigation, Stockwater	Plumas	TAYLOR CREEK
REID LAND & CATTLE COMPANY Total		6,899.00						
S000544	RICHARD D FRIPP II	0.56	Pre-14	1876	All	Irrigation, Stockwater, Domestic	Plumas	COGSWELL RAVINE
S000545	RICHARD D FRIPP II	1,086.69	Pre-14	1856	All	Irrigation, Stockwater, Domestic	Plumas	LONG VALLEY CREEK
RICHARD D FRIPP II Total		1,087.25						
S000266	RICHARD D LEONHARDT	970.00	Pre-14	1857	All	Irrigation, Stockwater	Plumas	MILL CREEK
S000268	RICHARD D LEONHARDT	1,200.00	Pre-14	1857	Apr-Oct	Irrigation, Stockwater	Plumas	SPANISH CREEK
S000269	RICHARD D LEONHARDT	240.00	Pre-14	1857	May-Oct	Irrigation, Stockwater	Plumas	FOUR LETTER CREEK
RICHARD D LEONHARDT Total		2,410.00						
S000378	RICHVALE IRRIGATION DISTRICT	7,560.00	Pre-14	1914	Apr-Sep	Irrigation	Butte	CHEROKEE CANAL
S000379	RICHVALE IRRIGATION DISTRICT	6,000.00	Riparian	1947	Mar-Jan	Irrigation	Butte	LITTLE DRY CREEK
RICHVALE IRRIGATION DISTRICT Total		13,560.00						
S000925	WESTERN CANAL WATER DISTRICT	348,469.00	Pre-14	1902	Apr-Jan	Irrigation	Butte	FEATHER RIVER
WESTERN CANAL WATER DISTRICT Total		348,469.00						
S006764	WESTWOOD COMMUNITY SERVICES DISTRICT	0.00	Pre-14	1913	All	Domestic	Lassen	DUCK LAKE
S010000	WESTWOOD COMMUNITY SERVICES DISTRICT	1,053.00	Prescriptive	1924	All	Domestic	Lassen	WALKER SPRINGS
WESTWOOD COMMUNITY SERVICES DISTRICT Total		1,053.00						
S015240	WILLIAM S KEELER TRUST	1,750.00	Riparian/Pre-14	1900	May-Sep	Irrigation, Stockwater	Lassen	GOODRICH CREEK
WILLIAM S KEELER TRUST Total		1,750.00						
S013159	WILLIARD H WATTENBURG	0.00					Plumas	UNNAMED SPRING
WILLIARD H WATTENBURG Total		0.00						
Grand Total		430,894.94						

Feather River Watershed 2012.xls
Active SDUs

American River Watershed - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S017323	City of Folsom	50,712.40	Pre-14	1851	All	Municipal, Industrial	Sacramento	SOUTH FORK OF THE AMERICAN RIVER
S017326	City of Folsom	5,000.00	Pre-14	1851	All	Municipal, Industrial	Sacramento	SOUTH FORK OF THE AMERICAN RIVER
S017490	City of Folsom	22,000.00	Pre-14	1851	All	Municipal, Industrial	Sacramento	SOUTH FORK OF THE AMERICAN RIVER
S017491	City of Folsom	22,000.00	Pre-14	1851	All	Municipal, Industrial	Sacramento	SOUTH FORK OF THE AMERICAN RIVER
S000388	COLOMA-LOTUS RANCH DITCH USERS ASSOC	10,000.00	Pre-14	1853	Apr-Nov	Irrigation, Stockwater, Domestic	EI Dorado	SOUTH FORK AMERICAN RIVER
S010717	EL DORADO IRRIGATION DISTRICT	60.75	Pre-14	1875	All	Irrigation, Municipal	EI Dorado	SOUTH FORK AMERICAN RIVER
S000972	EL DORADO IRRIGATION DISTRICT	19.80	Pre-14	1856	Dec	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	CARPENTER CREEK
S000973	EL DORADO IRRIGATION DISTRICT	95.60	Pre-14	1873	Feb-May	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	UNST
S000974	EL DORADO IRRIGATION DISTRICT	678.00	Pre-14	1873	Apr-Oct	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	MILL CREEK
S000975	EL DORADO IRRIGATION DISTRICT	232.00	Pre-14	1873	Jan-Jun	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	BRYANT CREEK
S000976	EL DORADO IRRIGATION DISTRICT	132.90	Pre-14	1873	Jan-Jun	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	ESMERELDA CREEK
S004708	EL DORADO IRRIGATION DISTRICT	5,400.00	Pre-14	1876	Jul-Dec	Irrigation, Municipal, Industrial, Hydropower	Amador	SILVER FORK OF SOUTH FORK AMERICAN RIVER
S009034	EL DORADO IRRIGATION DISTRICT	40,373.00	Pre-14	1873	All	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	SOUTH FORK AMERICAN RIVER
S009035	EL DORADO IRRIGATION DISTRICT	360.00	Pre-14	1875	May-Aug	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	PYRAMID CREEK
S014323	EL DORADO IRRIGATION DISTRICT	3,968.00	Pre-14	1889	Apr-Oct	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	SLAB CREEK
S014968	EL DORADO IRRIGATION DISTRICT	3,373.00	Pre-14	1855	All	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	WEBER CREEK
S015937	EL DORADO IRRIGATION DISTRICT	1.55	Pre-14	1872	April	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	UNNAMED STREAM
S015938	EL DORADO IRRIGATION DISTRICT	150.60	Pre-14	1872	Dec-Apr	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	UNNAMED STREAM
S015939	EL DORADO IRRIGATION DISTRICT	41.64	Pre-14	1872	All	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	Stream at Spillway 8
S015940	EL DORADO IRRIGATION DISTRICT	15.20	Pre-14	1872	Feb-May	Irrigation, Municipal, Industrial, Hydropower	EI Dorado	BULL CREEK
S015941	EL DORADO IRRIGATION DISTRICT	8,000.00	Pre-14	1872	Jul-Feb	Irrigation, Municipal, Industrial, Hydropower	Alpine	CAPLES LAKE
S014967	EL DORADO IRRIGATION DISTRICT	1,216.00	Pre-14	1852	Apr-Oct	Municipal, Industrial	EI Dorado	HANGTOWN CREEK
S014597	GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	2,404.00	Pre-14	1850	All	Irrigation, Domestic	EI Dorado	MUTTON CANYON

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SDUs

American River Watershed - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S014598	GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	2,165.00	Pre-14	1850	All	Irrigation, Domestic	EI Dorado	BACON CANYON
S014599	GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	850.00	Pre-14	1850	All	Irrigation, Domestic	EI Dorado	UNST
S014600	GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	1,295.00	Pre-14	1850	All	Irrigation, Domestic	EI Dorado	DEEP CANYON
S014601	GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	9,552.00	Pre-14	1850	Dec-Oct	Irrigation, Domestic	EI Dorado	PILOT CREEK
S010794	NEVADA IRRIGATION DISTRICT	21,085.00	Pre-14	1880	All	Irrigation, Stockwater, Domestic	Placer	COON CREEK, ORR CREEK
S013791	NEVADA IRRIGATION DISTRICT	24,374.00	Pre-14	1853	All	Irrigation, Stockwater, Domestic, Mining	Placer	AUBURN RAVINE
S013790	NEVADA IRRIGATION DISTRICT	7,800.00	Pre-14	1853	Apr-Oct	Irrigation, Stockwater, Mining	Placer	AUBURN RAVINE
S000968	PACIFIC GAS AND ELECTRIC COMPANY	1,220.00	Prescriptive	1917	All	Irrigation, Domestic	Placer	ROCK CREEK
S000969	PACIFIC GAS AND ELECTRIC COMPANY	2,942.00	Prescriptive	1917	All	Irrigation, Domestic	Placer	DRY CREEK
S000959	PLACER COUNTY WATER AGENCY	5,422.00	Pre-14	1864	All	Irrigation, Domestic	Placer	CANYON CREEK
S000967	PLACER COUNTY WATER AGENCY	0.00	Pre-14	1864	All	Irrigation, Domestic	Placer	UNST
S010397	PLACER COUNTY WATER AGENCY	0.00	Pre-14	1896	All	Irrigation, Domestic	Placer	SOUTH FORK DRY CREEK
S010398	PLACER COUNTY WATER AGENCY	0.00	Pre-14	1909	All	Irrigation, Domestic	Placer	NORTH FORK DRY CREEK
S000656	San Juan Water District	33,000.00	Pre-14	1852	All	Domestic	Placer	FOLSOM LAKE
		285,939.44						

American River Watershed 2012.xls
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Yuba River Watershed - Consumptive Statements of Diversion and Use

Application ID	Holder Name	Highest Claimed Amt	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S000645	BIG LAND DEVELOPMENT CORP	2,730.00	Riparian/Pre-14	1886	Apr-Oct	Irrigation, Stockwater	Butte	SOUTH HONCUT CREEK
S010014	BIG LAND DEVELOPMENT CORP Total	2,730.00						
S016332	CITY OF NEVADA CITY	1,859.80	Pre-14	1910	All	Domestic	Nevada	LITTLE DEER CREEK
S001241	CITY OF NEVADA CITY Total	1,859.80						
S004716	Hallwood Irrigation Company	69,798.00	Pre-14	1909	All	Irrigation	Yuba	Yuba River
S010591	Hallwood Irrigation Company Total	69,798.00						
S012949	LAKE WILDWOOD ASSOCIATION	1,811.16	Pre-14	1861	All	Irrigation	Nevada	NIGGER CREEK
S012950	LAKE WILDWOOD ASSOCIATION Total	1,811.16						
S012951	NEVADA IRRIGATION DISTRICT	94,346.00	Pre-14	1873	All	Hydropower, Irrigation, Domestic, Recreation	Nevada	CANYON CREEK
S012952	NEVADA IRRIGATION DISTRICT	27,007.00	Pre-14	1859	All	Hydropower, Irrigation, Domestic, Recreation	Nevada	CANYON CREEK
S012953	NEVADA IRRIGATION DISTRICT	2.20	Riparian	1967	May-Oct	Recreation	Nevada	DAMFINE SPRING
S013330	NEVADA IRRIGATION DISTRICT	3.20	Riparian	1967	May-Oct	Recreation	Sierra	UNST
S013800	NEVADA IRRIGATION DISTRICT	551.00	Pre-14	1851	Apr-Oct	Irrigation	Nevada	DEER CREEK
S013801	NEVADA IRRIGATION DISTRICT	13,500.00	Pre-14	1851	All	Irrigation, Stockwater, Domestic	Nevada	DEER CREEK
S013927	NEVADA IRRIGATION DISTRICT	7,900.00	Pre-14	1851	All	Irrigation, Domestic, Fire Protection, Recreation	Nevada	DEER CREEK
S013928	NEVADA IRRIGATION DISTRICT	34,300.00	Pre-14	1851	All	Irrigation, Domestic, Fire Protection, Recreation	Nevada	DEER CREEK
S013929	NEVADA IRRIGATION DISTRICT	30,645.00	Pre-14	1857	All	Irrigation, Domestic, Fire Protection, Recreation	Nevada	SOUTH FORK DEER CREEK
S013800	NEVADA IRRIGATION DISTRICT	83,639.00	Pre-14	1854	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Sierra	MIDDLE YUBA RIVER
S013801	NEVADA IRRIGATION DISTRICT	117,023.50	Pre-14	1872	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Nevada	CANYON CREEK
S013927	NEVADA IRRIGATION DISTRICT	47,996.00	Pre-14	1872	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Nevada	CANYON CREEK
S013928	NEVADA IRRIGATION DISTRICT	61,487.00	Pre-14	1874	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Nevada	SOUTH YUBA RIVER
S014353	NEVADA IRRIGATION DISTRICT	483,867.00	Pre-14	1874	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Nevada	SOUTH YUBA RIVER
S016092	NEVADA IRRIGATION DISTRICT	47,789.00	Riparian/Pre-14	1851	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Nevada	DEER CREEK
S016092	NEVADA IRRIGATION DISTRICT	1,279.00	Pre-14	1859	All	Irrigation, Domestic, Fire Protection, Recreation, Mining, Hydropower	Nevada	JACKSON CREEK
NEVADA IRRIGATION DISTRICT Total		1,051,334.90						
Grand Total		1,127,533.86						

Yuba River Watershed 2012.xls
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Bear River Watershed - Consumptive Statements of Diversio and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S013809	NEVADA IRRIGATION DISTRICT	69,433.00	Pre-14	1853	All	Irrigation, Domestic	Nevada	BEAR RIVER
S013926	NEVADA IRRIGATION DISTRICT	22,675.00	Pre-14	1859	All	Irrigation, Mining	Nevada	WOLF CREEK
		92,108.00						

Bear River Watershed 2012.xls
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East Creeks Water Rights - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S001115	1990 Johannessen Family Trust	453.72	Pre-14	1880	Apr-Sep	Irrigation, Stockwater	Shasta	DEER CREEK
S013144	1990 JOHANNESSEN FAMILY TRUST	2,759.01	Pre-14	1880	Apr-Oct	Irrigation, Stockwater	Shasta	DEER CREEK
1990 Johannessen Family Trust Total								
S012313	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	MARTIN CREEK
S012314	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	MARTIN CREEK
S012315	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	MARTIN CREEK
S012316	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	SOUTH FORK BATTLE CREEK
S012318	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	UNST
S012319	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	UNST
S012320	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	UNST
S012321	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	UNST
S012322	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	UNST
S012323	BATTLE CREEK MEADOWS RANCH INC	350.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Tehama	UNST
S000550	BATTLE CREEK MEADOWS RANCH INC Total	3,500.00						
	BUTTE SINK WATERFOWL ASSOCIATION	43,800.00						
	BUTTE SINK WATERFOWL ASSOCIATION Total	43,800.00						
S002387	CLINE C SOULE	3,200.00	Riparian/Pre-14	1885	Apr - Oct	Irrigation, Stockwater	Butte	BUTTE CREEK
S000731	CLINE C SOULE Total	3,200.00						
	DEER CREEK IRRIGATION DISTRICT	20,400.00	Adjudication	1923	Feb-Nov	Irrigation	Siskiyou	BUTTE CREEK
	DEER CREEK IRRIGATION DISTRICT Total	20,400.00						
S010988	DOUGLAS H BOSCO	159.17	Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Shasta	NORTH FORK BATTLE CREEK
S010989	DOUGLAS H BOSCO	848.93	Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Shasta	NORTH FORK BATTLE CREEK
S010990	DOUGLAS H BOSCO	159.17	Pre-14	1900	Apr-Oct	Irrigation, Stockwater	Shasta	NORTH FORK BATTLE CREEK
	DOUGLAS H BOSCO Total	1,167.27						
S000736	E J LOUIE & SONS	1,545.60	Pre-14	1872	Apr-Oct	Irrigation	Siskiyou	BUTTE CREEK
S000739	E J LOUIE & SONS	1,932.00	Pre-14	1872	Apr-Oct	Irrigation	Siskiyou	BUTTE CREEK
S000740	E J LOUIE & SONS	1,200.00	Pre-14	1872	Apr-Oct	Irrigation	Siskiyou	BUTTE CREEK
S000748	E J LOUIE & SONS	386.40	Pre-14	1872	Apr-Oct	Irrigation	Siskiyou	BUTTE CREEK
	E J LOUIE & SONS Total	5,064.00						
S009605	MAURICE JOHANNESSEN	2,759.01	Pre-14	1880	Apr-Oct	Irrigation, Stockwater	Shasta	DEER CREEK
S008459	MAURICE JOHANNESSEN Total	2,759.01						
	Paradise Irrigation District	9,251.00	Pre-14	1916	All	Domestic	Butte	LITTLE BUTTE CREEK
	Paradise Irrigation District Total	9,251.00						
S000729	STANFORD VINA RANCH IRRIGATION CO	9,676.50	Riparian/Pre-14	1900	May-Oct	Irrigation, Stockwater	Tehama	DEER CREEK
S000730	STANFORD VINA RANCH IRRIGATION CO	9,676.50	Riparian/Pre-14	1900	May-Oct	Irrigation, Stockwater	Tehama	DEER CREEK
	STANFORD VINA RANCH IRRIGATION CO Total	19,353.00						
S000732	U S BUREAU OF LAND MANAGEMENT	11,615.21	Pre-14	1870	Apr-Nov	Irrigation, Stockwater, Habitat	Tehama	BATTLE CREEK
	U S BUREAU OF LAND MANAGEMENT Total	11,615.21						

East Creeks Rights 2012.xls
SDUs

East Creeks Water Rights - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
5009976	WESTERN CANAL WATER DISTRICT	5,045.00	Pre-14	1916	Apr-Jun	Irrigation	Butte	BUTTE CREEK
	WESTERN CANAL WATER DISTRICT Total	5,045.00						
	Grand Total	128,367.21						

West Creeks (Cache and Stony) - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S015943	PAYNE FARMS - WA PAYNE PAYNE FARMS - WA PAYNE	1,800.00 1,800.00	Riparian	1990	May-Aug	Irrigation	Yolo	CACHE CREEK
S000608	YOLO COUNTY F C & W C DISTRICT	21,006.00	Riparian/Pre-14	1856	Mar-Dec	Irrigation, Domestic, Hydropower	Yolo	CACHE CREEK
S000609	YOLO COUNTY F C & W C DISTRICT	237,206.00	Riparian/Pre-14	1859	Mar-Dec	Irrigation, Domestic, Hydropower	Yolo	CACHE CREEK
S001063	YOLO COUNTY F C & W C DISTRICT	4,775.00	Riparian/Pre-14	1859	Apr-Oct	Irrigation, Domestic, Hydropower	Yolo	CACHE CREEK
S014986	YOLO COUNTY F C & W C DISTRICT	339,976.00	Riparian/Pre-14	1914	All	Irrigation, Municipal, Industrial, Recreation, Hydropower	Lake	CACHE CREEK
	YOLO COUNTY F C & W C	602,963.00						
S006354	U.S. BUREAU OF RECLAMATION	114,300.00	Fed Adjudication	1910	Jan-Nov	Irrigation	Colusa	LITTLE STONY CREEK
S006353	U.S. BUREAU OF RECLAMATION	56,000.00	Fed Adjudication	1910	Oct-Mar	Irrigation	Colusa	STONY CREEK
	U.S. BUREAU OF RECLAMATION Grand Total	170,300.00 775,063.00						

West Creeks Rights 2012.xls
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Sacramento River - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S012208	ANDERSON-COTTONWOOD IRRIGATION DISTRICT	162,788.00	Pre-14	1917	Apr-Oct	Irrigation, Stockwater	Shasta	SACRAMENTO RIVER
ANDERSON-COTTONWOOD IRRIGATION DISTRICT Total								
S013880	CARTER MUTUAL WATER COMPANY	3,829.00	Riparian	1924	May-Feb	Irrigation, Stockwater, Domestic	Colusa	SACRAMENTO RIVER
CARTER MUTUAL WATER COMPANY Total								
S005221	CHARLES W TUTTLE JR	1,550.00	Riparian	1968	Feb-Sep	Irrigation	Colusa	SACRAMENTO RIVER
S005222	CHARLES W TUTTLE JR	6,050.00	Riparian/Pre-14	1912	Mar-Jan	Irrigation	Colusa	SACRAMENTO RIVER
CHARLES W TUTTLE JR Total								
S014834	CITY OF SACRAMENTO	7,600.00	Pre-14	1849	All	Municipal	Sacramento	SACRAMENTO RIVER
CITY OF SACRAMENTO Total								
S017223	Dead Horse LP	74,036.91	Riparian/Pre-14	1800s	All	Irrigation	Yolo	SACRAMENTO RIVER
S017224	Dead Horse LP	174.40	Riparian/Pre-14	1800s	All	Irrigation	Yolo	SACRAMENTO RIVER
Dead Horse LP Total								
S016908	Deadhorse LP	523.20	Riparian/Pre-14	1800s	All	Irrigation	Yolo	SACRAMENTO RIVER
S018494	Deadhorse LP	174.40	Riparian/Pre-14	1800s	All	Irrigation	Yolo	Sacramento River
Deadhorse LP Total								
S020061	Edward McDowell	440.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	Sacramento River
S020612	Edward McDowell	605.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S020616	Edward McDowell	605.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
Edward McDowell Total								
S017096	Elliot Delta Orchards, LLC	1,650.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S018886	Elliot Delta Orchards, LLC	444.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	Sacramento River
Elliot Delta Orchards, LLC Total								
S017093	Elliot Family Co., LLC	820.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S017383	Elliot Family Co., LLC	200.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S019707	Elliot Family Co., LLC	352.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
Elliot Family Co., LLC Total								
S016915	Elliot Family Revocable Trust	300.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S018859	Elliot Family Revocable Trust	852.00	Riparian/Pre-14	1800s	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
Elliot Family Revocable Trust Total								
S018613	Farmland Reserve, Inc.	1,215.00	Riparian	1950s	Apr-Oct	Irrigation	Butte	SACRAMENTO RIVER
S018603	Faye Properties, Inc.	1,800.00	Riparian	1800s	Mar-Sep	Irrigation	Yolo	SACRAMENTO RIVER
Faye Properties, Inc. Total								
S007367	GLENN-COLUSA IRRIGATION DISTRICT	3,200.00	Pre-14	1906	All	Irrigation	Glenn	SACRAMENTO RIVER
GLENN-COLUSA IRRIGATION DISTRICT Total								
925,200.00								

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SDUs

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Sacramento River - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
GLENN-COLUSA IRRIGATION DISTRICT Total								
S018956	Greene & Hemly - Merritt Island Ranch- Greene & Hemly, Inc	137.05	Riparian/Pre-14	1850	Mar-Oct	Irrigation	Yolo	SACRAMENTO RIVER
S018959	Greene & Hemly - Merritt Island Ranch- Greene & Hemly, Inc	589.32	Riparian/Pre-14	1850	Mar-Oct	Irrigation	Yolo	SACRAMENTO RIVER
S020804	Greene & Hemly - Merritt Island Ranch- Greene & Hemly, Inc	370.04	Riparian/Pre-14	1850	Mar-Oct	Irrigation	Yolo	Sacramento River
	Greene & Hemly - Merritt Island Ranch- Greene & Hemly, Inc Total	1,096.41						
S017190	Greene & Hemly - Randall Ranch Greene & Hemly Inc.	354.05	Riparian/Pre-14	1850	Mar-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S017191	Greene & Hemly - Randall Ranch Greene & Hemly Inc.	5.00	Riparian/Pre-14	1850	Mar-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
	Greene & Hemly - Randall Ranch Greene & Hemly Inc. Total	359.05						
S017193	Greene & Hemly - Wheeler Ranch Greene and Hemly, Inc	753.79	Riparian/Pre-14	1850	Mar-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S013264	Greene & Hemly - Wheeler Ranch Greene and Hemly, Inc Total	753.79						
S013264	HAROLD ARMSTRONG	2,200.00	Riparian	1895	Feb-Oct	Irrigation	Colusa	SACRAMENTO RIVER
S013717	HAROLD ARMSTRONG Total	2,200.00						
S013717	JOSEPH BORGES RANCHES	1,400.00	Riparian	1922	Apr-Sep	Irrigation	Sacramento	SACRAMENTO RIVER
	JOSEPH BORGES RANCHES Total	1,400.00						
S017264	Joseph T Sanchez	700.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S019830	Joseph T Sanchez	600.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
	Joseph T Sanchez Total	1,300.00						
S010294	LAUTRUP INVESTMENT PARTNERSHIP	1,000.00	Riparian	1965	Apr-Oct	Irrigation	Yolo	SACRAMENTO RIVER
S019846	LAUTRUP INVESTMENT PARTNERSHIP Total	1,000.00						
S019846	Leary - Dennis Leary Trust 11/19/1990	0.00	Riparian	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
	Leary - Dennis Leary Trust 11/19/1990 Total	0.00						
S018049	Leary - M G	349.00	Riparian/Pre-14	1800s	Apr-Nov	Irrigation	Sacramento	SACRAMENTO RIVER
	Leary - M G Total	349.00						
S018046	Leary (Dennis)	582.80	Riparian/Pre-14	1800s	Apr-Nov	Irrigation	Sacramento	SACRAMENTO RIVER
	Leary (Dennis) Total	582.80						
S019868	Leary etal	600.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
	Leary etal Total	600.00						
S018146	MARY CRANE	1,055.66	Riparian	1907	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S018012	MARY CRANE Total	1,055.66						
S018012	MCCORMACK WILLIAMSON COMPANY	4,000.00	Riparian	1930	Apr-Sep	Irrigation	Sacramento	Sacramento River
S018018	MCCORMACK WILLIAMSON COMPANY	2,000.00	Riparian	1930	Apr-Sep	Irrigation	Sacramento	Sacramento River
S018021	MCCORMACK WILLIAMSON COMPANY	1,000.00	Riparian	1930	May-Aug	Irrigation	Sacramento	Sacramento River
	MCCORMACK WILLIAMSON COMPANY Total	7,000.00						
S018614	MYERS LAND COMPANY LLP	938.00	Riparian	1903	Apr-Sep	Irrigation	Yolo	SACRAMENTO RIVER
S018617	MYERS LAND COMPANY LLP	131.00	Riparian	1950	Apr-Sep	Irrigation	Yolo	SACRAMENTO RIVER
	MYERS LAND COMPANY LLP Total	1,069.00						
S002064	PACIFIC FRUIT FARMS	356.80	Riparian	1929	All	Irrigation	Sacramento	SACRAMENTO RIVER
S002065	PACIFIC FRUIT FARMS	356.80	Riparian	1929	All	Irrigation	Sacramento	SACRAMENTO RIVER
S002066	PACIFIC FRUIT FARMS	356.80	Riparian	1929	All	Irrigation	Sacramento	SACRAMENTO RIVER
S008159	PACIFIC FRUIT FARMS	356.80	Riparian	1929	All	Irrigation	Sacramento	SACRAMENTO RIVER
S019372	PACIFIC FRUIT FARMS	436.00	Riparian	1929	All	Irrigation	Sacramento	SACRAMENTO RIVER

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Sacramento River - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S019375	PACIFIC FRUIT FARMS	85.02	Riparian	1929	All	Irrigation	Sacramento	SACRAMENTO RIVER
S019464	PACIFIC FRUIT FARMS	85.02	Riparian	1929	All	Irrigation	Sacramento	Sacramento River
S009896	PACIFIC FRUIT FARMS Total	2,033.24						
S009897	PARROTT INVESTMENT COMPANY	8,805.67	Riparian	1971	Apr-Oct	Irrigation	Butte	SACRAMENTO RIVER
S009898	PARROTT INVESTMENT COMPANY	8,805.67	Riparian	1918	Apr-Oct	Irrigation	Butte	SACRAMENTO RIVER
S001905	PARROTT INVESTMENT COMPANY Total	26,417.00						
S001908	Pyiman - A & M PYLIMAN FARMS	945.71	Riparian	1915	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S001909	Pyiman - A & M PYLIMAN FARMS	945.71	Riparian	1915	Mar-Sep	Irrigation	Sacramento	SACRAMENTO RIVER
S001237	Pyiman - A & M PYLIMAN FARMS Total	3,309.98						
S001867	PYLMAN VINEYARDS INC	338.07	Riparian/Pre-14	1910	Apr-Oct	Irrigation	Yolo	SACRAMENTO RIVER
S020149	PYLMAN VINEYARDS INC	338.07	Riparian/Pre-14	1910	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S020153	PYLMAN VINEYARDS INC	960.00	Riparian/Pre-14	1910	Apr-Oct	Irrigation	Yolo	Sacramento River
S020157	PYLMAN VINEYARDS INC	610.00	Riparian/Pre-14	1910	Apr-Oct	Irrigation	Yolo	Sacramento River
S020641	PYLMAN VINEYARDS INC Total	1,000.00						
S020641	RECLAMATION DISTRICT #108	3,246.14	Riparian/Pre-14	1910	Apr-Oct	Irrigation	Yolo	Sacramento River
S020645	RECLAMATION DISTRICT #108	40,185.00	Riparian	1800s	Apr-Dec	Irrigation	Colusa	SACRAMENTO RIVER
S020649	RECLAMATION DISTRICT #108	1,18,058.00	Riparian	1800s	Apr-Dec	Irrigation	Colusa	SACRAMENTO RIVER
S020653	RECLAMATION DISTRICT #108	487.00	Riparian	1800s	Apr-Oct	Irrigation	Colusa	SACRAMENTO RIVER
S020657	RECLAMATION DISTRICT #108	169.00	Riparian	1800s	Apr-Oct	Irrigation	Colusa	SACRAMENTO RIVER
S020661	RECLAMATION DISTRICT #108	2,885.00	Riparian	1800s	May-Sep	Irrigation	Colusa	SACRAMENTO RIVER
S018031	RECLAMATION DISTRICT #108 Total	10,414.00						
S017210	RIVER GARDEN FARMS COMPANY	172,198.00	Riparian	1800s	Apr-Jul	Irrigation	Yolo	SACRAMENTO RIVER
S017210	RIVER GARDEN FARMS COMPANY Total	356.00						
S017210	Rivermaid Land Company	356.00	Riparian/Pre-14	1950	Mar-Sep	Irrigation	Yolo	SACRAMENTO RIVER
S017213	Rivermaid Land Company	230.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S017222	Rivermaid Land Company	330.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S017225	Rivermaid Land Company	260.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S017226	Rivermaid Land Company	170.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S017228	Rivermaid Land Company	234.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S017228	Rivermaid Land Company	1,300.00	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER

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Sacramento River - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S019320	Rivermaid Land Company	191.84	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S019360	Rivermaid Land Company	174.40	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S019377	Rivermaid Land Company	174.90	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	SACRAMENTO RIVER
S019606	Rivermaid Land Company	261.60	Riparian/Pre-14	1800s	All	Irrigation	Sacramento	Sacramento River
Rivermaid Land Company Total								
S009950	ROY MORRESCO JR	3,326.74	Riparian	1920	Apr-Jan	Irrigation	Sutter	SACRAMENTO RIVER
S020145	SACRAMENTO RIVER RANCH II LLC	1,654.00	Riparian	NA	NA	Irrigation	Yolo	Sacramento River
SACRAMENTO RIVER RANCH II LLC Total								
S016992	Spinella (Art, Janelle)	3,834.40	Riparian	NA	NA	Irrigation	Yolo	Sacramento River
S016993	Spinella (Frankie)	269.20	Pre-14	1908	Apr-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S017329	Spinella (Frankie)	2,642.30	Pre-14	1910	Apr-Oct	Irrigation	Yolo	SACRAMENTO RIVER
Spinella (Frankie) Total								
S012858	THE ARCHES LTD	350.00	Pre-14	1910	Apr-Oct	Irrigation	Yolo	SACRAMENTO RIVER
S012860	THE ARCHES LTD	2,992.30	Pre-14	1910	Apr-Oct	Irrigation	Yolo	SACRAMENTO RIVER
THE ARCHES LTD Total								
S019793	TOWNE ENTERPRISES	1,320.00	Riparian/Pre-14	1800s	May-Aug	Irrigation	Sacramento	SACRAMENTO RIVER
S019796	TOWNE ENTERPRISES	1,000.00	Riparian/Pre-14	1800s	May-Aug	Irrigation	Sacramento	SACRAMENTO RIVER
S019799	TOWNE ENTERPRISES	2,320.00	Riparian	1996	Jan-Oct	Irrigation	Sacramento	SACRAMENTO RIVER
S019802	TOWNE ENTERPRISES	942.00	Riparian	1914	Jan-Sep	Irrigation	Sacramento	SACRAMENTO RIVER
S019808	TOWNE ENTERPRISES	2,024.00	Riparian	1914	All	Irrigation	Sacramento	SACRAMENTO RIVER
TOWNE ENTERPRISES Total								
Grand Total								
		1,433,668.02						

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Stanislaus River Watershed - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S014003	R J Gallo	6,000.00	Riparian	1940	All	Irrigation	Stanislaus	STANISLAUS RIVER
S009333	US Fish & Wildlife Service	2,040.00	Riparian	1950	All	Irrigation	Stanislaus	STANISLAUS RIVER
S004683	OAKDALE IRRIGATION DISTRICT	485,040.00	Pre-14	1913	All	Irrigation, Domestic	Calaveras	STANISLAUS RIVER
S010402	TUOLUMNE UTILITIES DISTRICT	3,668.00	Pre-14	1852	All	Irrigation, Domestic	Tuolumne	MORMON CREEK
S013888	JOSEPH J FRAGUERO	2,850.00	Pre-14	1884	All	Irrigation, Stockwater	Calaveras	ANGELS CREEK
		499,598.00						

Stanislaus River Watershed 2012.xls
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Tuolumne River Watershed - Statements of Diversion and Use									
Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source	
S002635	CITY AND COUNTY OF SAN FRANCISCO PUC AGM WATER ENTERPRISE	581,280.00	Pre-14	1922	All	Municipal/ Industrial, Hydropower, Fish & Wildlife, Recreation	Tuolumne	TUOLUMNE RIVER	
S002637	CITY AND COUNTY OF SAN FRANCISCO PUC AGM WATER ENTERPRISE	541,652.00	Pre-14	1925	All	Municipal/ Industrial, Hydropower, Fish & Wildlife, Recreation	Tuolumne	TUOLUMNE RIVER	
S014379	CITY AND COUNTY OF SAN FRANCISCO PUC AGM WATER ENTERPRISE	258,778.00	Pre-14	1918	All	Municipal/ Industrial, Hydropower, Fish & Wildlife, Recreation	Tuolumne	CHERRY CREEK	
S014004	CITY AND COUNTY OF SAN FRANCISCO Gallo Vineyards Inc	1,381,710.00	Riparian	1960	Apr-Oct	Irrigation	Stanislaus	TUOLUMNE RIVER	
S011103	Gallo Vineyards Inc Total James E Coleman	268.22 1,520.00	Riparian	1917	Apr-Oct	Irrigation	Stanislaus	TUOLUMNE RIVER	
S009161	James E Coleman Total Joseph E Gallo	1,520.00 329.51	Riparian	1978	Mar-Oct	Irrigation	Stanislaus	TUOLUMNE RIVER	
S011191	Joseph E Gallo Joseph E Gallo Total	66.42 395.93	Riparian	1976	Mar-Oct	Irrigation	Stanislaus	TUOLUMNE RIVER	
S000996	TUOLUMNE UTILITIES DISTRICT	10,167.00	Pre-14	1851	All	Irrigation, Stockwater, Domestic	Tuolumne	SULLIVAN CREEK	
S000997	TUOLUMNE UTILITIES DISTRICT	4,815.00	Pre-14	1852	All	Irrigation, Stockwater, Domestic	Tuolumne	SULLIVAN CREEK	
S001006	TUOLUMNE UTILITIES DISTRICT	3,808.00	Pre-14	1852	All	Irrigation, Stockwater, Domestic	Tuolumne	UNST (AKA POWER CREEK)	
S001007	TUOLUMNE UTILITIES DISTRICT	893.00	Pre-14	1852	All	Irrigation, Stockwater, Domestic	Tuolumne	CURTIS CREEK	
S010403	TUOLUMNE UTILITIES DISTRICT	730.00	Pre-14	1852	All	Irrigation, Stockwater, Domestic	Tuolumne	CURTIS CREEK	
S013848	TUOLUMNE UTILITIES DISTRICT Total TURLOCK IRRIGATION DISTRICT	20,413.00 1,196,100.00	Pre-14	1900	All	Irrigation, Domestic	Stanislaus	TUOLUMNE RIVER	
	TURLOCK IRRIGATION DISTRICT Total Grand Total	1,196,100.00 2,600,407.15							

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Merced River Watershed - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S007654	Gallo Vineyards Inc	360.00	Riparian	1910	Mar-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007655	Gallo Vineyards Inc	170.00	Riparian	1910	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007656	Gallo Vineyards Inc	1,275.00	Riparian	1910	Mar-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007657	Gallo Vineyards Inc	150.00	Riparian	1910	Mar-Dec	Irrigation, Frost Protection	Merced	MERCED RIVER
S007658	Gallo Vineyards Inc	135.00	Riparian	1910	Mar-Dec	Irrigation, Frost Protection	Merced	MERCED RIVER
S007661	Gallo Vineyards Inc	175.00	Riparian	1910	Mar-Dec	Irrigation, Frost Protection	Merced	MERCED RIVER
S007662	Gallo Vineyards Inc	155.00	Riparian	1910	Mar-Dec	Irrigation, Frost Protection	Merced	MERCED RIVER
S007663	Gallo Vineyards Inc	150.00	Riparian	1910	Mar-Dec	Irrigation, Frost Protection	Merced	MERCED RIVER
S007664	Gallo Vineyards Inc	230.00	Riparian	1910	Apr-Dec	Irrigation, Frost Protection	Merced	MERCED RIVER
S007665	Gallo Vineyards Inc	1,028.00	Riparian	1910	All	Irrigation, Frost Protection, Industrial	Merced	MERCED RIVER
S007666	Gallo Vineyards Inc	115.00	Riparian	1910	All	Irrigation, Frost Protection	Merced	MERCED RIVER
S007667	Gallo Vineyards Inc	180.00	Riparian	1910	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007668	Gallo Vineyards Inc	300.00	Riparian	1910	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007669	Gallo Vineyards Inc	200.00	Riparian	1910	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007670	Gallo Vineyards Inc	270.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007671	Gallo Vineyards Inc	210.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007672	Gallo Vineyards Inc	375.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007673	Gallo Vineyards Inc	210.00	Riparian/Pre-14	1900	Apr-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007710	Gallo Vineyards Inc	375.00	Riparian/Pre-14	1900	Mar-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007711	Gallo Vineyards Inc	5,500.00	Riparian/Pre-14	1900	Mar-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007712	Gallo Vineyards Inc	2,240.00	Riparian/Pre-14	1900	Mar-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007713	Gallo Vineyards Inc	1,050.00	Riparian/Pre-14	1900	Mar-Oct	Irrigation, Frost Protection	Merced	MERCED RIVER
S007674	Henry Te Velde	14,853.00	Riparian	1900	Mar-Sep	Irrigation	Merced	MERCED RIVER
S001496	Henry Te Velde Total	1,205.00						
S002055	Kelsey Ranch LP	5,496.00	Pre-14	1858	Apr-Oct	Irrigation, Stockwater, Domestic, Recreation	Merced	MERCED RIVER
S012547	Kelsey Ranch LP Total	2,649.00	Riparian/Pre-14	1858	All	Irrigation, Domestic	Merced	MERCED RIVER
S004718	MADERA IRRIGATION DISTRICT	8,145.00	Pre-14	1875	All	Irrigation	Madera	BIG CREEK
S004719	MERCED IRRIGATION DISTRICT	21,457.00	Pre-14	1911	All	Irrigation	Merced	MERCED RIVER
	MERCED IRRIGATION DISTRICT Total	571,000.00	Riparian/Pre-14	1888	Apr-Oct	Irrigation	Merced	MERCED RIVER
	MERCED IRRIGATION DISTRICT Grand Total	574,336.00						
	Grand Total	619,996.00						

Merced River Watershed 2012.xls
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San Joaquin River Watershed - Statements of Diversion and Use

Application ID	Holder Name	Highest Amount Claimed	Water Rights Claim Type	Year of First Use	Season	Purpose of Use	County	Source
S005469	ARNOLD SOUZA & SONS	1,242.00	Riparian	1963	Apr-Sep	Irrigation	Stanislaus	SAN JOAQUIN RIVER
	ARNOLD SOUZA & SONS Total	1,242.00						
S001073	COLUMBIA CANAL COMPANY	62,879.00	Pre-14	1872	Feb-Dec	Irrigation	Madera	SAN JOAQUIN RIVER
	COLUMBIA CANAL COMPANY Total	62,879.00						
S005005	COSTA VIEW FARMS #2, A CA GEN PARTNERSHIP	19,000.00	Riparian/Pre-14	1903	All	Irrigation, Stockwater	Madera	FRESNO RIVER
	COSTA VIEW FARMS #2, A CA GEN	19,000.00						
S010411	LONE TREE MUTUAL WATER COMPANY	18,376.00	Riparian	1955	All	Irrigation	Merced	SAN JOAQUIN RIVER
	LONE TREE MUTUAL WATER COMPANY Total	18,376.00						
S004978	MADERA IRRIGATION DISTRICT	51,741.00	Pre-14	1873	All	Irrigation	Madera	FRESNO RIVER
S014187	MADERA IRRIGATION DISTRICT	18,148.00	Pre-14	1873	Oct-Jul	Irrigation	Madera	NORTH FORK WILLOW CREEK
	MADERA IRRIGATION DISTRICT Total	69,889.00						
S001915	Mark D McKean	945.00	Riparian/Pre-14	1908	Apr-Oct	Irrigation	Fresno	FRESNO SLOUGH
S001916	Mark D McKean	770.00	Riparian	1908	Mar-Sep	Irrigation	Fresno	FRESNO SLOUGH
S001917	Mark D McKean	860.00	Riparian/Pre-14	1908	Feb-Oct	Irrigation	Fresno	FRESNO SLOUGH
	Mark D McKean Total	2,575.00						
S006296	MENEFEE RIVER RANCH COMPANY	2,105.00	Riparian	1952	Mar-Oct	Irrigation	Merced	FRESNO RIVER
	MENEFEE RIVER RANCH COMPANY Total	2,105.00						
S009320	PATTERSON IRRIGATION DISTRICT	60,200.00	Pre-14	1910	Mar-Sep	Irrigation	Stanislaus	SAN JOAQUIN RIVER
	PATTERSON IRRIGATION DISTRICT Total	60,200.00						
S015523	POINT MILLERTON RANCH LLC	2,100.00	Riparian/Pre-14	2002	All	Irrigation, Stockwater	Madera	FINE GOLD CREEK
	POINT MILLERTON RANCH LLC Total	2,100.00						
S014001	R J GALLO	5,304.00	Riparian	1950	All	Irrigation	Stanislaus	SAN JOAQUIN RIVER
S014002	R J GALLO	813.00	Riparian	1950	All	Irrigation, Stockwater	Stanislaus	SAN JOAQUIN RIVER
	R J GALLO Total	6,117.00						
S001116	ROBERT F FLYNN	4,200.00	Riparian	1926	All	Irrigation, Stockwater	Merced	DUCK SLOUGH
	ROBERT F FLYNN Total	4,200.00						
S009575	U S FISH & WILDLIFE SERVICE	12,976.00	Pre-14	1900	All	Irrigation, Wildlife Management	Merced	DEADMAN CREEK
	U S FISH & WILDLIFE SERVICE Total	12,976.00						
	Grand Total	261,659.00						

Appendix D

**Section D.5
Other Pre-1914 Consumptive Water Rights Claims**

Feather River Pre-1914 Consumptive Water Rights

1) South Feather Water & Power Agency (Formerly Oroville-Wyandotte Irrigation District) Claims:

Notice Date	Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
9/25/1852			All water		South Fork Feather River
4/19/1854			All water		South Fork Feather River
11/29/1854			All water		South Fork Feather River
6/21/1862		240	5	3,477	South Fork Feather River
8/15/1889		3,000	60	43,468	South Fork Feather River at LG Valley
11/23/1908		5,000	100	72,446	Lost Creek
11/23/1908		1,000	20	14,489	Lost Creek
9/10/1910		10,000	200	144,893	South Fork Feather River at LG Valley
9/10/1910		10,000	200	144,893	South Fork Feather River at LG Valley
9/10/1910		10,000	200	144,893	South Fork Feather River at LG Valley
9/29/1910		10,000	200	144,893	South Fork Feather River at LG Valley
9/29/1910		10,000	200	144,893	South Fork Feather River at LG Valley
4/22/1911		100	2	1,449	McCabe Creek
4/22/1911		5,000	100	72,446	South Fork Feather River
10/22/1914		7,500	150	108,669	Near Rock Creek, South Fork Feather River
10/26/1914		5,000	100	72,446	Lower South Fork Feather River
Total Face Value					533,784 (Less redundant claims in 1910 on South Fork Feather in LG Valley)

2) Western Canal Water District

County/Decree	Priority Date	Cubic Feet Per Second	Acre-feet	Source
Sutter/No. 2360	12/15/1924		150,000	Year-round Feather River
			145,000	Below Centerville PowerHouse
Total Face Value				295,000

3) Joint Water Districts of Feather River

Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
7/29/1902	100,000	2,000	1,448,926	Feather River
5/12/1903	100,000	2,000	1,448,926	Feather River
3/29/1904	100,000	2,000	1,448,926	Feather River
3/3/1909		500	362,231	Feather River
Total Face Value				1,811,157 (less redundant claims on Feather River)

Sutter Decree No. 2360, 12/15/1924

	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
Sutter Butte Canal Company first right		1,200	869,355	Feather River
Great Western Power Company (later PG&E) second right		300	217,339	Feather River
Above 1500 cfs, SBCC's second right is 2/3 of flow between 1500 and 2700 cfs (1200 cfs difference)			800	579,570
Above 1500 cfs, Great Western's second right is 1/3 of flow between 1500 and 2700 cfs			400	289,785
Above 2700 cfs, Great Western and Western Canal Company receive the next 500 cfs			500	362,231
Above 3200 cfs, SBCC has right to divert the next 500 cfs, including all accretions, whatever the source.			500	362,231
SBCC Total Face Value				1,811,157
Western Canal Company's total claims				869,355

Water Right Shares of Sutter Butte Canal Company's Decreed Water Rights allocated to Joint Water Districts

Biggs-West Gridley Water District	29.0%	525,236
Butte Water District	24.0%	434,678
Richvale Irrigation District	27.0%	489,012
Sutter Extension Water District	20.0%	362,231

Sources: South Feather Water Power Agency;
Western Canal Water District;
Joint Water Districts.
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Feather River Pre-14 Notices

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Yuba River Pre-1914 Consumptive Water Rights

1) Browns Valley Irrigation District

Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
3/21/1890	10,000	200	144,893	North Yuba River

2) Yuba County Water Agency

Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
1890		50	36,223	Colgate Head Dam, year-round - North Yuba River and its tributaries
		200	144,893	Hydropower only - Colgate Head Dam on North Yuba River
		60	43,468	Hydropower only - Colgate Head Dam on North Yuba River
Total Face Value, Consumptive Rights			36,223	

Sources: Browns Valley Irrigation District;
Yuba County Water Agency; C-WIN.
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Yuba River Pre-1914 Notices

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Sacramento River Pre-1914 Consumptive Water Rights

1) Right Bank of Sacramento River at Wheel Ditch in Redding:

Shasta County Water Rights Book 2, p. 391, notice dated 11/21/1914
 Deeded by McCoy Fitzgerald to Anderson-Cottonwood Irrigation District, 12/30/1914

Notice Date	Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
11/21/1914	11/21/1914	20,000	400	289,785	Wheel Ditch - Sacramento River

2) Glenn-Colusa Irrigation District

Notice Date	Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
4/16/1903	4/15/1903	500,000	10,000	7,244,628	Sacramento River
2/26/1903	2/25/1903	150,000	3,000	2,173,388	Sacramento River
2/26/1903	2/25/1903	150,000	3,000	2,173,388	Sacramento River
12/7/1901	11/30/1901		5,000	3,622,314	Sacramento River
12/7/1901	11/30/1901		5,000	3,622,314	Sacramento River
12/21/1883	12/18/1883		5,000	3,622,314	Sacramento River
11/19/1903	11/13/1903		5,000	3,622,314	Sacramento River
				26,080,661	Sacramento River Total
8/1/1907	8/1/1907		5,000	3,622,314	Stony Creek
			5,000	3,622,314	Stony Creek
5/4/1905	4/26/1905		5,000	3,622,314	Stony Creek
				10,866,942	Stony Creek Total
11/23/1904	11/21/1904		2,000	1,448,926	Willow Creek
				1,448,926	Willow Creek Total
				38,396,529	Grand Total

3) City of Sacramento

Source: State Water Board Notice of Petitions for Extensions of Time to Complete Construction Under Permits 11358, 11359, 11360, and 11361, November 3, 1988

Notice Date	Priority Date	Miners' Inches	Cubic Feet Per Second	Acre-feet	Source
	1854		75	54,335	Sacramento River

Sources: Anderson-Cottonwood Irrigation District;
 Glenn-Colusa Irrigation District;
 City of Sacramento;
 State Water Resources Control Board.
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 Sacramento River Pre-14 Notices

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Turlock and Modesto Irrigation Districts' Pre-1914 Consumptive Water Rights

Holder Name	Date	Point of Diversion	Facility Name	Comment	Diversion	Diversion Units	Storage	Storage Units	Irrigation Season Face Amount, AF (246 days)
Turlock and Modesto Irrigation Districts and La Grange	5/18/1871	La Grange Dam	La Grange Dam	Acquired from F. Green and A.D. Allen	66	cubic feet per second			66 cfs max
Modesto Irrigation District	2/27/1913	La Grange Dam	La Grange Dam	Acquired from J.M. Finley	13,000	miner's inches			Not to exceed 250 cfs, among these first three water rights claims for a total of: 121,983.47
Modesto Irrigation District	11/13/1913	La Grange Dam	La Grange Dam	Acquired from Waterford Irrigation District	16,000	miner's inches			
Turlock and Modesto Irrigation Districts	1/16/1855	La Grange Dam	La Grange Dam	Acquired from Franklin Water Company					
Turlock and Modesto Irrigation Districts	1/18/1862	La Grange Dam	La Grange Dam	Acquired from Elam Dye					The sum of these water rights may not exceed 4,500 cfs diversion; Franklin Water Co and Elam Dye have no diversion amounts; all rights associated with this limit are converted to acre-feet:
Turlock and Modesto Irrigation Districts	5/18/1872	La Grange Dam	La Grange Dam	Acquired from John Burcham, M.A. Wheaton, and Charles Elliott	500,000	miner's inches			
Turlock Irrigation District	1/5/1889	La Grange Dam	La Grange Dam	Posted by TID	225,000	miner's inches			
Modesto Irrigation District	6/21/1890	La Grange Dam	La Grange Dam	Posted by MID	250,000	miner's inches			
Modesto Irrigation District	10/1/1908	La Grange Dam, Modesto Reservoir	La Grange Dam, Modesto Reservoir	Posted by MID	50,000	miner's inches	40,000	acre-feet	
Turlock Irrigation District	8/31/1911	La Grange Dam, Turlock Lake	La Grange Dam, Turlock Lake	Posted by TID	200,000	miner's inches	100,000	acre-feet	3,260,082.64
Estimated Total Face Amount =									3,382,066.12
Source: Letter from Kenneth Petruzzelli, O'Laughlin and Paris LLP, attorneys for the Modesto Irrigation District, "Public Records Act Request for Pre-1914 Water Rights," dated January 14, 2011; California Water Impact Network. There are 50 miner's inches to 1 cubic foot per second.									

Source: O'Laughlin Paris; C-WIN.

Water RightsOperation Model.xls
Turlock and Modesto IDs

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Pre-1914 Appropriative Water Rights Claims of the City and County of San Francisco

Appropriation ID	Date	Point of Diversion	Facility Name	Face Amt (cfs)	Source
151(6)	7/22/1902	Stanislaus National Forest, Cherry Valley Reservoir Site, NE 1/4 Section 5, T1N R19E MDB&M	Cherry Valley Reservoir Site	1,000.00	Cherry Creek
151(4)	7/20/1902	Junction Eleanor & Cherry Creek, Section 16, T1N R19E MDB&M	Cherry Valley Reservoir Site	240.00	Eleanor & Cherry Creek
158	2/27/1911	Stanislaus National Forest, just north of S 1/4 corner of Section 32, T2N R19E	Cherry Valley Reservoir Site	500.00	Cherry Creek
153(1)	10/24/1909	Stanislaus National Forest, just west of E 1/4 corner of Section 8, T2N R19E MDB&M	Cherry Valley Reservoir Site	1,000.00	Cherry Creek
151(21)	10/11/1909	Junction Eleanor & Cherry Creek, Section 16, T1N R19E MDB&M	Cherry Valley Reservoir Site	240.00	Eleanor & Cherry Creek
			Cherry Valley Reservoir Site Total	2,980.00	
160	2/18/1911	Yosemite National Park, NW 1/4 of Section 16, T1N R20E MDB&M	Hetch Hetchy Reservoir Site	500.00	Tuolumne River
155(2)	10/4/1908	Stanislaus National Forest near mouth of Jawbone Creek	Hetch Hetchy Reservoir Site	200.00	Tuolumne River
156(3)	9/29/1908	Yosemite National Park, NE 1/4 Section 17, T1N R20E MDB&M	Hetch Hetchy Reservoir Site	200.00	Tuolumne River
			Hetch Hetchy Reservoir Site Total	700.00	
154(6)	7/29/1901	Yosemite National Park, Lake Eleanor Reservoir Site (1/4 mile below Lake Eleanor) SE 1/4 Section 34, T2N R19E MDB&M NW 1/4 within SE 1/4.	Lake Eleanor Reservoir Site	1,000.00	Eleanor Creek
155(1)	7/29/1901	Yosemite National Park NW 1/4 Section 3, T1N R19E MDB&M	Lake Eleanor Reservoir Site	100.00	Eleanor Creek
159	2/27/1911	Yosemite National Park, NW 1/4 Section 3, T1N R19E MDB&M	Lake Eleanor Reservoir Site	All the waters of Eleanor Creek	Eleanor Creek
154(14)	11/17/1909	Stanislaus National Park, West Bank NE 1/4 of NE 1/4 Section 9 T1N R19E, MDB&M	Lake Eleanor Reservoir Site	100.00	Eleanor Creek
156(1)	10/1/1908	Yosemite National Park, NW 1/4 Section 3, T1N R19E	Lake Eleanor Reservoir Site	100.00	Eleanor Creek
			Lake Eleanor Reservoir Site Total	1,100.00	
163	2/28/1911	Stanislaus National Forest near mouth of Jawbone Creek	Tuolumne River at and Near Early Intake	500.00	Tuolumne River
161	2/21/1911	Stanislaus National Forest 1 1/4 miles upstream from Range Line between R18E and R19E	Tuolumne River at and Near Early Intake	500.00	Tuolumne River
162	2/20/1911	Stanislaus Forest near west line of new park boundary	Tuolumne River at and Near Early Intake	500.00	Tuolumne River
153(5)	10/15/1909	Stanislaus National Forest 1 1/4 miles upstream from Range Line between R18E and R19E	Tuolumne River at and Near Early Intake	1,000.00	Tuolumne River
151(22)	10/12/1909	Stanislaus National Forest, above junction with Cherry River	Tuolumne River at and Near Early Intake	240.00	Tuolumne River
156(2)	10/4/1908	Near mouth of Jawbone Creek	Tuolumne River at and Near Early Intake	300.00	Jawbone Creek Tuolumne River
			Tuolumne River at and Near Early Intake Total	3,040.00	
			Grand Total	7,820.00	
			Tuolumne River at and Near Early Intake Total in Acre-feet originally claimed	2,202,366.94	

Source: R.B. Hansen, *San Francisco's Water Rights on the Tuolumne River Watershed*, prepared under the direction of A.O. Olson, Manager and Chief Engineer, Hetch Hetchy Water Supply, Power and Utilities Engineering Bureau, City and County of San Francisco Public Utilities Commission, July 1951. Available from the UC Riverside Water Resources Collections and Archives, Call No. G4794 H1.

Merced River Riparian Pre-1914 Consumptive Water Rights

Water Right Type	Status	Holder Name	Date	Point of Diversion	Comment	Face Amount, AF
Appropriative	Pre-1914	Farmer's Canal Company	1876	Originally that of the Robla Ditch	2500 cfs, with no apparent seasonal limitations.	1,811,157
Appropriative	Pre-1914	Crocker-Huffman Land & Water Company	1883	Crocker-Huffman Dam	2500 cfs; this right was originally filed by C.H. Huffman personally, acquired by Huffman and Crocker's Merced Canal & Irrigation Company, later taken over by Crocker Huffman Land & Water Company in late 1880s. This water right was acquired by Merced Irrigation District in 1919 after the District was formed.	1,811,157
Riparian		Upton et al	1895	Various - along Merced River below Crocker-Huffman Dam	Maximum diversion of 225 cfs pursuant to the Upton Decree of 1895	163,004
Riparian		Dale & Cook Ranch owners	1876	Various individuals associated with ownership of the Dale and Cook Ranch	24 cfs amount to a total diversion of 1,900 AF during diversion season	1,900
Riparian		J.J. Stevinson	1930	Merced ID's boundary intersecting with McCoy Spillway, Arena Spillway, or Bear Creek	Diversion season is from April 1 through September 30 with varying flow rates each month therein, according to the Stevinson Decree. Merced ID agreed with Stevinson to exchange delivery of water from Lake McClure up to 24,000 acre-feet annually, in exchange for an easement for the District to incorporate Stevinson's riparian water into District operations at Lake McClure."The rights hereby conveyed by the Company to the District shall be an easement in all the right title, interest, estate, and claims of the Company in and to the lands...in which it has an interest, and as against any right which the Company may now have in and to the waters of said Merced River."	24,000
Riparian		Parties to the Cowell Agreement	1926	Crocker-Huffman Dam	Merced Irrigation District is required to provide releases from New Exchequer Dam to meet riparian right holders requirements.	93,793
Pre-1914 and Riparian Water Rights, Merced River						3,905,012

Water RightsOperation Model.xls
Sources: Merced County Superior Court; C-WIN. Merced River Decrees

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San Joaquin River Riparian and Pre-1914 Consumptive Water Rights Claims

San Joaquin River Irrigation Uses	Estimated Face Amount	Point of Diversion	Other Description
USBR Purchase Rights from Miller & Lux Inc.	624,200	Friant Dam, diverted at Madera and Friant-Kern Canals	Subject of a water rights purchase contract with US Bureau of Reclamation, and appraised at this quantity of water (Etcheverry, 1936; California Water Project Authority, 1936). Originally grassland and "uncontrolled" riparian flood flows. Grassland flows were pre-1914 appropriative rights of the Miller & Lux canal company; "uncontrolled" flows were riparian rights associated with lands adjacent to the San Joaquin River owned by Miller & Lux cattle business for grazing.
San Joaquin River Exchange Contractors Rights - exchange/easement on cropland water rights	840,000	USBR diverts these flows from the San Joaquin River into Madera and Friant-Kern Canals	Subject of a water rights exchange contract with US Bureau of Reclamation (Engle, Part Two, 1957). Originally "cropland" rights owned by Miller & Lux Inc. on which permanent and other crops were cultivated with highly reliable senior appropriative and riparian water rights. The Exchange Contractors having provided USBR with an easement for these rights receives in their place flows from Shasta Reservoir via Delta Mendota Canal.
Chowchilla Farms/Water District	49,300	Chowchilla Canal diversion from San Joaquin River upstream of Mendota Pool, east side of the river.	Subject of a water rights purchase contract with US Bureau of Reclamation for appropriative rights via Chowchilla Canal and under appropriative and riparian rights through the Blythe Canal, acquisition of which would be used in storage at Friant Dam and diversion into Madera Canal (California Water Project Authority, No. 6, 1937). The lands from which these rights were purchased lie between Fresno and Chowchilla rivers along the east bank of the San Joaquin River.
Lands Between Chowchilla Farms and Stevinson Colony	40,281	Between Chowchilla River and Merced River along east side of San Joaquin River.	Subject to water rights purchase contracts with US Bureau of Reclamation (including lands of Bloss, Hatfield, Crane, Turner, Erreca and Hansen) (California Water Project Authority, No. 7, 1937). Includes lands formerly owned by Miller & Lux, Inc., conveyed with reservations of easements in and to use of water and upstream storage rights reserved to Miller & Lux. Estimate of water rights shown are for uncontrolled flood and riparian rights as described in 1936, subordinate only to prior appropriative, prescriptive and contractual rights held by Miller & Lux and associated companies.
Stevinson/East Side Canal	20,168	Pre-1914 appropriative and riparian diversions upstream on San Joaquin River from Merced River confluence.	Unclear whether US Bureau of Reclamation entered into a water rights purchase contract with Stevinson. Stevinson's diversion rights were considered subordinated to Edison Securities and Miller & Lux (California Water Project Authority, No. 8, 1939, 18), and Stevinson instead was able to arrange a supply of water for its lands via the Merced River from Merced Irrigation District under the Stevinson Contract. East Side Canal appropriation from the San Joaquin River was found to average 14,268 AF, while residual riparian rights to the San Joaquin averaged 5,900 AF.
Tranquillity & James Irrigation Districts - Fresno Slough	29,300	Riparian diversions along Fresno Slough upstream of Mendota Pool.	Diversions were subordinated to Miller & Lux rights and allowed only when San Joaquin River reached 1,360 cfs and then the districts could take just 12 percent up to a maximum of 140 cfs. Estimated face amount for these districts obtained from Table 5 of California Water Project Authority, 1936.
Edison Securities	33,127	Riparian diversions just upstream of Mendota Pool and Fresno Slough along left (south) bank of San Joaquin River	Subject of a water rights purchase contract with US Bureau of Reclamation for uncontrolled overflow riparian rights from the San Joaquin River and associated sloughs upstream of Mendota Pool, along south bank (California Water Project Authority, No. 8, 1938). Edison Securities purchased these riparian lands from the Herminghaus Estate in January 1928.
Friant to Gravelly Ford right holders	116,741	As many as 198 diversions and/or pumps of water from lands adjacent to the San Joaquin River	Rights of most of these landowners were acquired by USBR, but some of those not immediately acquired by 1939 became plaintiffs in Rank v. Krug, a suit by water right holders and groundwater pumpers in this area against Friant Dam. Case decided by U.S. Supreme Court in 1957? The court determined that these water right holders collectively used about 200,000 acre-feet per year in this area of the San Joaquin River. This was the section of the river that received releases from Friant under D-990, and below Gravelly Ford, the river dried up through to the confluence with the Merced River. San Joaquin River Restoration Program Settlement Agreement states that riparian releases are now 117,000 to 126,000 acre-feet per year, consistent with "Steiner declaration."
Total Pre-1914 and Riparian Water Rights, Upper San Joaquin River	1,753,117		

Sources: State of California Water Project Authority, 1936-1939; Rank v. Krug; San Joaquin River Settlement Agreement, 2006.

San Joaquin River Riparian and Pre-1914 Consumptive Water Rights Claims

Lands east of San Joaquin River, Between Chowchilla Farms and Stevinson Colony Assumed Riparian to that Stream or its Branch Channels	Area in Acres	Estimated Average Uncontrolled Diversions, based on 1.65 acre-feet per acre
A.J. Turner	158	261
George J. Hatfield	1,293	2,133
Charles S. Howard	5,514	9,098
Charles A. Crane	2,400	3,960
Ed P. Waltz	2,640	4,356
Fred A Solari and J.A. Turner	861	1,421
Dan L McNamara	1,236	2,039
Dan L McNamara	957	1,579
Martin Erreca	520	858
Nell E Hanson	527	870
Jessie S Potter(1)	2,270	3,746
Jessie S Potter(2)	6,037	9,961
Totals	24,413	40,281

Source: California Water Project Authority, 1937b, 1937c.

Appendix D

**Section D.6
Post-1914 Consumptive Water Rights Claims**

Trinity River Watershed - Post-1914 Appropriative Water Rights

Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A029129	20341		BLUE JAY WATER ASSOCIATION	10/19/1987	20.80	Trinity	TRINITY RIVER UNDERFLOW
A027206	18568	12081	BRUCE G HANEY	2/5/1982	0.60	Trinity	TRINITY RIVER
A021330	14347	10037	Chad Blevins	6/10/1963	5.20	Trinity	TRINITY RIVER
A017749	11255	6749	CHARLES HIGGS	7/31/1957	16.80	Trinity	TRINITY RIVER
A027969	19275	12725	CHRISTOPHER T CROSS	2/3/1984	0.20	Trinity	TRINITY RIVER
A010791	6398	4625	CHRISTOPHER T CROSS Total	3/24/1944	2,171.90	Trinity	EAST FORK STUART FORK TRINITY RIVER
A017743	11178	6988	COVINGTON MUTUAL WATER COMPANY	1/28/1964	33.30	Trinity	TRINITY RIVER
A026530	18389	12111	DAVID COVINGTON Total	9/24/1980	1.10	Trinity	TRINITY RIVER UNDERFLOW
A026529A	18429	12935	DAVID L SULLIVAN	1/22/1982	0.50	Trinity	TRINITY RIVER UNDERFLOW
A021142	14094	8656	GARTH R SUNDBERG	1/28/1963	0.30	Trinity	TRINITY RIVER
A029111	20233	13386	GEORGE PAINTER	9/16/1987	1.20	Trinity	TRINITY RIVER UNDERFLOW
A029183	20269	13322	GERARD A KAZ	2/3/1988	2.30	Trinity	TRINITY RIVER
A029336	20343	13616	GERARD A KAZ Total	11/9/2005	0.30	Trinity	TRINITY RIVER
A026660	18369	12082	HAZEL J SCHOTT	12/10/1980	0.60	Trinity	TRINITY RIVER
A029302	20344	13485	James Lee and Billie Jo Bonk Revocable Trust	7/18/1988	1.80	Trinity	TRINITY RIVER UNDERFLOW
A024059	16579	10904	JEFFREY J BUTLER	5/3/1972	1.40	Trinity	TRINITY RIVER UNDERFLOW
A027867	19134	12721	KATHERINE L RIDENOUR	9/14/1983	1.10	Trinity	TRINITY RIVER UNDERFLOW
A017669	11106	6566	KATHY WATSON	6/21/1957	543.00	Trinity	TRINITY RIVER
A018177	11654	6612	Ken Tamplen	6/11/1958	311.30	Trinity	ALDER GULCH, TRINITY RIVER
A027639	18898	12674	Ken Tamplen Total	1/24/1983	0.30	Trinity	TRINITY RIVER
			Lewiston Community Service District				
			Lewiston Community Service District Total				
			LEWISTON PARK MUTUAL WATER COMPANY, INC				
			LEWISTON PARK MUTUAL WATER COMPANY, INC Total				
			MADNELINA CORONA				
			MADNELINA CORONA Total				

Trinity River Watershed - Post-1914 Appropriative Water Rights

Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A020923	13998	8410	MARCIA OSA COATES	9/4/1962	0.30	Humboldt	TRINITY RIVER
	15783	10384	MARCIA OSA COATES Total	7/25/1968	5.60	Trinity	TRINITY RIVER
A023097	20081	13096	MARK GIBERSON	9/25/1986	2.00	Trinity	TRINITY RIVER
A028907	9527	5059	NOELLE ROGET	6/3/1953	0.80	Trinity	TRINITY RIVER
A015365	9528	5060	NORMAN EVANS	6/3/1953	0.30	Trinity	TRINITY RIVER
A015366	19198	12716	NORMAN EVANS Total	8/31/1983	1.10	Trinity	TRINITY RIVER UNDERFLOW
A027855	13120	7920	RALPH M MCCOMB	4/13/1961	0.50	Trinity	TRINITY RIVER
A020084	10146	5302	ROGER F KENDELL	10/13/1954	2.20	Humboldt	TRINITY RIVER
A016087	9531	5145	ROGER F KENDELL Total	3/9/1953	1,642.50	Humboldt	TRINITY RIVER
A015227	18390	12060	RONALD JURIN	9/24/1980	2.30	Humboldt	TRINITY RIVER
A026531	15541	10386	RONALD JURIN Total	6/30/1967	0.40	Trinity	TRINITY RIVER UNDERFLOW
A022840	14149	8631	RUSSELL H HAGEN JR	2/18/1963	3.40	Trinity	TRINITY RIVER
A021166	17650	3513	RUSSELL H HAGEN JR Total	9/19/1973	7.60	Trinity	TRINITY RIVER
A026531	7140	12060	STAN POFF	6/9/1947	360.00	Trinity	EAST FORK STUART FORK TRINITY RIVER
A022840	15541	10386	STAN POFF Total	11/16/1962	852.90	Trinity	TRINITY RIVER
A021166	14149	8631	STEPHEN DUTTON	7/30/2027	29.00	Trinity	TRINITY RIVER
A024462	17650	3513	STEPHEN DUTTON Total	7/29/2002	3,349,943.80	Contra Costa, Trinity	OLD RIVER, TRINITY RIVER
A011927	7140	3513	STEVEN B PETERSON	9/16/1959	417,193.30	Trinity	OLD RIVER, TRINITY RIVER
A021019	14077	8386	STEVEN B PETERSON Total	7/29/2002	3,030,761.80	Contra Costa, Trinity	Old River, TRINITY RIVER
A005628	11967	11967	TRINITY VILLAGE WATER COMPANY	7/29/2002	700,000.00	Trinity	TRINITY RIVER
A015374	11967	11967	TRINITY VILLAGE WATER COMPANY Total	7/29/2002	1,085,966.30	Trinity	TRINITY RIVER
A015375	11969	11969	U S SHASTA-TRINITY NATL FOREST	10/1/1971	8,583,865.20	Trinity	SOUTH FORK TRINITY RIVER
A016767	11971	11971	U S SIX RIVERS NATL FOREST		4.00	Trinity	
A017374	11973	11973	U.S. BUREAU OF RECLAMATION				
A023882	16413	10503	U.S. BUREAU OF RECLAMATION Total				
			WADE AMMON SR				
			WADE AMMON SR Total				

Trinity River.xls
Post-1914 Appropriative Rights

Trinity River Watershed - Post-1914 Appropriative Water Rights

Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A029410	20757		WEAVERVILLE COMMUNITY SERVICES DISTRICT	2/14/1989	870.00	Trinity	TRINITY RIVER
			WEAVERVILLE COMMUNITY SERVICES DISTRICT Total		870.00		
A028537	19864	12946	WILLIAM E HOYER	8/14/1985	0.10	Trinity	TRINITY RIVER UNDERFLOW
			WILLIAM E HOYER Total		0.10		
			Grand Total		8,590,763.10		

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Trinity River.xls
Post-1914 Appropriative Rights

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Pit River - Post-1914 Appropriative Water Rights

Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A001300	1360	2302	1994 ORAL BABCOCK LIVING TRUST	05/29/19	3,600.00	Lassen	EAST FORK JUNIPER CREEK
A001696	1361	2595	1994 ORAL BABCOCK LIVING TRUST	03/01/20	892.60	Lassen	DARK CANYON CREEK
A005549	2891	1366	1994 ORAL BABCOCK LIVING TRUST Total	06/28/27	4,492.60		
A004554	2316	1602	AGENCY 5	11/14/35	282.40	Siskiyou	SOUTH FORK BEAR CREEK
A002383	1170	2169	AGENCY 5 Total	11/14/35	185.00	Modoc	DUTCH FLAT CREEK
A010079	8453	4291	Alan K. Nelson	06/07/21	185.00	Modoc	JUNIPER GULCH
A013339	7970	6443	ALTURAS RANCHES LLC	12/05/40	900.00	Modoc	CROOKS CANYON
A013526	8456	4294	ALTURAS RANCHES LLC	09/07/49	745.00	Modoc	BIG JUNIPER CREEK
A014759	9219	6071	ALTURAS RANCHES LLC	12/29/49	113.80	Modoc	CROOKS CANYON
A016047	10304	6951	ALTURAS RANCHES LLC	04/17/52	93.50	Modoc	CROOKS CANYON
A016048	10305	6952	ALTURAS RANCHES LLC	09/15/54	204.00	Modoc	CROOKS CANYON
A021557	14924	9579	ALTURAS RANCHES LLC	09/15/54	204.00	Modoc	CROOKS CANYON
A020606	13624	8511	ALTURAS RANCHES LLC Total	11/27/63	1,370.00	Modoc	UNST, UNXX
A022408	15210	9918	ANTHONY BOKARES	02/13/62	4,100.30	Lassen	UNST
A027640	18903	12948	ANTHONY BOKARES	02/28/66	15.00	Lassen	UNST, UNST (2)
A021194	14258	9878	ANTHONY BOKARES Total	01/27/83	29.00	Modoc	UNST
A011646	8075	4938	AUGUSTINO DE MARIA	03/14/63	4.20	Siskiyou	LAVA CRACK SPRINGS
A015526	9636	4938	BECKETT TRUST	12/04/46	0.10	Lassen	HOLBROOK CANYON STREAM
A002093	872	4360	BECKETT TRUST Total	09/03/53	215.00	Lassen	HOLBROOK CANYON STREAM
A010109	6084	4361	BETTY ANN CARROLL	11/22/20	965.00	Modoc	ANTELOPE FLAT DRAINAGE AREA
A010407	6083	4362	BETTY ANN CARROLL	02/05/41	100.00	Modoc	ANTELOPE FLAT DRAINAGE
A010866	6319	4442	BETTY ANN CARROLL Total	03/17/42	2,635.00	Modoc	ANTELOPE FLAT DRAINAGE AREA
A014605	9028	4968	BIG VALLEY MUTUAL WATER COMPANY	08/22/44	5,600.00	Shasta	LAST CHANCE CREEK, WHALEN CREEK
A026030	17951	11911	BIG VALLEY MUTUAL WATER COMPANY	12/18/51	184.50	Lassen	BURNEY CREEK
A014689	9035	5250	BIG VALLEY MUTUAL WATER COMPANY Total	06/20/79	200.00	Lassen	UNST
A012845	7485	4429	Black Ranch, LLC	02/27/52	1.90	Shasta	NORTH FORK GLEASON CREEK
A022921	15644	9980	BO THORENFELT	12/03/48	30.00	Modoc	HATCHET CREEK
A022922	15645	9979	BO THORENFELT Total	10/09/67	72.40	Modoc	SOUTH FORK FITZHUGH CREEK
A015331	9762	7286	BRIAN J VANVORIS	10/09/67	11.00	Modoc	MIDDLE FORK FITZHUGH CREEK
			BRIAN J VANVORIS Total	05/04/53	27.00	Shasta	HALL CREEK
			BRYON E GIBBONS Total		353.50	Shasta	
			CALIF DEPT OF FORESTRY & FIRE PROTECTION Total				
			CALIFORNIA PINES PROPERTY OWNERS' ASSOCIATION Total				
			CALIFORNIA PINES PROPERTY OWNERS' ASSOCIATION				
			CALIFORNIA PINES PROPERTY OWNERS' ASSOCIATION				
			Total				

Pit River Watershed 2012.xls
Appropriative Post-1914

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Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A029440	20654		CHARLENE E STONE Total		353.50		
			CHARLES A ORWICK	03/17/89	49.00	Lassen	UNST
A011102	6482	3952	CHARLES A ORWICK Total		49.00		
			CLARK FRONTIN	07/09/45	325.80	Shasta	LITTLE ROARING CREEK
A026068	18571		CLARK FRONTIN Total		325.80		
			CLEO V HUNT	08/21/79	49.00	Lassen	WILLOW CREEK
A025835	18599	12335	CLEO V HUNT Total		49.00		
			CLIFFORD DE WITT	09/27/78	38.00	Modoc	UNST
A020320	13198	8334	CLIFFORD DE WITT Total		38.00		
			CORY BOSCHEE	07/24/61	5.00	Lassen	UNST
A025713	17569	12905	CORY BOSCHEE Total		9.00		
			CORY BOSCHEE	04/07/78	9.00	Lassen	UNST
A029694	20696		CORY BOSCHEE Total		14.00		
			CRAIG HERMSMEYER	06/03/02	27.00	Lassen	UNSP
A014927	9196	5036	CRAIG HERMSMEYER Total		27.00		
			DANIEL TANKERSLEY	07/28/52	190.00	Lassen	UNST
A021750	14649	9048	DANIEL TANKERSLEY Total		190.00		
			DANIEL K DAVIS	04/21/64	25.00	Shasta	UNST
A016506	10376	9234	DANIEL K DAVIS Total		25.00		
			DARAN V MYERS	08/08/55	279.00	Lassen	UNST, WILLOW CREEK
A020366	13402	9254	DARAN V MYERS Total		279.00		
			DAVID CRAWFORD	08/22/61	49.00	Lassen	UNST
A021064	14089	8630	DAVID CRAWFORD Total		49.00		
			David Hunt	12/06/62	24.00	Lassen	UNST
A022637	15852	10320	David Hunt Total		24.00		
			David King	11/14/66	10.00	Lassen	UNST
A022762	15472	9137	David King Total		10.00		
			DAVID E LLOYD	04/06/67	3.00	Modoc	UNST
A022887	15562	10015	DAVID E LLOYD Total		3.00		
			DELBERT GOULD	08/22/67	12.00	Modoc	UNST
A028571	20220		DELBERT GOULD Total		12.00		
			DENNIS DAUGHERTY	10/02/85	1,237.50	Lassen	CEDAR CREEK
A025231	18834	13011	DENNIS DAUGHERTY Total		1,237.50		
			DIXIE VALLEY RANCH	01/04/77	49.90	Lassen	RUSSELL DAIRY CREEK, UNST
A025522	17921	11827	DIXIE VALLEY RANCH Total		49.90		
			DON A GORDON	10/11/77	6.60	Shasta	UNST
A026108	17978	11826	DON A GORDON Total		8.00		
			DONALD B MCKERN	10/09/79	14.60	Shasta	UNST
A021059	14056	8335	DONALD B MCKERN Total		14.60		
			DONALD J MARTIN	12/03/62	49.00	Lassen	UNST
A001503	660	531	DONALD J MARTIN Total		49.00		
			DONALD J MARTIN	04/29/26	158.80	Shasta	FALL RIVER
A013095	8315	4236	DONALD J MARTIN Total		158.80		
			EDWARD MOHR	05/16/49	22.10	Modoc	PIT RIVER
A018923	12202	6637	EDWARD MOHR Total		22.10		
			EDWARD F BRUCE	08/19/59	4.00	Shasta	UNST
			EDWARD F BRUCE Total		4.00		

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A022804	15612	9565	ELLEN E TAYLOR	06/06/67	228.00	Shasta	UNST
			ELLEN E TAYLOR Total		228.00		
A026243	18595	13611	ELWOOD FORD	09/13/05	3.80	Shasta	UNST
			ELWOOD FORD Total		3.80		
A017857	11414	6589	ERNEST W BRUCE	10/23/57	135.00	Shasta	PIT RIVER
			ERNEST W BRUCE Total		135.00		
A020025	13599	10798	EUGENE M BREZNOCK	03/09/61	198.00	Lassen	UNST
A020085	13600	8348	EUGENE M BREZNOCK	04/13/61	3.50	Lassen	UNST
			EUGENE M BREZNOCK Total		201.50		
A025806A	018103	13107	FRED A COLLINS	07/29/91	3.80	Shasta	UNST
	A		FRED A COLLINS Total		3.80		
A013659	8943	6444	FREDRICK ANKLIN	03/29/50	840.00	Modoc	HILTON DAIRY CREEK
A014070	8975	9266	FREDRICK ANKLIN	11/22/50	22.50	Modoc	HILTON CREEK
			FREDRICK ANKLIN Total		862.50		
A011557	7210	6446	FROSTY ACRES INCORPORATED	09/18/46	200.00	Lassen	UNST
A011736	7052	4435	FROSTY ACRES INCORPORATED	02/18/47	40.00	Lassen	UNST, WILLOW CREEK
A011737	7053	4436	FROSTY ACRES INCORPORATED	02/18/47	3.00	Lassen	UNST
A019491	13360	8102	FROSTY ACRES INCORPORATED	06/16/60	50.00	Lassen	UNST
A021478	14999	10108	FROSTY ACRES INCORPORATED	09/26/63	230.00	Lassen	WILLOW CREEK
			FROSTY ACRES INCORPORATED Total		523.00		
A025856	20266		GENELLE VOORHEES	10/16/78	14.40	Shasta	UNST, WILLOW CREEK
			GENELLE VOORHEES Total		14.40		
A022399	15231	9037	GEORGE SHEPHERD	02/21/66	15.00	Modoc	UNST
			GEORGE SHEPHERD Total		15.00		
A023826	16662	10945	GEORGE R WRIGHT	07/27/71	17.00	Modoc	CROOKS CANYON, UNST
			GEORGE R WRIGHT Total		17.00		
A000930	428	330	GERALDINE SILVA	02/18/18	142.00	Modoc	UNST
A025073	17557		GL JOHNS 2002 LIVING TRUST	05/24/76	49.00	Lassen	UNST
			GL JOHNS 2002 LIVING TRUST Total		49.00		
A019145	12799	8943	GOOSE VALLEY RANCH	04/04/07	4,000.00	Shasta	GOOSE CREEK
			GOOSE VALLEY RANCH Total		4,000.00		
A013524	8454	4292	GREEN VALLEY ENTERPRISES	12/29/49	227.50	Modoc	CROOKS CANYON
A014757	9217	4295	GREEN VALLEY ENTERPRISES	04/17/52	187.00	Modoc	CROOKS CANYON
A016046	10303	6950	GREEN VALLEY ENTERPRISES	07/18/63	408.00	Modoc	CROOKS CANYON
			GREEN VALLEY ENTERPRISES Total		822.50		
A026116	17974	13640	GREGORY R CALDWELL	04/11/06	20.00	Shasta	UNST
			GREGORY R CALDWELL Total		20.00		
A015339	9569	7237	HALCUMB CEMETERY DISTRICT	05/12/53	21.30	Shasta	MONTGOMERY CREEK
A021917	15596	10655	HALCUMB CEMETERY DISTRICT	09/25/64	22.00	Shasta	MONTGOMERY CREEK
			HALCUMB CEMETERY DISTRICT Total		43.30		
A019724	12980	9231	HAROLD W SIEMER	09/01/60	49.00	Lassen	UNCR
A029085	20238	13367	HARRY C BRAFF	08/10/87	49.00	Modoc	UNST
			HARRY C BRAFF Total		1.10		

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			HARRY C BRAFF Total		1.10		
A017256	10861	6858	HARRY J & MILLI TURIELLO TRUST	08/27/56	13.50	Shasta	PEACOCK CREEK
A022452	15675	10435	HARRY J & MILLI TURIELLO TRUST	04/25/66	36.00	Shasta	PEACOCK CREEK
			HARRY J & MILLI TURIELLO TRUST Total		49.50		
A025783	17641	12731	Henrich 2002 Trust	07/13/78	14.90	Shasta	UNSP
A028219	19379	12733	Henrich 2002 Trust	08/15/84	3.60	Shasta	UNSP
A025784A	017642	12732	Henrich 2002 Trust	09/16/86	5.00	Shasta	UNST
			Henrich 2002 Trust Total		23.50		
A018783	12140	8414	HOMER J ROBERTS	06/11/59	85.00	Modoc	UNST
A021280	14409	8415	HOMER J ROBERTS	05/13/63	85.00	Modoc	UNST
			HOMER J ROBERTS Total		170.00		
A003353	1768	9722	HOT SPRINGS VALLEY IRRIGATION DISTRICT	04/12/23	48,400.00	Modoc	RATTLESNAKE CREEK
A022427	15227	9723	HOT SPRINGS VALLEY IRRIGATION DISTRICT	03/17/66	20,000.00	Modoc	RATTLESNAKE CREEK
			HOT SPRINGS VALLEY IRRIGATION DISTRICT Total		68,400.00		
A021252	14278	8912	J A CONNER LIVING TRUST	04/23/63	49.00	Lassen	UNST
			J A CONNER LIVING TRUST Total		49.00		
A008627	4736	2378	J SCOTT & ELEANOR J VERMILYEA REVOCABLE TRUST 2000	04/03/36	457.00	Shasta	SHOTGUN CREEK
A021240	14262	9047	J SCOTT & ELEANOR J VERMILYEA REVOCABLE TRUST 2000	04/15/63	42.30	Shasta	UNSP, UNST
			J SCOTT & ELEANOR J VERMILYEA REVOCABLE TRUST 2000 Total		499.30		
A025000	17278	11664	JAMES H BICKFORD	02/23/76	200.00	Lassen	BEAVER CREEK, UNST
A002878	2026	1196	JANET PERRY	04/27/32	232.70	Shasta	HAT CREEK
			JANET PERRY Total		232.70		
A009609	5445	4437	JOE RUSS	06/06/39	100.00	Modoc	FRANKLIN CREEK
A009610	5446	4438	JOE RUSS	06/06/39	400.00	Siskiyou	FRANKLIN CREEK
A012005	7349	5491	JOE RUSS	07/24/47	120.00	Modoc	DRY CREEK
A020109	13413	8895	JOE RUSS	05/04/61	110.00	Modoc	UNST
A020936	14192	8896	JOE RUSS	09/11/62	20.00	Modoc	UNST
A021454	14575	8985	JOE RUSS	09/06/63	619.00	Modoc	LINNVILLE CREEK
A024016	16809	12904	JOE RUSS	04/03/72	568.00	Modoc	LINNVILLE CREEK
			JOE RUSS Total		1,937.00		
A022761	15471	9136	JOHN KAHL	04/06/67	2.00	Modoc	UNST
			JOHN KAHL Total		2.00		
A023950	16457	10697	JOHN A YOUNGER	12/16/71	680.00	Modoc	UNDR
			JOHN A YOUNGER Total		680.00		
A016857	10677	5720	JOHN ASKEW	01/27/56	2.00	Lassen	UNST
A026194	18410	13346	JOHN ASKEW	02/01/80	0.80	Lassen	UNST
			JOHN ASKEW Total		2.80		
A002227	1893	4940	JOHN B CROOK	02/23/21	5,250.00	Lassen	COYOTE FLAT DRAINAGE AREA
			JOHN B CROOK Total		5,250.00		
A004700	2608	2083	JOHN F PARRISH	09/04/40	381.80	Shasta	HAT CREEK
			JOHN F PARRISH Total		381.80		
A029321	20792		JOHN W CAPIK	08/19/88	45.00	Modoc	LINNVILLE CREEK, UNST

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A030251	21250		JOHN W CAPIK Total		45.00		
			JOHNSON CREEK DITCH USER'S ASSOCIATION	10/19/09	181.00	Shasta	UNST
A025931	18350	13252	JOHNSON CREEK DITCH USER'S ASSOCIATION Total		181.00		
			JOSEPH LOUIS OSA	02/28/79	27.00	Shasta	UNST
A009761	5494	3318	JOSEPH LOUIS OSA Total		27.00		
			JUANITA C GARDNER TRUST	11/04/39	492.50	Modoc	UNST
A021664	14735	10181	JUANITA C GARDNER TRUST Total		492.50		
			JUNIPER ACRES WATER ASSOCIATION	03/02/64	2.80	Modoc	UNSP
A026244	18418	12315	JUNIPER ACRES WATER ASSOCIATION Total		2.80		
			KEITH MACDONALD	03/03/80	1.10	Shasta	UNST
A005812	3592	2179	KEITH MACDONALD Total		1.10		
			KRAMER RANCH LLC	01/28/28	2,563.40	Lassen, Modoc	WIDOW VALLEY CREEK
A017267	10726	5192	KRAMER RANCH LLC Total		2,563.40		
			KRAMER RANCH LLC	09/07/56	27.80	Modoc	WIDOW VALLEY CREEK
A000245	190	250	KRAMER RANCH LLC Total		2,591.20		
			LARRY R WILLMORE	02/03/16	181.00	Shasta	CLARK CREEK
A026038	18018	11918	LARRY R WILLMORE Total		181.00		
			LASSEN GOLD MINING INC	06/29/79	55.00	Lassen	UNST
A027034	18637	11923	LASSEN GOLD MINING INC Total		55.00		
			LASSEN GOLD MINING INC	10/05/81	20.00	Lassen	UNST
A024977	17063	11560	LASSEN GOLD MINING INC Total		75.00		
			LEON URRUTIA	01/20/76	49.00	Modoc	UNST
A013207	8000	5072	LEON URRUTIA Total		49.00		
			LOOKOUT RANCH & LODGE LP	07/05/49	1,500.00	Modoc	TAYLOR CREEK
A028610	20217		LOOKOUT RANCH & LODGE LP Total		1,500.00		
			LOWELL L NOVY	10/31/85	2,790.00	Lassen	CEDAR CREEK
A010820	6290	4188	LOWELL L NOVY Total		2,790.00		
			M D & N L MYERS FAMILY 1986 REVOCABLE TR	05/18/44	90.00	Lassen	CHACE VALLEY CREEK
A013504	8430	6063	M D & N L MYERS FAMILY 1986 REVOCABLE TR Total		90.00		
			M D & N L MYERS FAMILY 1986 REVOCABLE TR	12/09/49	50.00	Lassen	UNST
A022750	15460	9138	M D & N L MYERS FAMILY 1986 REVOCABLE TR Total		140.00		
			MANUEL SOUZA	04/06/67	3.00	Modoc	UNST
A022751	15461	9169	MANUEL SOUZA Total		3.00		
			MANUEL SOUZA	04/06/67	3.00	Modoc	UNST
A022752	15462	9172	MANUEL SOUZA Total		2.50		
			MANUEL SOUZA	04/06/67	2.00	Modoc	UNST
A022753	15463	9212	MANUEL SOUZA Total		2.00		
			MANUEL SOUZA	04/06/67	1.50	Modoc	UNST
A022754	15464	9131	MANUEL SOUZA Total		1.50		
			MANUEL SOUZA	04/06/67	1.70	Modoc	UNST
A022755	15465	9139	MANUEL SOUZA Total		0.60		
			MANUEL SOUZA	04/06/67	0.60	Modoc	UNST
A022756	15466	9128	MANUEL SOUZA Total		2.40		
			MANUEL SOUZA	04/06/67	2.40	Modoc	UNST
A022757	15467	9168	MANUEL SOUZA Total		1.00		
			MANUEL SOUZA	04/06/67	1.00	Modoc	UNST
A022758	15468	9175	MANUEL SOUZA Total		1.40		
			MANUEL SOUZA	04/06/67	1.40	Modoc	UNST
A022759	15469	9135	MANUEL SOUZA Total		1.60		
			MANUEL SOUZA	04/06/67	20.70	Modoc	UNST
A022760	15470	9134	MANUEL SOUZA Total		20.70		
			MANUEL A MORRIS	09/14/61	38.00	Modoc	KRESGE CANYON
A020398	13622	9332	MANUEL A MORRIS Total		38.00		
			MAPES RANCH, INC	08/07/29	4.30	Lassen	UNST
A006398	3672	1554	MAPES RANCH, INC Total		4.30		
			MAPES RANCH, INC	03/07/60	1.00	Lassen	UNST
A019286	12548	7836	MAPES RANCH, INC Total		5.30		

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A013525	8455	4293	MCGARVA RANCH	12/29/49	113.80	Modoc	CROOKS CANYON
A014758	9218	6070	MCGARVA RANCH	04/17/52	93.50	Modoc	CROOKS CANYON
			MCGARVA RANCH Total		207.30		
A019743	13039	10035	MELVIN D MYERS	09/19/60	142.00	Lassen	BUTTE CREEK
			MELVIN D MYERS Total		142.00		
A028518	20218		MERRILL DAUGHERTY	04/14/88	315.00	Lassen	CEDAR CREEK
			MERRILL DAUGHERTY Total		315.00		
A000772	384	67	MICHAEL L SPAETH	10/09/19	22.30	Shasta	BY GONNY CREEK
			MICHAEL L SPAETH Total		22.30		
A026520	18999	13439	MILANO LAND AND CATTLE CO LLC	09/13/99	49.00	Modoc	BLACKS CANYON
A026521	19000	13440	MILANO LAND AND CATTLE CO LLC	09/13/99	142.00	Modoc	BLACKS CANYON
			MILANO LAND AND CATTLE CO LLC Total		191.00		
A021448	14429	10822	MONTGOMERY CREEK COMMUNITY CHURCH	09/03/63	0.20	Shasta	MONTGOMERY CREEK
			MONTGOMERY CREEK COMMUNITY CHURCH Total		0.20		
A016216	10191	5073	MORGAN RANCH COMPANY INC	01/24/55	200.00	Modoc	UNST
			MORGAN RANCH COMPANY INC Total		200.00		
A026197	18187	12069	NELLIE M DUNBAR	02/11/80	1.00	Shasta	UNST
			NELLIE M DUNBAR Total		1.00		
A015902	9988	5233	NELSON RANCHES	06/10/54	515.00	Modoc	JIM CREEK
A021318	14730	9346	NELSON RANCHES	05/31/63	215.00	Modoc	JIM CREEK
			NELSON RANCHES Total		730.00		
A016855	10715	5989	NOR CAL LAND & CATTLE CO	01/26/56	2.00	Lassen	UNST
			NOR CAL LAND & CATTLE CO Total		2.00		
A030720	20995		OAK RUN LUMBER CO LLC	06/23/98	3.00	Shasta	UNST
			OAK RUN LUMBER CO LLC Total		3.00		
A003566	1567	627	PARKS FAMILY 1995 REVOCABLE TRUST	08/04/23	3.00	Lassen	UNXX
			PARKS FAMILY 1995 REVOCABLE TRUST Total		3.00		
A008649	4793	2440	Patricia H Bushney	04/27/36	0.60	Modoc	UNSP
			Patricia H Bushney Total		0.60		
A027005	19072	12821	PAUL R JOLLY	09/15/81	3.90	Shasta	UNST
			PAUL R JOLLY Total		3.90		
A028892	20279		Peter D Stent	06/11/91	25.00	Shasta	BEAR CREEK
			Peter D Stent Total		25.00		
A026239	18761		PHILIP R GUNSAULS	02/28/80	35.00	Modoc	HALLS CANYON
			PHILIP R GUNSAULS Total		35.00		
A008194	4668	2076	PHYLLIS A HARRIS	12/22/34	200.00	Modoc	CLEAR LAKE
			PHYLLIS A HARRIS Total		200.00		
A001538	697	353	Pickering Family Trust	05/12/24	456.20	Shasta	FALL RIVER
			Pickering Family Trust Total		456.20		
A028570	20219		Pine Creek Cattle Company	10/02/85	157.50	Lassen	CEDAR CREEK
			Pine Creek Cattle Company Total		157.50		
A024696	18118	11874	R A STANFORD	10/17/74	23.00	Modoc	THOMAS & BAYNES DITCH, UNST
			R A STANFORD Total		23.00		
A014474	8866	6313	RAMIRO CHAVEZ	09/11/51	14.00	Lassen, Modoc	KELLY DRAW, UNKNOWN
			RAMIRO CHAVEZ Total		14.00		

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A000992	2307	1711	RAY BREINER	05/29/18	837.00	Modoc	FITZHUGH CREEK
A000993	2308	1712	RAY BREINER	05/29/18	457.00	Modoc	FITZHUGH CREEK
A000994	2309	1713	RAY BREINER	05/29/18	157.00	Modoc	FITZHUGH CREEK
A001252	2310	1714	RAY BREINER	04/21/19	400.00	Modoc	UNST
A007458	4506	4879	RAY BREINER	12/08/32	706.00	Modoc	FITZHUGH CREEK
A027787	19030	11857	RAY BREINER Total	06/30/83	2,557.00		BOWMAN SPRINGS
A025806B	018103		REDWOOD ROD & GUN CLUB	3-30			
A019517	13969	9567	RICHARD D WILLARD Total	08/11/78	2.50	Shasta	UNST
A000135	69	284	RICHARD L JENNINGS	07/06/60	44.00	Lassen	FRAZIER CREEK
A000486	202	53	RICHARD L JENNINGS	09/16/15	1,428.00	Modoc	PORTUGE FLAT DRAINAGE
A010835	6340	3101	RICHARD L JENNINGS	09/27/16	146.00	Modoc	RALSTON CREEK
A019209	13968	8686	RICHARD L JENNINGS Total	07/07/44	149.00	Modoc	RALSTON GULCH
A014321	8871	5241	RICHARD W CALLISON Total	02/02/60	1,723.00	Lassen	FRAZIER CREEK
A022203	15185	9750	ROBERT HEATON Total	126.30			ROARING CREEK
A013466	8323	6293	ROBERT C PEDOTTI	07/01/58	47.10	Shasta	UNST
A018851	12597	9869	ROBERT C PEDOTTI	06/23/65	20.00	Lassen	UNST
A002237	987	444	Robert C. Mann	11/16/49	565.00	Modoc	RYE GRASS SWALE
A021090	14039	8599	Robert C. Mann Total	07/10/59	669.00	Modoc	RYE GRASS SWALE
A021091	14040	8600	ROBERT H MACKEY & SONS INC	01/11/26	1,234.00	Modoc	PIT RIVER
A026159	18367	12239	ROBERT H MACKEY & SONS INC Total	153.30			UNST
A001164	573	318	ROGER ERICKSON	12/21/62	3.50	Modoc	UNST
A003398	1769	1813	ROGER ERICKSON	12/21/62	11.00	Modoc	UNST
A021444	14410	10692	ROGER ERICKSON Total	14.50			CANTRELL CREEK
A025784B	017642	12412	RONALD STICE Total	12/28/79	0.50		RYE GRASS SWALE
A022562	15288	9753	RONALD VIERRA	02/03/19	400.00	Modoc	RYE GRASS SWALE
A000596	346	252	RONALD VIERRA	05/04/23	130.00	Modoc	RYE GRASS SWALE
A003050	1396	1039	RONALD VIERRA Total	530.00			COOLEY GULCH
			Ronald M LaGrande	08/27/63	93.00	Modoc	UNST
			Ronald M LaGrande Total	09/16/86	3.40	Shasta	UNST
			RONALD STICE Total	3.40			UNST
			RONALD VIERRA Total	08/29/66	24.00	Lassen	UNST
			RONALD VIERRA Total	24.00			EMIGRANT CREEK
			252 RONALD L SCHLUTER	02/24/17	563.00	Modoc	UNST
			1039 RONALD L SCHLUTER	09/22/22	295.00	Modoc	UNST

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			RONALD L SCHLUTER Total		858.00		
A020754	14061	9326	RONALD WESLEY KETTLER	04/24/62	180.60	Modoc	UNST
A021405	14789	9325	RONALD WESLEY KETTLER	07/23/63	55.00	Modoc	UNST, UNXX
A021908	15045	9336	RONALD WESLEY KETTLER	09/17/64	45.00	Modoc	UNST
A000065	630	1146	RONALD WESLEY KETTLER Total		280.60		
			SARAH WADE	03/15/32	30.70	Lassen	WILLOW CREEK
A021346	14382	8764	SARAH WADE Total		30.70		
			SHIRLEY A HUGHES TRUSTOR	06/18/63	18.00	Modoc	UNST
A003220	1453	411	SHIRLEY A HUGHES TRUSTOR Total		18.00		
			SIERRA PACIFIC INDUSTRIES	01/12/23	135.80	Shasta	NELSON CREEK
A014477	9129	4385	SIERRA PACIFIC INDUSTRIES Total		135.80		
			SL RANCH	05/21/56	200.00	Modoc	CROOKS CANYON
A007860	4477	2474	SL RANCH Total		200.00		
A019309	12963	10603	SOUTH FORK IRRIGATION DISTRICT	03/05/34	17,000.00	Modoc	SOUTH FORK PIT RIVER, WEST VALLEY CREEK
A026955	18635	13409	SOUTH FORK IRRIGATION DISTRICT	03/14/60	2,240.00	Modoc	SOUTH FORK PIT RIVER, WEST VALLEY CREEK
			SOUTH FORK IRRIGATION DISTRICT Total		19,240.00		
			Stephen Lyon	08/11/81	0.40	Shasta	UNSP
A026795	18852	12922	Stephen Lyon Total		0.40		
			STEPHEN C NELSON	04/20/81	49.00	Modoc	UNST
A016526	10828	8665	STEPHEN C NELSON Total		49.00		
A021923	14862	9173	Steven Barber	08/15/55	5.40	Modoc	UNSP
			Steven Barber	10/06/64	20.00	Modoc	UNSP
A000338	137	54	Steven Barber Total		25.40		
A000421	885	1401	SX Lowry Ranch	05/15/16	550.00	Modoc	GOVERNMENT CORRALS FLAT
A001108	568	4410	SX Lowry Ranch	08/03/16	1,550.00	Modoc	ANTELOPE PLAINS
A023280	16046	10913	SX Lowry Ranch	10/05/18	380.00	Modoc	UNST
A020904	14743	12437	SX Lowry Ranch	05/15/79	2,000.00	Modoc	DOBE SWALE
			SX Lowry Ranch Total		970.00	Modoc	UNST
A006291	3873		TERRAL C YORK	04/24/89	5,450.00	Modoc	PARKER CREEK
A006290	3872		TERRAL C YORK Total		500.00	Modoc	
			TERRY YORK	05/17/29	500.00	Modoc	PARKER CREEK
A021455	14781	11127	TERRY YORK Total		180.00		
			THE DENIS M ROUSE 1993 TRUST	09/10/63	34.00	Lassen	UNST (AKA HOMER JACK DITCH)
A030197	20842	13614	THE DENIS M ROUSE 1993 TRUST Total		34.00		
			THE HUNT FAMILY TRUST	11/08/05	4.50	Modoc	UNST
A020916	14574	10783	THE HUNT FAMILY TRUST Total		4.50		
			THE MCARTHUR 1989 TRUST	08/29/62	1,800.00	Lassen	EAST FORK JUNIPER CREEK, UNST
A025081	16924	11432	THE MCARTHUR 1989 TRUST Total		1,800.00		
			THOMAS M ORIGER	06/08/76	0.90	Modoc	UNST
A022935	15594	9632	THOMAS M ORIGER Total		0.90		
			TIM D BABCOCK	10/23/67	10.50	Lassen	UNST
A028656	20237	13590	TIM D BABCOCK Total		10.50		
			TIMOTHY W SKALLAND	03/19/04	6.00	Shasta	UNST (AKA INDIAN CREEK)
			TIMOTHY W SKALLAND Total		6.00		

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A020062	13147	8361	TOM GIFFORD	03/31/61	30.00	Modoc	UNST
A020063	13148	9260	TOM GIFFORD	03/31/61	42.00	Modoc	TURNER CREEK
			TOM GIFFORD Total		72.00		
A019862	13061	9279	TOMMY B. ESPERANCE	04/09/70	30.00	Lassen	UNST
A000420	188	298	TOMMY B. ESPERANCE Total TRINITY MEADOWS LP	11/13/23	553.40	Shasta	HATCHET CREEK
			TRINITY MEADOWS LP Total		553.40		
A000760	852	465	U S FISH & WILDLIFE SERVICE	12/29/03	2,709.00	Modoc	PINE CREEK
A001042	853	466	U S FISH & WILDLIFE SERVICE	12/29/03	1,191.00	Modoc	PINE CREEK, STOCKDILL SLOUGH
A001321	854	1,352	U S FISH & WILDLIFE SERVICE	12/29/03	6,100.00	Modoc	PARKER CREEK, STOCKDILL SLOUGH
A012263	7291	4822	U S FISH & WILDLIFE SERVICE	12/29/03	1,100.00	Modoc	PINE CREEK
			U S FISH & WILDLIFE SERVICE Total		11,100.00		
A012068	7103	3978	U S LASSEN NATL FOREST	09/04/47	1.10	Lassen	BOARD CABIN SPRING
A012069	7104	4001	U S LASSEN NATL FOREST	09/04/47	0.50	Lassen	FIVE TROUGHS SPRING
A014978	9234	4535	U S LASSEN NATL FOREST	08/19/52	0.80	Lassen	PAT MORRIS SPRING
A018840	12883	9191	U S LASSEN NATL FOREST	07/01/59	650.00	Lassen	LITTLE DAVIS CREEK, UNST
A019698	12777	7758	U S LASSEN NATL FOREST	08/22/60	0.40	Shasta	COBBLE SPRING
A019699	12778	7759	U S LASSEN NATL FOREST	08/22/60	0.40	Lassen	CONE CACHE SPRING
A019700	12779	7760	U S LASSEN NATL FOREST	08/22/60	1.10	Shasta	COYOTE SPRING
A021662	14493	8914	U S LASSEN NATL FOREST	03/02/64	1.90	Lassen	WILLOW SPRING
A021663	14494	8915	U S LASSEN NATL FOREST	03/02/64	1.30	Siskiyou	WILEY RANCH SPRINGS
A025248	17964	12076	U S LASSEN NATL FOREST	01/19/77	650.00	Lassen	BIG JACK LAKE
A025660	17965	12077	U S LASSEN NATL FOREST	01/27/78	50.00	Lassen	BIG JACK LAKE
A018105A01	14822	11220	U S LASSEN NATL FOREST	04/30/82	190.00	Shasta	PROCTOR CREEK, UNST
A018105A02	14822	11220	U S LASSEN NATL FOREST	04/30/82	40.00	Shasta	PROCTOR CREEK, UNST
A027411	20039	12932	U S LASSEN NATL FOREST	07/13/82	0.10	Shasta	SOLDIER CREEK, UNST
A027412	20040	12933	U S LASSEN NATL FOREST	07/13/82	0.20	Shasta	SOLDIER CREEK
A029987	20731		U S LASSEN NATL FOREST	08/09/91	2.80	Siskiyou	MAYFIELD SPRING
A030254	20752		U S LASSEN NATL FOREST	05/07/93	73.50	Shasta	UNST
			U S LASSEN NATL FOREST Total		1,664.10		
A009132	5320	3945	U S MODOC NATL FOREST	09/29/37	0.70	Siskiyou	HEMLOCK SPRING
A009202	5239	4577	U S MODOC NATL FOREST	12/10/37	0.70	Siskiyou	SCHONCHIN SPRING
A010841	6296	5038	U S MODOC NATL FOREST	07/18/44	0.80	Modoc	HARRIS SPRING
A012708	7536	3580	U S MODOC NATL FOREST	09/23/48	0.30	Modoc	BOTTLE CREEK, BOTTLE SPRING
A013190	7748	3581	U S MODOC NATL FOREST	06/30/49	0.40	Modoc	LAYTON SPRING
A013194	7751	4023	U S MODOC NATL FOREST	06/30/49	0.40	Modoc	COTTONWOOD FLAT SPRING
A013213	7752	4401	U S MODOC NATL FOREST	07/08/49	0.20	Lassen	UNSP
A013214	7753	4402	U S MODOC NATL FOREST	07/08/49	0.20	Modoc	UNSP
A013215	7754	4396	U S MODOC NATL FOREST	07/08/49	0.70	Lassen	UNSP
A013821	8359	3894	U S MODOC NATL FOREST	06/28/50	0.20	Modoc	HOWARDS GULCH CAMPGROUND SPRING
A014088	8664	4277	U S MODOC NATL FOREST	12/04/50	0.10	Modoc	WEST VALLEY SPRING
A014089	8665	4986	U S MODOC NATL FOREST	12/04/50	0.10	Modoc	FITZHUGH SPRING
A014090	8666	4484	U S MODOC NATL FOREST	12/04/50	0.30	Modoc	GROUSE SPRING
A014091	8742	4281	U S MODOC NATL FOREST	12/04/50	0.20	Modoc	COWHEAD SPRING
A018091	11574	6605	U S MODOC NATL FOREST	04/09/58	8.50	Modoc	UNST

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A018203	11655	6376 U S	MODOC NATL FOREST	06/30/58	0.10	Modoc	UNSP
A018204	11656	6377 U S	MODOC NATL FOREST	06/30/58	0.10	Modoc	UNSP
A018636	12026	6619 U S	MODOC NATL FOREST	04/10/59	0.30	Lassen	RICHMAN SPRING
A019163	12503	7311 U S	MODOC NATL FOREST	01/04/60	0.50	Lassen	SUMMIT SPRING
A019164	12504	6712 U S	MODOC NATL FOREST	01/04/60	0.10	Modoc	HUNTER SPRING
A019165	12467	7467 U S	MODOC NATL FOREST	01/04/60	0.10	Modoc	HIDDEN SPRING
A019166	12468	6713 U S	MODOC NATL FOREST	01/04/60	0.20	Modoc	QUAIL SPRING
A019189	12469	7312 U S	MODOC NATL FOREST	01/25/60	0.20	Lassen	CHICKEN SPRING
A019283	12505	7532 U S	MODOC NATL FOREST	03/07/60	0.40	Modoc	RONNEY SPRING
A019284	12506	6714 U S	MODOC NATL FOREST	03/07/60	0.40	Modoc	STUDLEY SPRING
A019285	12507	7533 U S	MODOC NATL FOREST	03/07/60	0.20	Modoc	HORSEHEAD SPRING
A019340	12470	6715 U S	MODOC NATL FOREST	04/04/60	0.30	Modoc	HARPER SPRING
A019365	12508	7534 U S	MODOC NATL FOREST	04/20/60	0.20	Modoc	FERN SPRING
A019367	12510	7314 U S	MODOC NATL FOREST	04/20/60	0.20	Lassen	MUD SPRING
A019368	12511	6716 U S	MODOC NATL FOREST	04/20/60	0.20	Lassen	WATER CANYON SPRING
A019369	12512	7535 U S	MODOC NATL FOREST	04/20/60	0.20	Modoc	HOG GULCH SPRING
A019370	12557	6717 U S	MODOC NATL FOREST	04/20/60	0.20	Lassen	DAGO SPRINGS
A019970	13069	8052 U S	MODOC NATL FOREST	02/07/61	0.30	Modoc	FOX MOUNTAIN SPRING
A019971	13070	8053 U S	MODOC NATL FOREST	02/07/61	0.40	Modoc	PLUM SPRING
A019972	13071	8333 U S	MODOC NATL FOREST	02/07/61	7.50	Lassen	UNSP
A019973	13072	8054 U S	MODOC NATL FOREST	02/07/61	0.20	Lassen	SCHOTT SPRING
A020112	13484	8055 U S	MODOC NATL FOREST	05/08/61	0.10	Lassen	DEER SPRING
A020113	13485	8056 U S	MODOC NATL FOREST	05/08/61	0.10	Lassen	STUMP SPRING
A020716	13706	8558 U S	MODOC NATL FOREST	04/10/62	0.20	Lassen	WALKER FLAT DRAW SPRING
A020717	13707	8559 U S	MODOC NATL FOREST	04/10/62	0.30	Lassen	INDIAN SPRING
A021095	14181	8841 U S	MODOC NATL FOREST	01/02/63	0.20	Lassen	UNSP
A021097	14183	8842 U S	MODOC NATL FOREST	01/02/63	0.20	Modoc	UNSP
A021099	14185	8843 U S	MODOC NATL FOREST	01/02/63	0.20	Lassen	UNSP
A021100	14095	8653 U S	MODOC NATL FOREST	01/02/63	0.20	Modoc	UNSP
A021101	14096	8592 U S	MODOC NATL FOREST	01/02/63	0.30	Modoc	MUD SPRING
A021102	14097	8643 U S	MODOC NATL FOREST	01/02/63	0.30	Modoc	PINE SPRING
A021103	14098	8622 U S	MODOC NATL FOREST	01/02/63	0.60	Modoc	HOSKINS SPRING
A021104	14099	8623 U S	MODOC NATL FOREST	01/02/63	0.80	Modoc	HEAD OF RUSH CREEK SPRING
A021105	14100	8654 U S	MODOC NATL FOREST	01/02/63	0.50	Modoc	CHALK SPRING
A021165	14101	8659 U S	MODOC NATL FOREST	02/18/63	0.70	Modoc	RONNEY FLAT SPRING
A021491	14341	8773 U S	MODOC NATL FOREST	10/07/63	0.50	Lassen	DEER SPRING
A021492	14342	8838 U S	MODOC NATL FOREST	10/07/63	0.50	Lassen	BUNSELMEIER SPRING
A021501	14422	8840 U S	MODOC NATL FOREST	10/15/63	0.50	Lassen	JIMMY PACKWOOD SPRING
A021502	14489	8906 U S	MODOC NATL FOREST	10/15/63	0.50	Lassen	GERIG SPRING
A021503	14536	8907 U S	MODOC NATL FOREST	10/15/63	0.40	Modoc	DEEP CUT SPRING
A026211	17982	12567 U S	MODOC NATL FOREST	02/20/80	0.20	Lassen	UNST
A026216	17985	12091 U S	MODOC NATL FOREST	02/20/80	0.20	Lassen	UNST
A026217	17986	12092 U S	MODOC NATL FOREST	02/20/80	0.20	Lassen	UNST
A026218	17987	12093 U S	MODOC NATL FOREST	02/20/80	0.20	Lassen	UNST
A026220	17989	12094 U S	MODOC NATL FOREST	02/20/80	0.20	Lassen	UNST

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A026221	17990	12095	U S MODOC NATL FOREST	02/20/80	0.20	Lassen	WINDMILL FLAT
A026222	17991	12096	U S MODOC NATL FOREST	02/20/80	0.10	Lassen	UNSP
A026288	18180	12097	U S MODOC NATL FOREST	04/10/80	0.20	Lassen	UNST
A026290	18182	12098	U S MODOC NATL FOREST	04/10/80	0.20	Lassen	UNST
A026348	18251	12090	U S MODOC NATL FOREST	05/14/80	0.20	Modoc	UNST
A026405	18265	12099	U S MODOC NATL FOREST	06/06/80	0.10	Modoc	SHAKE CANYON
A026477	18381	12100	U S MODOC NATL FOREST	07/29/80	0.20	Lassen	UNST
A026897	19797	13446	U S MODOC NATL FOREST	06/30/81	0.10	Modoc	UNST
A026893	19794	U S MODOC NATL FOREST	U S MODOC NATL FOREST	06/30/81	0.20	Modoc	UNST
A026894	19795	U S MODOC NATL FOREST	U S MODOC NATL FOREST	06/30/81	0.20	Modoc	UNST
A026898	19798	U S MODOC NATL FOREST	U S MODOC NATL FOREST	06/30/81	0.20	Lassen	UNST
A027231	18659	12568	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027233	18661	12568	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027234	18662	12570	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027235	18663	12571	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027236	18664	12572	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027237	18665	12573	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027238	18666	12574	U S MODOC NATL FOREST	03/09/82	0.20	Lassen	UNST
A027431	18853	13495	U S MODOC NATL FOREST	07/15/82	0.10	Modoc	UNST
A027647	19599	U S MODOC NATL FOREST	U S MODOC NATL FOREST	02/01/83	102.00	Lassen	UNST
A027648	19600	U S MODOC NATL FOREST	U S MODOC NATL FOREST	02/01/83	96.50	Lassen	UNST
A027732	19288	12746	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027733	19289	12747	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027734	19290	12748	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027735	19291	12749	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027737	19293	12750	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027738	19294	12738	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027739	19295	12752	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027740	19296	12753	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027741	19297	12754	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027742	19298	12755	U S MODOC NATL FOREST	04/27/83	0.20	Lassen	UNST
A027999	19750	13062	U S MODOC NATL FOREST	03/15/84	0.10	Modoc	UNST
A028001	19752	13359	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028002	19753	13360	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028004	19755	13015	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028006	19757	13016	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028007	19758	13017	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028008	19759	13018	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028009	19760	13019	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028011	19762	13361	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028012	19763	13362	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028014	19765	13020	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028019	19770	13021	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028021	19772	13493	U S MODOC NATL FOREST	03/15/84	0.20	Lassen	UNST
A028022	19773	13022	U S MODOC NATL FOREST	03/15/84	0.20	Lassen	COYOTE FLAT DRAW

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A028024	19775	13023	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	STONE COAL CREEK
A028027	19778	13466	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	STONE COAL CREEK
A028028	19779	13024	U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028030	19781	13025	U S MODOC NATL FOREST	03/15/84	0.20	Lassen	WALKER DRAW
A028031	19782	13397	U S MODOC NATL FOREST	03/15/84	0.20	Lassen	UNST
A028000	19751		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028005	19756		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028015	19766		U S MODOC NATL FOREST	03/15/84	0.20	Lassen	UNST
A028016	19767		U S MODOC NATL FOREST	03/15/84	0.20	Lassen	UNST
A028017	19768		U S MODOC NATL FOREST	03/15/84	0.20	Lassen	CARY SPRING
A028018	19769		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028026	19777		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	MUD SPRING
A028029	19780		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028032	19783		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	UNST
A028033	19784		U S MODOC NATL FOREST	03/15/84	0.20	Modoc	DEEP CUT SPRINGS
A028398	19671	13366	U S MODOC NATL FOREST	02/26/85	0.10	Lassen	UNST
A028400	19673	13374	U S MODOC NATL FOREST	02/26/85	0.10	Modoc	UNST
A028838	20023	13496	U S MODOC NATL FOREST	05/20/86	0.20	Lassen	UNST
A028841	20026	13453	U S MODOC NATL FOREST	05/20/86	0.20	Lassen	AMBROSE CANYON
A028845	20030	13365	U S MODOC NATL FOREST	05/20/86	0.20	Lassen	UNST
A028846	20031	13392	U S MODOC NATL FOREST	05/20/86	0.20	Lassen	UNST
A028837	20022		U S MODOC NATL FOREST	05/20/86	0.20	Modoc	UNST
A028839	20024		U S MODOC NATL FOREST	05/20/86	0.20	Modoc	UNST
A028840	20025		U S MODOC NATL FOREST	05/20/86	0.20	Modoc	UNST
A028842	20027		U S MODOC NATL FOREST	05/20/86	0.20	Lassen	UNST
A028843	20028		U S MODOC NATL FOREST	05/20/86	0.20	Lassen	UNST
A028844	20029		U S MODOC NATL FOREST	05/20/86	0.20	Lassen	UNST
A028847	20032	13545	U S MODOC NATL FOREST	07/11/03	0.20	Lassen	SOUTH FORK JUNIPER CREEK
A026899	19799	13550	U S MODOC NATL FOREST	07/22/03	0.20	Lassen	UNST
A026895	19796	13556	U S MODOC NATL FOREST	09/10/03	0.20	Modoc	ROCK SPRINGS
A028399	19672	13567	U S MODOC NATL FOREST	09/24/03	0.10	Lassen	UNST
A027432	18854	13574	U S MODOC NATL FOREST	11/24/03	0.10	Modoc	YELLOWJACKET SPRING
A028836	20021		U S MODOC NATL FOREST	11/24/03	247.00		UNST
A013019	7741	3782	U S SHASTA-TRINITY NATL FOREST	04/05/49	0.20	Shasta	DEEP CREEK
A013186	8047	3783	U S SHASTA-TRINITY NATL FOREST	06/30/49	1.60	Siskiyou	SLAGGER CAMP SPRING
A013187	8048	3784	U S SHASTA-TRINITY NATL FOREST	06/30/49	1.60	Siskiyou	LOST SPRINGS
A013189	8050	3786	U S SHASTA-TRINITY NATL FOREST	06/30/49	1.40	Siskiyou	BEAR SPRINGS
A020670	13640	8641	U S SHASTA-TRINITY NATL FOREST	03/21/62	1.00	Siskiyou	BELNAP SPRING
A020671	13641	8674	U S SHASTA-TRINITY NATL FOREST	03/21/62	0.90	Siskiyou	HARRIS SPRING
A016866	10676		U S SHASTA-TRINITY NATL FOREST Total		6.70		
A016868	10689	6381	US BUREAU OF LAND MANAGEMENT	01/31/56	1.50	Lassen	UNST
A016869	10639	6078	US BUREAU OF LAND MANAGEMENT	01/31/56	10.80	Lassen	UNST
A016870	10640	6079	US BUREAU OF LAND MANAGEMENT	01/31/56	2.90	Lassen	BALD MOUNTAIN LAKE, UNST
					0.20	Lassen	UNDR

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A016871	10641	6080	US BUREAU OF LAND MANAGEMENT	01/31/56	4.00	Lassen	UNST
A016873	10643	6081	US BUREAU OF LAND MANAGEMENT	01/31/56	4.40	Lassen	NORTH GULCH, SPRING GULCH, UNST
A016899	10719	6540	US BUREAU OF LAND MANAGEMENT	02/20/56	10.00	Shasta	UNST
A018105B	14823	11219	US BUREAU OF LAND MANAGEMENT	04/24/58	180.00	Shasta	PROCTER CREEK, UNST
A020527	13928	8530	US BUREAU OF LAND MANAGEMENT	12/15/61	54.70	Shasta	UNST
A020528	13601	8140	US BUREAU OF LAND MANAGEMENT	12/15/61	6.00	Shasta	UNST
A020933	13992	8568	US BUREAU OF LAND MANAGEMENT	09/06/62	6.70	Shasta	UNST
A020998	14034	8590	US BUREAU OF LAND MANAGEMENT	10/29/62	4.70	Shasta	UNST
A021060	14078	8581	US BUREAU OF LAND MANAGEMENT	12/03/62	0.10	Shasta	UNST
A021774	14725	9233	US BUREAU OF LAND MANAGEMENT	05/18/64	6.40	Shasta	UNST
A027616	19354	12775	US BUREAU OF LAND MANAGEMENT	12/23/82	1,533.00	Lassen	DRY CREEK
A028088	19503	13261	US BUREAU OF LAND MANAGEMENT	03/29/84	0.80	Modoc	UNST
A028091	19506	13085	US BUREAU OF LAND MANAGEMENT	03/29/84	0.60	Modoc	UNST
A028093	19508	13371	US BUREAU OF LAND MANAGEMENT	03/29/84	0.90	Lassen	UNST
A028095	19510	13086	US BUREAU OF LAND MANAGEMENT	03/29/84	1.00	Modoc	UNST
A028096	19511	13087	US BUREAU OF LAND MANAGEMENT	03/29/84	0.40	Modoc	UNST
A028098	19512	13303	US BUREAU OF LAND MANAGEMENT	03/29/84	0.80	Lassen	UNST
A028099	19513	13262	US BUREAU OF LAND MANAGEMENT	03/29/84	1.20	Lassen	UNST
A028089	19504		US BUREAU OF LAND MANAGEMENT	03/29/84	3.00	Modoc	UNST
A028090	19505		US BUREAU OF LAND MANAGEMENT	03/29/84	1.00	Modoc	UNST
A028094	19509		US BUREAU OF LAND MANAGEMENT	03/29/84	1.10	Lassen	UNST
A028261	19536	13349	US BUREAU OF LAND MANAGEMENT	10/01/84	1.20	Modoc	UNST
A028264	19539	13370	US BUREAU OF LAND MANAGEMENT	10/01/84	0.90	Lassen	UNST
A028265	19540	13373	US BUREAU OF LAND MANAGEMENT	10/01/84	0.30	Lassen	UNST
A028270	19545	13364	US BUREAU OF LAND MANAGEMENT	10/01/84	0.50	Modoc	UNST
A028271	19546	13391	US BUREAU OF LAND MANAGEMENT	10/01/84	1.20	Modoc	UNST
A028272	19547	13358	US BUREAU OF LAND MANAGEMENT	10/01/84	0.20	Modoc	UNST
A028273	19548	13338	US BUREAU OF LAND MANAGEMENT	10/01/84	0.50	Lassen	UNST
A028274	19549	13335	US BUREAU OF LAND MANAGEMENT	10/01/84	0.40	Lassen	UNST
A028275	19550	13376	US BUREAU OF LAND MANAGEMENT	10/01/84	0.80	Lassen	UNST
A028276	19551	13334	US BUREAU OF LAND MANAGEMENT	10/01/84	0.40	Lassen	UNST
A028262	19537		US BUREAU OF LAND MANAGEMENT	10/01/84	1.10	Lassen	UNST
A028701	19953	13464	US BUREAU OF LAND MANAGEMENT	01/03/86	1.00	Modoc	UNST
A028702	19954	13327	US BUREAU OF LAND MANAGEMENT	01/03/86	1.20	Lassen	UNST
A028703	19955	13330	US BUREAU OF LAND MANAGEMENT	01/03/86	0.70	Lassen	UNST
A028704	19956	13336	US BUREAU OF LAND MANAGEMENT	01/03/86	0.40	Modoc	UNST
A028709	19961	13319	US BUREAU OF LAND MANAGEMENT	01/03/86	0.60	Lassen	UNST
A028706	19958		US BUREAU OF LAND MANAGEMENT	01/03/86	5.20	Lassen	UNST
A028717	19946	13341	US BUREAU OF LAND MANAGEMENT	01/14/86	0.50	Lassen	UNST
A028718	19947	13084	US BUREAU OF LAND MANAGEMENT	01/14/86	0.80	Lassen	UNST
A028721	19950	13343	US BUREAU OF LAND MANAGEMENT	01/14/86	1.10	Modoc	UNST
A028893	20111	13372	US BUREAU OF LAND MANAGEMENT	09/08/86	0.40	Modoc	UNST
A028894	20112	13297	US BUREAU OF LAND MANAGEMENT	09/08/86	1.10	Modoc	UNST
A029230	20724		US BUREAU OF LAND MANAGEMENT	04/19/88	1.30	Lassen	UNST
A029232	20725		US BUREAU OF LAND MANAGEMENT	04/19/88	1.30	Lassen	UNST

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A029589	20649	13333	US BUREAU OF LAND MANAGEMENT	10/16/89	0.40	Lassen	UNST
A031051	21129		US BUREAU OF LAND MANAGEMENT	05/12/00	6.00	Modoc	UNST
A031052	21130		US BUREAU OF LAND MANAGEMENT	05/12/00	9.00	Modoc	UNST
A031053	21131		US BUREAU OF LAND MANAGEMENT	05/12/00	15.00	Modoc	UNST
A028258	19533	13555	US BUREAU OF LAND MANAGEMENT	09/10/03	0.40	Lassen	UNST
A028257	19532	13572	US BUREAU OF LAND MANAGEMENT	11/24/03	0.60	Lassen	UNST
A028259	19534	13652	US BUREAU OF LAND MANAGEMENT	06/30/06	0.80	Lassen	UNST
A028256	19531	13673	US BUREAU OF LAND MANAGEMENT	10/23/06	0.60	Lassen	UNST
US BUREAU OF LAND MANAGEMENT Total							
A005804	3240	1087	WARREN L WEBER	01/13/28	1,892.10		DRY CREEK
A025140	17110	11557	WILLIAM PAPEZ	09/01/76	136.20	Modoc	UNST
A027961	19258	12760	WILLIAM PAPEZ	01/26/84	8.50	Modoc	UNST
WARREN L WEBER Total							
WILLIAM PAPEZ Total							
A027438	19320		WILLIAM C PROCK	07/16/82	12.00		UNST
WILLIAM C PROCK Total							
Grand Total							
					229.00		
					166,380.90		

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A013398	8208	5317	AMY POWELL-REILLY	10/13/49	0.30	Plumas	UNSP
			AMY POWELL-REILLY Total		0.30		
A028202	19382	12743	APRIL L KEENAN	08/01/84	0.30	Plumas	UNST
			APRIL L KEENAN Total		0.30		
A010025	5864	4105	ASSOCIATION OF THOMPSON LAKE	10/02/40	5.10	Plumas	THOMPSON LAKE
A029432	20487		ASSOCIATION OF THOMPSON LAKE	03/08/89	20.00	Plumas	THOMPSON LAKE
			ASSOCIATION OF THOMPSON LAKE Total		25.10		
A009275	5190	2732	BERNICE C TERRY	04/15/38	4.50	Plumas	CROMBERG SPRING
			BERNICE C TERRY Total		4.50		
A012394	7599	3752	BIG MEADOWS INC	03/09/48	41.30	Plumas	UNSP
			BIG MEADOWS INC Total		41.30		
A015111	9442	6153	BOB CARTER	12/10/52	1.70	Plumas	UNSP
			BOB CARTER Total		1.70		
A010349	5964	2936	BRYAN P PITCAVAGE	12/31/41	21.30	Plumas	CLEAR CREEK
			BRYAN P PITCAVAGE Total		21.30		
A020786	14328	8802	BUCKS LAKE LODGE	05/22/62	0.10	Plumas	UNSP, UNST
			BUCKS LAKE LODGE Total		0.10		
A014583	9845	8347	BUCKS LAKE LODGES INCORPORATED	11/20/51	4.20	Plumas	UNST
			BUCKS LAKE LODGES INCORPORATED Total		4.20		
A011477	6689	3505	BUCKS LAKE SUMMER WATER ASSOCIATION	07/22/46	0.60	Plumas	UNST
A021842	14893	9171	BUCKS LAKE SUMMER WATER ASSOCIATION	07/09/64	0.40	Plumas	UNST
			BUCKS LAKE SUMMER WATER ASSOCIATION Total		1.00		
A007370	4083	2235	CALIF DEPT OF TRANSPORTATION	09/08/32	2.20	Plumas	UNSP
A016380	10367	5872	CALIF DEPT OF TRANSPORTATION	05/17/55	3.40	Sierra	UNSP
			CALIF DEPT OF TRANSPORTATION Total		5.60		
A005630	16478		CALIF DEPT OF WATER RESOURCES	07/30/27	1,393,568.50	Butte, Contra Costa, Sacramento	FEATHER RIVER, ITALIAN SLOUGH, SACRAMENTO RIVER DELTA CHANNELS
A014443	16479		CALIF DEPT OF WATER RESOURCES	08/24/51	9,004,510.20	Butte, Contra Costa	FEATHER RIVER, SACRAMENTO SAN JOAQUIN DELTA CHANNELS

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A016951	14587	9389	CALIF DEPT OF WATER RESOURCES	03/20/56	18,200.00	Plumas	INDIAN CREEK
A016952	12945	9182	CALIF DEPT OF WATER RESOURCES	03/20/56	30,000.00	Plumas	LITTLE LAST CHANCE CREEK
A018844	12946	9928	CALIF DEPT OF WATER RESOURCES	07/06/59	4,962.00	Plumas	LITTLE LAST CHANCE CREEK
A020117	14588	10975	CALIF DEPT OF WATER RESOURCES	05/09/61	3,400.00	Plumas	INDIAN CREEK
A016950	15254		CALIF DEPT OF WATER RESOURCES	01/05/67	49,000.00	Plumas	BIG GRIZZLY CREEK
A021443	15255		CALIF DEPT OF WATER RESOURCES	01/05/67	34,000.00	Plumas	BIG GRIZZLY CREEK
A012548	7491	3530	CALIF DEPT OF WATER RESOURCES Total CAMP TIMBERWOLF IMPROVEMENT COMMITTEE	06/16/48	10,537,640.70	Plumas	UNSP
A007003	3866	1575	CAMP TIMBERWOLF IMPROVEMENT COMMITTEE Total CAROL A RHODEHOUSE	07/10/31	0.40	Plumas	BLACKHAWK CREEK
A019730	12871	10458	CAROL A RHODEHOUSE Total CASIMIR JATCZAK	09/07/60	3,330.30	Plumas	UNST
A010011	5685	2581	CASIMIR JATCZAK Total CITY OF PORTOLA	04/08/43	0.20	Plumas	WILLOW CREEK
A017069	12282	10013	CITY OF PORTOLA	05/03/56	875.90	Plumas	UNSP (5), UNSP (7)
A012900	7594	4841	CITY OF PORTOLA Total Collin Harris	01/17/49	600.00	Plumas	ANTELOPE CREEK
A029127	20591		Collin Harris Total COZETTE E GRAHAM	10/19/87	1,475.90	Sierra	TWELVE MILE RAVINE, UNST
A007978	4430	2682	COZETTE E GRAHAM Total DANIEL WILSON	06/15/34	126.00	Plumas	INDIAN CREEK
A019121	13930	8392	DANIEL WILSON Total DANIEL H CLIFTON	12/04/59	18.70	Sierra	TREASURE SPRING, TREASURE SPRING CREEK
A015567	10328	7268	DANIEL H CLIFTON Total DANNY WILSON	10/05/53	2.20	Butte	BALSAM CREEK
A017314	11155	8371	DANNY WILSON Total DARLA J WOJCIK FAMILY TRUST	10/08/56	0.20	Butte	OREGON GULCH

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			DARLA J WOJCIK FAMILY TRUST Total		1.90		
A009972	5640	3476	DAVID C NORTON	08/09/40	16.20	Plumas	UNSP
A014016	8784	9609	DAVID C NORTON	10/25/50	3.50	Plumas	UNSP
			DAVID C NORTON Total		19.70		
A004122	2107	2023	DAVID K LEE	05/15/40	135.80	Plumas	COLD SPRING, KINGS CREEK
A005171	2866	2024	DAVID K LEE	05/15/40	91.70	Plumas	SUNFLOWER FLAT CREEK
			DAVID K LEE Total		227.50		
A017739	11215	6958	DAVID ROBERT OSTLER	07/24/57	1.10	Sierra	UNSP
			DAVID ROBERT OSTLER Total		1.10		
A006728	3882	2143	DAWN INSTITUTE OF SCIENCE & ART	07/11/30	8.40	Plumas	UNSP
A009968	5684		DAWN INSTITUTE OF SCIENCE & ART	07/22/93	1.30	Plumas	UNSP
			DAWN INSTITUTE OF SCIENCE & ART Total		9.70		
A017195	11014	5884	DAWN M JONES	07/20/56	0.20	Plumas	UNST
A016436	10623	6036	DEAN PANFILI	06/23/55	0.20	Plumas	LONG VALLEY CREEK
			DEAN PANFILI Total		630.80		
A001024	497	217	DELBERT H LEHR	07/17/18	108.60	Plumas	UNXX
A011786	6906	3421	DELBERT H LEHR	03/19/47	312.00	Plumas	EAST BRANCH OF NORTH FORK FEATHER RIVER
			DELBERT H LEHR Total		420.60		
A016583	10536	7291	Derek C Anderson	06/07/65	3.50	Plumas	UNST
A021361	14791	9026	DEWEY S RAVENSCROFT	06/25/63	5.00	Plumas	FERN CANYON
			DEWEY S RAVENSCROFT Total		5.00		
A029537	20577	13827	DIANE MONTGOMERY	01/10/11	35.00	Sierra	UNST
A026571	18470	13246	Donald A Wallace	10/07/80	35.00	Sierra	SIERRA VALLEY CHANNELS
			Donald A Wallace Total		89.00		
A017963	11625	6601	DUSTIN F DOYLE	01/28/58	0.10	Plumas	UNST
A011271	6536	3737	ELLIOT P SMART	01/31/46	1.60	Plumas	WATERING TROUGH SPRING
A008964	4958	2564	EST OF WILLIAM JAMES DAWSON JR	05/06/37	5.60	Plumas	UNST
			EST OF WILLIAM JAMES DAWSON JR Total		5.60		
A017132	10832	5918	Est. of Martin A. Poss	06/14/56	0.20	Plumas	UNST
			Est. of Martin A. Poss Total		0.20		
A008460	4682	2223	Feather River Land Trust, a Cal Nonprofit	10/03/35	200.00	Plumas	TAYLOR LAKE
A012844	7617	9165	Feather River Land Trust, a Cal Nonprofit	12/03/48	100.00	Plumas	TAYLOR LAKE
			Feather River Land Trust, a Cal Nonprofit Total		300.00		

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A026942	20121		FIVE BEARS HYDRO, INC	08/06/81	1,448.00	Plumas	SOUTH BRANCH WARD CREEK
A027349	20122		FIVE BEARS HYDRO, INC	06/03/82	5,791.80	Plumas	SOUTH BRANCH WARD CREEK
A009616	5470		FIVE BEARS HYDRO, INC Total	7,239.80			
A008996	5022		FRAZIER CREEK WATER ASSOCIATION	06/14/39	112.20	Butte	EAST BRANCH FRAZIER CREEK, WEST BRANCH FRAZIER CREEK
A017303	12796		FRAZIER CREEK WATER ASSOCIATION Total	112.20			
A015571	10136		FRELANDER TRUST	06/14/37	412.70	Plumas	CLEAR CREEK, OWL CREEK
A018968	13221		FRELANDER TRUST	08/03/66	467.50	Plumas	CLEAR CREEK, OWL CREEK
A010963	6386		FRELANDER TRUST Total	880.20			
A008495	4785		GARY L BROWN	10/07/53	607.00	Plumas	INDIAN CREEK
A008496	4786		GARY L BROWN Total	607.00			
A025030	17676		GENE ALEXANDER	09/04/59	0.10	Plumas	UNST
A004022	1978		GENE ALEXANDER Total	0.10			
A004023	1979		GENE H FISHER	01/26/45	27.40	Butte	ROMA CREEK
A021216	14766		GENE H FISHER Total	27.40			
A017171	11030		2340 GRAEAGLE LAND & WATER COMPANY	11/14/35	11,454.70	Plumas	GRAY EAGLE CREEK, LONG LAKE
A017471	11399		2341 GRAEAGLE LAND & WATER COMPANY	11/14/35	2,895.50	Plumas	GRAY EAGLE CREEK
A023364	16585		GRAEAGLE LAND & WATER COMPANY Total	196.00			
A017160	10997		GRAEAGLE LAND & WATER COMPANY	03/26/76	14,546.20	Plumas	FRAZIER CREEK
A027754	19252		GRAEAGLE LAND & WATER COMPANY Total	14,546.20			
			GRAY EAGLE LODGE	06/11/24	5.40	Plumas	UNSP
			GRAY EAGLE LODGE Total	5.40			
			GRAY EAGLE LODGE	05/14/31	610.90	Plumas	GRAY EAGLE CREEK
			GRAY EAGLE LODGE Total	616.30			
			GRIZZLY LAKE RESORT IMPROVEMENT DISTRICT	04/01/63	42.00	Plumas	HUMBURG CREEK
			GRIZZLY LAKE RESORT IMPROVEMENT DISTRICT Total	42.00			
			HAROLD D FRANCIS	07/11/56	0.20	Plumas	UNST
			HAROLD D FRANCIS Total	0.20			
			HYDE FAMILY 1990 TRUST	02/20/57	5.40	Plumas	UNST
			HYDE FAMILY 1990 TRUST Total	5.40			
			JAMES D BAKER	10/07/69	0.40	Sierra	TREASURE SPRING, TREASURE SPRING CREEK
			JAMES D BAKER Total	0.40			
			JAMES F RUTHERFORD	12/02/04	0.20	Plumas	UNST
			JAMES F RUTHERFORD Total	0.20			
			JAMES P ROBBINS	05/12/83	3.40	Plumas	UNSP
			JAMES P ROBBINS Total	3.40			

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A012122	7659	3486	JEANNETTE S SASSER	10/08/47	0.50	Plumas	CROMBERG SPRING
A017231	10894	6053	JEFFERY L WILSON	08/10/56	22.40	Plumas	JACKASS CREEK
A001712	730	1128	JEFFERY L WILSON Total	03/06/20	22.40	1.10 Butte	UNST
A015071	9532	5288	JOAN ESCALANTE	11/03/52	1.10	Plumas	HARVEY RAVINE
A020468	13751	8748	JOAN ESCALANTE Total	11/06/61	144.80	0.20 Plumas	UNST
A024048	16589	11004	JOHN J GILLAM	05/05/80	0.30	Plumas	CROMBERG SPRING
A025089	17679	11695	JOHN P SCHMIDT	02/26/85	1.00	Plumas	CROMBERG SPRING
A006723	3634	2560	JOHN P SCHMIDT Total	07/08/30	1.30	Butte	EMPIRE CREEK
A011753	7180	5086	Kathy L. McDonell	03/04/47	1,809.00	1.70 Butte	FERN DELL CREEK
A030657	21027		Kathy L. McDonell Trust	10/07/97	200.00	Butte	BERRY CREEK
A023580	16107	10828	Kovach Trust Total	08/14/70	201.70	Butte	UNST
A018149	11610	7646	LAKE MADRONE WATER DISTRICT	05/22/58	9.50	Plumas	UNSP
A012117	7658	3484	LAKE MADRONE WATER DISTRICT	10/02/47	0.30	Plumas	CROMBERG SPRING
A023924	16402	10760	LAKE MADRONE WATER DISTRICT	11/18/71	57.70	Sierra	BONITA CREEK, UNST
A029501	20707		LAKE MADRONE WATER DISTRICT	06/12/89	57.70	Sierra	SIERRA VALLEY CHANNELS
A005996	3203	1067	LAKE MADRONE WATER DISTRICT Total	07/27/28	44.50	Plumas	UNCR
A009886	5589	2625	LAKE MADRONE WATER DISTRICT Total	04/29/40	217.20	Plumas	UNCR
A016529A	10428	007026A	LARRY MCMULLAN	08/17/55	5.10	Butte	CARTER RAVINE
A016530	10429	7027	LARRY MCMULLAN Total	08/17/55	0.70	Butte	CARTER RAVINE
A005015	2623	2118	Laura Rowan Peake	05/13/26	5.80	Plumas	UNSP
A023564	16180	10365	Laura Rowan Peake Trust	07/22/70	403.00	Sierra	BIG SPRING, SMALL SPRING
			LDS Recreation Properties LLC				
			LDS Recreation Properties LLC Total				
			Lewis Van Vleck				
			Lewis Van Vleck Total				
			LOREN PERKINS				
			LOREN PERKINS Total				
			LOREN V PERKINS LIVING TRUST				
			LOREN V PERKINS LIVING TRUST Total				
			LOTTIS LAKE ASSOCIATION				
			LOTTIS LAKE ASSOCIATION Total				

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A011713	6995	3586	LOUIS A PAYEN Total	02/03/47	403.00		
			MARGUERITE A MOHIUDDIN		7.70	Plumas	UNSP
			MARGUERITE A MOHIUDDIN Total		7.70		
A016529B	10428	007026B	MARK PHILLIPS	08/17/55	6.50	Butte	UNSP
A022485	15693	10425	MARK PHILLIPS Total		6.50		
			MARK A GLOJSTEIN	06/06/66	20.00	Sierra	UNST
			MARK A GLOJSTEIN Total		20.00		
A014807	9846	4942	MARK D EVANS	05/15/52	0.20	Plumas	UNST
A023260A	15932	11069	MARK D EVANS Total		0.20		
			MARK L SCOTT	11/26/80	17.00	Butte	UNST
A008422	4644	2423	MARK L SCOTT Total		17.00		
			Mary Ann Nash	08/21/35	9.00	Butte	OGDEN CREEK
			Mary Ann Nash Total		9.00		
A006685	312	166	MASSACK WATER USERS ASSOCIATION	05/18/17	5.60	Plumas	UNSP
A029544	20513		MASSACK WATER USERS ASSOCIATION	08/18/89	1.70	Plumas	UNSP
			MASSACK WATER USERS ASSOCIATION Total		7.30		
A015570	10135	7055	MC INTYRE RANCHING INC	10/07/53	758.70	Plumas	INDIAN CREEK
A019090	13222	7708	MC INTYRE RANCHING INC Total		758.70		
			MICHAEL MONAHAN	11/20/59	0.20	Plumas	UNST
A011243	6594	4540	MICHAEL MONAHAN Total		0.20		
			MICHAEL NEWSOM	12/26/45	0.10	Plumas	UNSP
A006469	3446	1600	MICHAEL NEWSOM Total		0.10		
			MICHAEL D GRANT	10/28/29	0.70	Plumas	UNSP
A011201	6472	3482	MICHAEL D GRANT	11/01/45	17.90	Plumas	UNSP
A024815	18294	12167	MICHAEL D GRANT Total		18.60		
			MIGUEL AUBAN	12/01/08	1.40	Plumas	UNSP
A024421	17166	11470	MIGUEL AUBAN Total		1.40		
			MIGUEL AUBEN	07/26/73	2.00	Plumas	UNST
A031433	21285		MIGUEL AUBEN Total		2.00		
			MINERAL RESOURCES LLC	06/06/11	46.00	Butte	UNST
A004281	2443	1232	MINERAL RESOURCES LLC Total		46.00		
			MIRIAM C BARKER	10/28/24	5.10	Plumas	LITTLE GRAY EAGLE CREEK
A030596	20954	13840	MIRIAM C BARKER Total		5.10		
			NADINE M BASS	11/08/11	19.00	Sierra	UNST
A010917	6403	3113	NADINE M BASS Total		19.00		
			NORMAN F ROBERTS	11/21/44	1.10	Plumas	UNSP
A020303	13390	8417	NORMAN F ROBERTS Total		1.10		
			NORMAN R COTE	07/14/61	0.40	Plumas	UNST
			NORMAN R COTE Total		0.40		

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A014113	11518		North Yuba Water District	08/18/58	624,084.30	Butte, Plumas	LOST CREEK, SOUTH FORK FEATHER RIVER
A026904	18878		North Yuba Water District Total		624,084.30		
A031379			OKIZU FOUNDATION	07/03/81	49.00	Butte	BERRY CREEK, UNST
A019233	13931	8393	OKIZU FOUNDATION OKIZU FOUNDATION Total	12/17/02	40.00	Butte	BERRY CREEK, UNST
A011397	6637	3381	PAUL CUETO PERRY GREENE	02/15/60	89.00	0.40 Sierra	TREASURE SPRING, TREASURE SPRING CREEK
A012279	7286	3603	PERRY GREENE Total PETER SENTER	05/14/46	0.40	2.40 Plumas	UNSP
A014653	9216	4183	PETER SENTER Total PG&E	01/30/48	2.40	0.10 Plumas	UNSP
A011585	6666	3638	PG&E Total R C K RANCH LLC	01/22/52	0.60	0.60 Plumas	UNST
A017776	11243	6014	R C K RANCH LLC Total RALPH F BECKER	10/09/46	464.10	Plumas	MORRIS SLOUGH
A019265	13932	8394	RALPH F BECKER Total RANDY JENSEN	08/16/57	2.20	2.20 Plumas	UNSP
A007526	4213	2065	RANDY JENSEN Total REGENTS OF THE UNIVERSITY OF CALIFORNIA	02/28/60	0.40	0.40 Sierra	TREASURE SPRING, TREASURE SPRING CREEK
A019750	13241	8020	REGENTS OF THE UNIVERSITY OF CALIFORNIA Total RICHARD GREIN	03/29/33	1.50	Plumas	SCHNEIDER CREEK
A004234	2125	631	RICHARD GREIN Total RICHARD L SCHIWENDINGER	09/23/60	1.50	0.10 Plumas	UNSP
A009207	5218	2284	RICHARD L SCHIWENDINGER Total ROBERT RITTER	09/24/24	1.70	1.70 Plumas	RUSSEL SPRING, UNSP (3)
A023260C	15932	11071	ROBERT RITTER Total ROBERT TEICHMAN	12/22/37	0.30	0.30 Plumas	CROMBERG SPRING
A011976	7075	6880	ROBERT TEICHMAN Total ROBERT A JONES	11/26/80	0.20	0.20 Butte	UNST
A004261	2148	732	ROBERT A JONES Total ROBERT B BECKWITH	06/10/63	18.80	18.80 Plumas	UNSP
A020432	13824	9217	ROBERT B BECKWITH	10/16/24	0.70	0.70 Plumas	UNSP
				01/18/91	0.50	0.50 Plumas	UNSP

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			ROBERT B BECKWITH Total		1.20		
A027688	19665	13174	ROBERT J PALOWODA	03/11/83	0.10	Plumas	UNST
			ROBERT J PALOWODA Total		0.10		
A025500	17476	11505	ROBERT S CONOVER	09/02/77	0.50	Plumas	UNST
			ROBERT S CONOVER Total		0.50		
A009274	5189	2193	ROBERT W ELFEN	04/15/38	0.60	Plumas	CROMBERG SPRING
A009392	5316	2572	ROBERT W ELFEN	08/18/38	0.60	Plumas	CROMBERG SPRING
			ROBERT W ELFEN Total		1.20		
A016910	10730	5905	ROBERT W STEIN	02/28/56	140.00	Plumas	BIG GRIZZLY CREEK
			ROBERT W STEIN Total		140.00		
A019653	12990	9223	RON CARPENTER	08/09/60	166.50	Plumas	HAUNS CREEK
			RON CARPENTER Total		166.50		
A020911	14297	8961	RONALD DREIBACH	08/27/62	76.00	Butte	GRIZZLY CREEK
			RONALD DREIBACH Total		76.00		
A014760	9210	5515	RUSSELL C WESTOVER JR	04/17/52	0.60	Plumas	UNSP
			RUSSELL C WESTOVER JR Total		0.60		
A022855	15751	10561	SEAN CUNNINGHAM	12/31/75	452.40	Plumas	MILL CREEK
			SEAN CUNNINGHAM Total		452.40		
A017870	11564	9566	SHIRLEY ISHAM	11/01/57	33.00	Plumas	MOSQUITO SPRINGS
			SHIRLEY ISHAM Total		33.00		
A016520	10670	9872	SIERRA BIBLE CAMP INC	08/12/55	19.20	Plumas	UNSP
			SIERRA BIBLE CAMP INC Total		19.20		
A009690	5443	3114	SIERRA PACIFIC HOLDING COMPANY	08/08/39	150.00	Butte	GRUBBS CREEK, LITTLE FREY CREEK
			SIERRA PACIFIC HOLDING COMPANY Total		150.00		
A006412	3643	1485	SOPER COMPANY	08/17/29	17.00	Yuba	STICKNER SPRING
A014218	8611	4300	SOPER COMPANY	03/29/51	3.40	Plumas	UNSP
A014219	8612	4301	SOPER COMPANY	03/29/51	48.00	Plumas	MOSES CREEK
			SOPER COMPANY Total		68.40		
A021440	14485	10038	SOPER COMPANY, A DELAWARE CORPORATION	08/22/63	2.20	Plumas	UNSP
			SOPER COMPANY, A DELAWARE CORPORATION Total		2.20		
A002142	1268		SOUTH FEATHER WATER & POWER AGENCY	12/17/20	5,000.00	Butte	LOST CREEK
A002778	2492		SOUTH FEATHER WATER & POWER AGENCY	03/06/22	31,148.90	Butte	LOST CREEK
A002979	1271		SOUTH FEATHER WATER & POWER AGENCY	08/12/22	133,935.80	Butte	LOST CREEK
A001651	1267		SOUTH FEATHER WATER & POWER AGENCY	01/05/23	145,508.40	Plumas	SOUTH FORK FEATHER RIVER
			SOUTH FEATHER WATER & POWER AGENCY Total		315,593.10		
A029060	20656		Squirrel Creek, LLC	07/07/87	9.00	Plumas	BEAR CREEK
			Squirrel Creek, LLC Total		9.00		

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A014864	9192	6512	THE CAMP TIMBERWOLF IMPROVEMENT COMM, INC	06/18/52	1.50	Plumas	UNSP
A001739	1911	845	THE CAMP TIMBERWOLF IMPROVEMENT COMM, INC Total		1.50		
A003040	1912	737	THERMALITO WATER AND SEWER DISTRICT	03/25/20	8,200.00	Butte	CONCOW CREEK
A011205	6989	3483	THERMALITO WATER AND SEWER DISTRICT	09/16/22	8,200.00	Butte	CONCOW CREEK
A014810	9849	5616	THERMALITO WATER AND SEWER DISTRICT Total		16,400.00		
A016582	10535	6631	THOMAS E NOLTE	11/07/45	1.10	Plumas	CROMBERG SPRING
A006171	3243	1089	THOMAS E NOLTE Total		1.10		
A009293	5181	2548	TIME EADE	05/15/52	0.10	Plumas	UNST
A014228	8709	3968	TIME EADE Total		0.10		
A014281	8800	4915	TOMMIE D MASSENGILL	09/06/55	2.30	Plumas	UNST
A014282	8801	4947	TOMMIE D MASSENGILL Total		2.30		
A014283	8802	5334	TOMMIE D MASSENGILL	01/28/29	36.70	Butte	BRANCH OF BUSHMAN CREEK
A014284	8803	4701	TOMMIE D MASSENGILL Total		36.70		
A014285	8804	4186	TRAVIS O MCWILLIAMS	05/16/38	17.90	Sierra	UNSP
A014286	8805	5013	TRAVIS O MCWILLIAMS Total		17.90		
A014287	8806	4922	U S FOREST SERVICE	04/04/51	0.30	Sierra	UNSP
A023225	16015	10230	U S FOREST SERVICE	05/02/51	0.30	Sierra	UNSP
A023226	16014	10274	U S FOREST SERVICE	05/02/51	0.30	Sierra	UNSP
A027284	18875	U S FOREST SERVICE	U S FOREST SERVICE	05/02/51	1.50	Sierra	LEWIS MILL GUARD STATION SPRING
			U S FOREST SERVICE Total		0.70		SARDINE LOOKOUT SPRING
				05/02/51	0.30	Sierra	UNSP
				05/02/51	0.70	Plumas	UNSP
				05/02/51	1.30	Sierra	UNSP
				05/02/51	0.60	Sierra	UNSP
				01/30/69	0.60	Plumas	HORSETROUGH SPRING
				01/30/69	0.80	Plumas	BECKWOURTH SPRING
				04/07/82	32.00	Sierra	CARMAN CREEK, UNST
					56.80		

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A019416	12655	8021	U S LASSEN NATL FOREST	05/05/60	120.00	Plumas	MORRIS LAKE
A019417	12656	8022	U S LASSEN NATL FOREST	05/05/60	27.00	Plumas	GRASSY LAKE
A019418	12657	8023	U S LASSEN NATL FOREST	05/05/60	27.00	Plumas	SADDLE LAKE
A019419	12658	8024	U S LASSEN NATL FOREST	05/05/60	8.00	Plumas	LONG LAKE
A020429	13430	8025	U S LASSEN NATL FOREST	10/06/61	3.40	Butte	UNSP
A021083	14154	8026	U S LASSEN NATL FOREST	12/14/62	34.00	Plumas	SPRING VALLEY LAKE
			U S LASSEN NATL FOREST Total		219.40		
A008990	5028	2332	U S PLUMAS NATL FOREST	06/05/37	3.10	Plumas	UNCR
A008991	5029	2930	U S PLUMAS NATL FOREST	06/05/37	0.70	Plumas	UNSP
A009514	5369	3736	U S PLUMAS NATL FOREST	03/01/39	33.60	Butte	FOLEY GULCH, MOUNTAIN HOUSE CREEK
A003918	2625	861	U S PLUMAS NATL FOREST	05/24/39	23.40	Plumas	TOLLGATE CREEK
A009734	5826	3747	U S PLUMAS NATL FOREST	09/22/39	4.50	Plumas	UNST
A009770	5559	4894	U S PLUMAS NATL FOREST	11/21/39	4.70	Plumas	UNSP
A010726	6216	2968	U S PLUMAS NATL FOREST	11/05/43	0.90	Plumas	UNSP
A011146	6509	3339	U S PLUMAS NATL FOREST	09/06/45	3.00	Plumas	UNSP
A011907	7171	6503	U S PLUMAS NATL FOREST	05/27/47	1.70	Plumas	UNST
A012038	7092	5500	U S PLUMAS NATL FOREST	08/13/47	2.80	Plumas	KLING RAVINE
A012535	7401	3605	U S PLUMAS NATL FOREST	06/04/48	6.10	Plumas	UNSP
A013625	8291	5325	U S PLUMAS NATL FOREST	03/10/50	4.70	Plumas	COLD SPRINGS
A014761	9211	5070	U S PLUMAS NATL FOREST	04/17/52	0.30	Plumas	UNST
A014815	10916	6076	U S PLUMAS NATL FOREST	05/20/52	540.00	Plumas	SNAKE LAKE
A015676	9796	5371	U S PLUMAS NATL FOREST	01/08/54	0.30	Plumas	FANT SPRING
A016200	10940	8222	U S PLUMAS NATL FOREST	01/12/55	12.30	Plumas	CUB CREEK

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A017074	10784	6101 U S PLUMAS NATL FOREST		05/04/56	0.70	Plumas	UNSP
A017832	11562	6924 U S PLUMAS NATL FOREST		09/23/57	0.20	Plumas	UNSP
A018185	11617	6281 U S PLUMAS NATL FOREST		07/17/58	0.20	Plumas	UNST
A018413	11822	6885 U S PLUMAS NATL FOREST		11/14/58	0.70	Butte	UNSP
A019239	12414	10956 U S PLUMAS NATL FOREST		02/16/60	0.90	Plumas	WEST BRANCH WHITEHORSE CREEK
A019586	12604	7673 U S PLUMAS NATL FOREST		07/28/60	0.70	Butte	BEAR RANCH L O SPRING
A019587	12605	7674 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	RIDGE SPRING
A019588	12606	7675 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	STONY CREEK SPRING
A019589	12607	7676 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	CHIPMUNK SPRING
A019590	12608	7677 U S PLUMAS NATL FOREST		07/28/60	0.20	Plumas	POISON CREEK SPRING
A019591	12609	8061 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	BEAR SPRING
A019592	12610	7678 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	CROCKER CUT-OFF SPRING
A019593	12611	7679 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	LITTLE DIXIE SPRING
A019594	12612	7680 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	DOYLE SPRING
A019596	12614	7682 U S PLUMAS NATL FOREST		07/28/60	0.20	Plumas	JENKINS #3 SPRING
A019597	12615	7683 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	GRANITE SPRING
A019598	12616	7684 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	PLINCO SPRING
A019599	12617	7685 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	CHASE SPRING
A019600	12618	8062 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	COYOTE SPRING
A019601	12619	7686 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	SQUAW CAMP SPRING
A019602	12620	7687 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	HORSE SHOE SPRING
A019603	12621	7688 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	HORTON CANYON SPRING
A019604	12622	8063 U S PLUMAS NATL FOREST		07/28/60	0.30	Plumas	JUNIPER SPRING

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A019605	12623	7689	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	FITCH CANYON SPRING
A019606	12624	7690	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	MAHOGANY SPRING
A019607	12625	7691	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	JENKINS #2 SPRING
A019608	12626	8064	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	MIDWAY HOUSE SPRING
A019609	12627	7692	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	DOWNING CABIN SPRING
A019610	12628	7693	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	JUNIPER SPRING
A019611	12629	8065	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	HOG SPRING
A019612	12630	7694	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	JOHNSON MILL SPRING
A019613	12631	7695	U S PLUMAS NATL FOREST	07/28/60	0.70	Butte	SPOON RAVINE SPRING
A019614	12632	7696	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	LONE SPRING
A019615	12633	7697	U S PLUMAS NATL FOREST	07/28/60	0.40	Plumas	SECTION 15 SPRING
A019617	12635	7699	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	SQUAW SUPPRESSION CAMP SPRING
A019619	12637	8066	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	RATTLESNAKE SPRING
A019620	12638	8067	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	CEDAR SPRING
A019621	12639	8068	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	PINE TREE SPRING
A019622	12640	7700	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	GALEPPI SPRING
A019623	12641	7701	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	MURDOCK CROSSING SPRING
A019624	12642	7702	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	SQUAW VALLEY SPRING
A019625	12643	7703	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	BASS #1 SPRING
A019626	12644	7704	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	SOUTH TROUGH SPRING
A019627	12645	7710	U S PLUMAS NATL FOREST	07/28/60	0.70	Plumas	DAVIDSON MINE SPRING
A019628	12646	8305	U S PLUMAS NATL FOREST	07/28/60	0.30	Plumas	SQUAW CANYON SPRING
A020852	13951	8617	U S PLUMAS NATL FOREST	07/12/62	1.60	Plumas	UNSP

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A021295	14364	8995	U S PLUMAS NATL FOREST	05/29/63	0.20	Plumas	BLAKELESS SPRING #2
A021296	14365	8982	U S PLUMAS NATL FOREST	05/29/63	0.80	Plumas	CHASE ENCLOSURE SPRING #2
A021297	14366	8996	U S PLUMAS NATL FOREST	05/29/63	0.80	Plumas	CHASE ENCLOSURE SPRING #1
A021304	14367	8968	U S PLUMAS NATL FOREST	05/29/63	0.80	Plumas	BULSON SPRING NO 3
A021305	14368	8969	U S PLUMAS NATL FOREST	05/29/63	0.80	Plumas	BULSON SPRING NO 2
A021306	14369	8970	U S PLUMAS NATL FOREST	05/29/63	0.80	Plumas	BULSON SPRING NO 1
A021307	14370	8971	U S PLUMAS NATL FOREST	05/29/63	0.60	Plumas	BLAKELESS SPRING NO 4
A021308	14371	8972	U S PLUMAS NATL FOREST	05/29/63	0.30	Plumas	BLAKELESS SPRING NO 1
A021312	14372	8984	U S PLUMAS NATL FOREST	05/29/63	0.50	Plumas	BIG BUCK SPRING
A021313	14373	9004	U S PLUMAS NATL FOREST	05/29/63	1.70	Plumas	HEADQUARTERS SPRING #1, HEADQUARTERS SPRINGS #2&3
A021314	14244	8997	U S PLUMAS NATL FOREST	05/29/63	0.80	Plumas	TROSI CANYON SPRING
A021316	14374	8998	U S PLUMAS NATL FOREST	05/29/63	1.50	Plumas	BIG PINE SPRING
A021317	14375	8999	U S PLUMAS NATL FOREST	05/29/63	0.40	Plumas	CEDAR CANYON SPRING
A022187	15225	8986	U S PLUMAS NATL FOREST	06/10/65	0.10	Plumas	UNST
A024263	16728	10955	U S PLUMAS NATL FOREST	12/19/72	9.00	Plumas	UNSP
A026877	18796		U S PLUMAS NATL FOREST	06/17/81	42.00	Plumas	DOTTA CANYON
			U S PLUMAS NATL FOREST Total		720.60		
A019565	12818	9877	USA-USDA FOREST SERVICE	01/02/09	0.80	Plumas	UNNAMED SPRING
A020529	13891	9187	USA-USDA FOREST SERVICE Total VERDA F LEE FAMILY DATED 4/11/2001	12/18/61	0.80	Plumas	UNSP
A028992	20339		VERDA F LEE FAMILY DATED 4/11/2001 Total WALLACE FAMILY TRUST	03/20/87	54.00	Sierra	SIERRA VALLEY CHANNELS
A011316	7110	3738	WALLACE FAMILY TRUST Total WAYNE RANKIN	05/20/53	184.00	Plumas	BERRY CREEK
A014113	11518		WAYNE RANKIN Total Yuba County Water District	12/28/50	108.60	Butte, Sutter, Plumas	SOUTH FORK FEATHER RIVER, LOST CREEK, FEATHER RIVER

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			Yuba County Water District Total		330,861.98		
			Grand Total		11,862,602.48		
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Yuba River - Post-1914 Appropriative Water Rights

Application ID	Permit ID	License ID	Water Right Type	Status	Holder Name	Date	Face Amt	County	Source
A003126	1371	1140	Appropriative	Licensed	ALBERT P STIEFEL	11/08/22	87.10	Butte	UNST, WYMAN RAVINE
					ALBERT P STIEFEL Total		87.10		
A016725	10685	6660	Appropriative	Licensed	ALLEGHANY COUNTY WATER DISTRICT	04/18/02	12.00	Sierra	UNSP
					ALLEGHANY COUNTY WATER DISTRICT Total		12.00		
A016724	10441	7079	Appropriative	Licensed	ALLEN C UPTON	11/08/55	1.00	Butte	WYANDOTTE CREEK
A028395	20887		Appropriative	Permitted	ALLEN C UPTON Total	02/22/85	1.00		
					ALLEN F MOORE		3.00	Yuba	DRY CREEK, UNSP
					ALLEN F MOORE Total		3.00		
A025086	17517	11958	Appropriative	Licensed	ANANDA CHURCH OF SELF REALIZATION	06/16/76	43.20	Nevada	UNST
A028680	20373		Appropriative	Permitted	ANANDA CHURCH OF SELF REALIZATION	12/24/85	29.30	Nevada	UNST
					ANANDA CHURCH OF SELF REALIZATION Total		72.50		
A024824	17031	13124	Appropriative	Licensed	ANDERSON AND ANDERSON INC	06/25/75	25.00	Nevada	UNST
A027748	19166	13125	Appropriative	Licensed	ANDERSON AND ANDERSON INC	05/05/83	1.00	Nevada	UNST
A028403	20927		Appropriative	Permitted	ANDERSON AND ANDERSON INC Total		26.00		
					ANNA MAY ROSE	03/07/85	2.00	Yuba	DRY CREEK, UNST
					ANNA MAY ROSE Total		2.00		
A030234	21008		Appropriative	Permitted	AUBURN SKI CLUB INC	03/15/93	122.00	Nevada	UPPER CASTLE CREEK
A025584	17400	11440	Appropriative	Licensed	AUBURN SKI CLUB INC Total		122.00		
A006099	3220	1080	Appropriative	Licensed	Bank of America	11/29/77	9.60	Yuba	UNST
A018175	11802	6611	Appropriative	Licensed	Bank of America Total		9.60		
					BENJAMIN N BORSOFF	10/19/28	17.90	Yuba	EAST BRANCH RICH GULCH
					BENJAMIN N BORSOFF Total		17.90		
A019562	12917	7493	Appropriative	Licensed	BERNICE ROSENLOF	06/10/58	12.50	Nevada	UNST
A024530	17274	11238	Appropriative	Licensed	BERNICE ROSENLOF Total		12.50		
A020521	13657	8703	Appropriative	Licensed	BILL AABERG	07/20/60	0.30	Sierra	UNST
					BILL AABERG Total		0.30		
A026408	18310	12153	Appropriative	Licensed	BILLY G CAROTHERS	01/21/74	10.00	Nevada	SWEETLAND CREEK
					BILLY G CAROTHERS Total		10.00		
					BITNEY SPRINGS LLC	12/11/61	14.00	Nevada	UNST
					BITNEY SPRINGS LLC Total		14.00		
					BOB LATTA	06/06/80	0.80	Sierra	HOWARD CREEK, NORTH YUBA RIVER
					BOB LATTA Total		0.80		

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Application ID	Permit ID	License ID	Water Right Type	Status	Holder Name	Date	Face Amt	County	Source
A005590	2913	814	Appropriative	Licensed	BRADLEY T SHARPE	07/01/27	2.20	Yuba	WEST BRANCH RICH GULCH
A005677	2914	815	Appropriative	Licensed	BRADLEY T SHARPE	09/07/27	18.10	Yuba	WEST BRANCH RICH GULCH
A006096	3218	1084	Appropriative	Licensed	BRADLEY T SHARPE	10/19/28	1.00	Yuba	WEST BRANCH RICH GULCH
A006097	3219	1085	Appropriative	Licensed	BRADLEY T SHARPE	10/19/28	17.90	Yuba	WEST BRANCH RICH GULCH
A020485	13927	8368	Appropriative	Licensed	BRADLEY T SHARPE Total Brian Brackbill	11/08/61	39.20		Unnamed Stream
A019560	12915	7492	Appropriative	Licensed	Brian Brackbill Total BRIAN G JACOBS	07/20/60	0.60	Sierra	UNST
A008986	5083	2182	Appropriative	Licensed	BRIAN G JACOBS Total BROWNS VALLEY IRRIGATION DISTRICT	03/01/41	0.20	Sierra	UNST
A013130	8649	13608	Appropriative	Licensed	BROWNS VALLEY IRRIGATION DISTRICT	08/31/05	2,171.90	Yuba	TENNESSEE CREEK
A013873	9703	13609	Appropriative	Licensed	BROWNS VALLEY IRRIGATION DISTRICT	08/31/05	20,000.00	Yuba	DRY CREEK
A023757	16792	13610	Appropriative	Licensed	BROWNS VALLEY IRRIGATION DISTRICT	08/31/05	31,900.00	Yuba	DRY CREEK
A023135	15964	10995	Appropriative	Licensed	BROWNS VALLEY IRRIGATION DISTRICT	08/31/05	11,000.00	Yuba	DRY CREEK
A024293	16636	10700	Appropriative	Licensed	BROWNS VALLEY IRRIGATION DISTRICT Total BRUCE K JORDAN	09/18/68	65,071.90		UNSP
A029103	20530	13712	Appropriative	Licensed	BRUCE K JORDAN Total BRUCE L RAYNER	01/30/73	0.90	Nevada	MOSQUITO CREEK
A013870	8369	4804	Appropriative	Licensed	BRUCE L RAYNER Total CAL-WESTERN RECONVEYANCE CORPORATION	05/09/07	1.80	Butte	ROBINSON RAVINE
A020427	13564	7019	Appropriative	Licensed	CAL-WESTERN RECONVEYANCE CORPORATION Total CALIF DEPT OF FORESTRY AND FIRE PROTECTION	07/27/50	6.70	Nevada	UNSP
A016874	10804	9323	Appropriative	Licensed	CALIF DEPT OF FORESTRY AND FIRE PROTECTION Total CAROL BROOKS	10/05/61	2.40	Sierra	UNSP
A019282	12436	7169	Appropriative	Licensed	CALIF DEPT OF FORESTRY AND FIRE PROTECTION Total CAROL BROOKS Total	01/31/56	0.60	Nevada	UNST
A024183	16604	10883	Appropriative	Licensed	CAROL BROOKS Total CAROL B DARDICK	03/04/60	21.40	Yuba	UNSP
A024559	16997	13267	Appropriative	Licensed	CAROL B DARDICK Total CATHOLIC YOUTH ORGANIZATION	09/15/72	3.40	Nevada	LEFT OVER SPRING
					CATHOLIC YOUTH ORGANIZATION Total CHARLES FOWLER	02/21/74	0.10	Nevada	UNSP
					CHARLES FOWLER Total CHARLES A JOHNSON		2.20	Nevada	

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Application ID	Permit ID	License ID	Water Right Type	Status	Holder Name	Date	Face Amt	County	Source
A028191	20013		Appropriative	Permitted	CHARLES A JOHNSON Total	11/21/94	2.20		
					CHEROKEE NEVADA CORPORATION		1,445.00	Sierra	UNST
					CHEROKEE NEVADA CORPORATION Total		1,445.00		
A019561	12916	7540	Appropriative	Licensed	CHRISTIAN HUNTINGTON	07/20/60	0.20	Sierra	UNST
					CHRISTIAN HUNTINGTON Total		0.20		
A014960	9302	7082	Appropriative	Licensed	Christopher W Miller	08/12/52	0.40	Placer	UNSP
					Christopher W Miller Total		0.40		
A026117	18434	12293	Appropriative	Licensed	CITY OF NEVADA CITY	10/17/79	53.70	Nevada	LITTLE DEER CREEK, UNST
A021158	14239	9010	Appropriative	Licensed	CITY OF NEVADA CITY Total	02/13/63	53.70	Sierra	UNSP
					CONSTANCE C CLOVER		1.00		
					CONSTANCE C CLOVER Total		1.00		
A005880	3102	2172	Appropriative	Licensed	COUGHLAN FAMILY RANCH	04/16/28	1,013.60	Nevada	BONNIE RAVINE, GLENNON RAVINE, ROBERTS CREEK
A023111	15803	10206	Appropriative	Licensed	COUGHLAN FAMILY RANCH Total	08/13/68	1,013.60	Sierra	UNST
					CRAIG LABADIE		0.80		
A004731	2393	735	Appropriative	Licensed	CYRUS M ROLLINS	08/12/25	2.40	Sierra	UNSP
A006120	3232	1309	Appropriative	Licensed	CYRUS M ROLLINS	11/13/28	1.70	Sierra	UNST
					CYRUS M ROLLINS Total		4.10		
A023082	15977	10901	Appropriative	Licensed	DAN T THOMPSON	07/10/68	10.20	Nevada	KENTUCKY RAVINE
					DAN T THOMPSON Total		10.20		
A021554	14793	9832	Appropriative	Licensed	DANIEL MASON	11/27/63	18.00	Nevada	FRENCH CORRAL CREEK
					DANIEL MASON Total		18.00		
A021672	14830	9700	Appropriative	Licensed	DANIEL J GUYER	03/05/64	140.00	Sierra	UNST
A017285	11045	7214	Appropriative	Licensed	DANIEL J GUYER Total	09/20/56	140.00	Nevada	KENTUCKY RAVINE
					DAVE KING		37.00		
					DAVE KING Total		37.00		
A019710	12873	10129	Appropriative	Licensed	David Grenell	08/24/60	1.10	Sierra	THOMAS ELLIS SPRING #3, THOMAS ELLIS SPRING #4
A023514	16108	10245	Appropriative	Licensed	David Grenell Total	05/20/70	1.10	Nevada	UNSP
A026065	17908	12157	Appropriative	Licensed	DAVID HERSHBERGER	08/14/79	0.60	Nevada	UNSP
					DAVID HERSHBERGER Total		0.90		
A019025	12515	7832	Appropriative	Licensed	DAVID RUMSEY	10/09/59	0.20	Sierra	UNSP
					DAVID RUMSEY Total		0.20		
A020313	13946	8660	Appropriative	Licensed	DAVID WALSH	07/21/61	0.20	Sierra	UNST
					DAVID WALSH Total		0.20		
A022928	15954	10996	Appropriative	Licensed	DAVID B JORDON	10/13/67	0.90	Nevada	UNSP
A027876	19125	12696	Appropriative	Licensed	DAVID B JORDON Total	09/15/83	1.40	Yuba	UNST
					DAVID B PEDERSON		1.40		
					DAVID B PEDERSON Total		1.40		
A016558	11367	8127	Appropriative	Licensed	DAVID C BREWER	08/29/55	4.20	Nevada	LITTLE ROCK CREEK
					DAVID C BREWER Total		4.20		

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A022898	15669	11110	Appropriative	Licensed	DAVID K DAVISON	08/28/67	4.70	Sierra	HUNGRY MOUTH CANYON
					DAVID K DAVISON Total		4.70		
A025105	17076	11251	Appropriative	Licensed	DAVID W MARKS	07/19/76	11.00	Nevada	KENTUCKY RAVINE
					DAVID W MARKS Total		11.00		
A021598	14416	8825	Appropriative	Licensed	DAWN B VINJE	01/15/64	18.00	Yuba	UNST
					DAWN B VINJE Total		18.00		
A019390	12911	8810	Appropriative	Licensed	DENISE STEBLER	04/26/60	1.60	Sierra	ROCK CREEK
					DENISE STEBLER Total		1.60		
A022566	15575	9896	Appropriative	Licensed	DIANE W ROLLINS	04/14/72	20.00	Sierra	DRURY RAVINE
					DIANE W ROLLINS Total		20.00		
A010009	5687	4866	Appropriative	Licensed	DICKEY EXPLORATION COMPANY	09/23/40	97.00	Sierra	WET RAVINE
					DICKEY EXPLORATION COMPANY Total		97.00		
A023535	16409	11027	Appropriative	Licensed	DIRK C REED	06/24/70	15.70	Nevada	UNST, WILLOW VALLEY CREEK
					DIRK C REED Total		15.70		
A030332	21118		Appropriative	Permitted	DONNER SUMMIT PUBLIC UTILITY DISTRICT	02/08/94	664.00	Nevada	LAKE ANGELA
					DONNER SUMMIT PUBLIC UTILITY DISTRICT Total		664.00		
A025719	17610	12075	Appropriative	Licensed	DOROTHEA SELBY	04/17/78	13.50	Yuba	UNST
					DOROTHEA SELBY Total		13.50		
A028988	20947		Appropriative	Permitted	Dorothy Pencik	03/16/87	24.00	Sierra	OAK VALLEY CREEK
					Dorothy Pencik Total		24.00		
A020808	13929	8700	Appropriative	Licensed	DOROTHY L VENDLEY	07/19/68	9.20	Nevada	SPRING CREEK
					DOROTHY L VENDLEY Total		9.20		
A009827	5663	2650	Appropriative	Licensed	DOWNIEVILLE PUBLIC UTILITY DISTRICT	05/15/01	114.00	Sierra	PAULEY CREEK
					DOWNIEVILLE PUBLIC UTILITY DISTRICT Total		114.00		
A026227	17973	11822	Appropriative	Licensed	DUANE FRED LEE	02/21/80	2.60	Nevada	UNST
					DUANE FRED LEE Total		2.60		
A022735	15630	10005	Appropriative	Licensed	DUANE T NICHOLSON	03/05/73	4.50	Yuba	UNST
					DUANE T NICHOLSON Total		4.50		
A020146	13371	8148	Appropriative	Licensed	DWAYNE M DOBBINS	05/24/61	0.20	Nevada	UNSP
					DWAYNE M DOBBINS Total		0.20		
A024876	17136	11423	Appropriative	Licensed	EDWARD CARTER	09/10/75	2.20	Yuba	UNST
					EDWARD CARTER Total		2.20		
A020291	13386	9922	Appropriative	Licensed	ELLEN DAVIS	05/12/72	102.00	Yuba	LITTLE DRY CREEK
					ELLEN DAVIS Total		102.00		
A015415	9591	5978	Appropriative	Licensed	Eric Christopher Dunisch	07/16/53	0.40	Placer	UNSP
					Eric Christopher Dunisch Total		0.40		
A013594	7966	4185	Appropriative	Licensed	ERMA B BELLETT	02/20/50	61.00	Nevada	UNST
					ERMA B BELLETT Total		61.00		

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A013772	8313	4184	Appropriative	Licensed	ERMA B BELLETT	06/05/50	19.00	Nevada	UNST
					ERMA B BELLETT Total		80.00		
A019723	13031	9257	Appropriative	Licensed	ERNEST LOCATELLI	08/31/60	6.50	Sierra	MINE TUNNEL
					ERNEST LOCATELLI Total		6.50		
A020340	13854	8677	Appropriative	Licensed	Estate of Luella Debruin	08/02/61	4.90	Nevada	FRENCH CORRAL CREEK, UNST
A022900	15557	10027	Appropriative	Licensed	Estate of Luella Debruin	09/01/67	5.30	Nevada	UNST
					Estate of Luella Debruin Total		10.20		
A003332	1725	3267	Appropriative	Licensed	FAR VIEW ENTERPRISES INC	03/27/23	191.90	Butte	KINGS CREEK, LINCOLN HOUSE RAVINE
A016151	10611	7713	Appropriative	Licensed	FAR VIEW ENTERPRISES INC	11/23/54	50.00	Butte	LINCOLN HOUSE RAVINE
					FAR VIEW ENTERPRISES INC Total		241.90		
A017887	11400	6918	Appropriative	Licensed	FELLOWSHIP OF FRIENDS, INC	11/20/57	2.40	Yuba	UNST
A022518	15590	9584	Appropriative	Licensed	FELLOWSHIP OF FRIENDS, INC	07/06/66	3.20	Yuba	UNST
A025865	17749	13546	Appropriative	Licensed	FELLOWSHIP OF FRIENDS, INC	07/17/03	40.00	Yuba	WOODS CREEK
A027042	19277	13547	Appropriative	Licensed	FELLOWSHIP OF FRIENDS, INC	07/17/03	16.00	Yuba	UNST
A027043	19278	13548	Appropriative	Licensed	FELLOWSHIP OF FRIENDS, INC	07/17/03	42.00	Yuba	WOODS CREEK
					FELLOWSHIP OF FRIENDS, INC Total		103.60		
A007217	4420	2197	Appropriative	Licensed	FLORENCE B VON PLATEN	03/28/32	9.50	Nevada	UNXX
A020310	13945	8349	Appropriative	Licensed	FORREST THOMAS	07/19/61	0.60	Sierra	UNSP
A010186	5823	2957	Appropriative	Licensed	FORREST THOMAS	04/18/41	0.60	Sierra	UNSP
					FORREST THOMAS Total		3.40		
					FORSYTHE FAMILY TRUST Total		3.40		
A019007	12872	10128	Appropriative	Licensed	FRANCIS B PLANT	09/29/59	1.80	Sierra	SPRING #3, THOMAS ELLIS
					FRANCIS B PLANT Total		1.80		
A028922	20946		Appropriative	Permitted	Frank Pencik	10/20/86	6.00	Sierra	SPRING #1, THOMAS ELLIS
					Frank Pencik Total		6.00		
A016792B	10815	008072B	Appropriative	Licensed	FRANK A MACHI	12/06/85	4.70	Nevada	OAK VALLEY CREEK
A023956	16404	12058	Appropriative	Licensed	FRANK A MACHI	12/30/71	4.70	Nevada	UNST
					FRANK A MACHI Total		0.60		
					FRANKLIN JONES				

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Application ID	Permit ID	License ID	Water Right Type	Status	Holder Name	Date	Face Amt	County	Source
A012154	7067	7040	Appropriative	Licensed	FRANKLIN JONES Total Gary J. Howsley	11/14/47	0.60 120.10	Yuba	LITTLE DRY CREEK
A019827	14390	9729	Appropriative	Licensed	Gary J. Howsley Total GARY POOR	04/08/71	120.10 5.30	Sierra	UNST
A009765	5532	4921	Appropriative	Licensed	GARY POOR Total GARY ZOLLIDAN	11/09/39	5.30 1.50	Sierra	HARDY SPRING
A014371	9978	5645	Appropriative	Licensed	GARY ZOLLIDAN Total GARY D SMITH	06/27/51	1.50 2,903.80	Yuba	FRENCH DRY CREEK
A017407	11040	6917	Appropriative	Licensed	GARY D SMITH Total GARY W DE MAR	12/26/56	2,903.80 72.50	Sierra	ARIZONA TUNNEL SPRING
A02567	15585	9649	Appropriative	Licensed	GARY W DE MAR Total GEORGE KOOLERY	09/02/66	72.50 1.90	Sierra	UNSP
A022341	15153	9652	Appropriative	Licensed	GEORGE KOOLERY Total GEORGINE TOMASI	11/23/65	1.90 0.80	Nevada	UNST
A023893	16447	10718	Appropriative	Licensed	GEORGINE TOMASI Total GERALD BROOKS	10/07/71	0.80 16.00	Nevada	OWL CREEK
A002696	1200	511	Appropriative	Licensed	GERALD BROOKS Total GOLD LAKE HOLDINGS LLC	12/21/21	16.00 3.00	Sierra	UNCR
A028147	19447		Appropriative	Permitted	GOLD LAKE HOLDINGS LLC Total GREENE ACRES PROPERTY OWNERS ASSOCIATION	06/04/84	3.00 14.00	Sierra	UNSP
A026763	18953	12672	Appropriative	Licensed	GREENE ACRES PROPERTY OWNERS ASSOCIATION Total GREGORY G KSANDER	03/25/81	14.00 0.20	Sierra	UNSP
A023470	16259	10568	Appropriative	Licensed	GREGORY G KSANDER Total GREGORY L COMBS	03/19/70	0.20 5.40	Nevada	UNST
A015100	9828	5683	Appropriative	Licensed	GREGORY L COMBS Total GUS NORTON	12/01/52	5.40 0.80	Sierra	UNST
A026703	18532	12361	Appropriative	Licensed	GUS NORTON Total Heidi Biber	02/03/81	0.80 1.20	Nevada	UNST
A014962	9304	5295	Appropriative	Licensed	Heidi Biber Total HELENE M WULBERN REVOCABLE TRUST	08/12/52	1.20 0.20	Placer	UNSP
A014390A	008798A	007078A	Appropriative	Licensed	HELENE M WULBERN REVOCABLE TRUST HENRY C LITTLE	07/31/92	0.20 20.00	Butte	WYANDOTTE CREEK
A020243	13943	8370	Appropriative	Licensed	HELENE M WULBERN REVOCABLE TRUST HENRY C LITTLE Total Hilary Winslow	06/01/61	20.00 0.60	Sierra	UNSP
A030265	20863		Appropriative	Permitted	Hilary Winslow Total HOLT FAMILY TRUST	07/07/93	0.60 7.00	Sierra	UNST
A026949	18911	12397	Appropriative	Licensed	HOLT FAMILY TRUST Total HUEY JOHNSON	08/10/81	7.00 0.20	Nevada	UNST
					HUEY JOHNSON Total		0.20		

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A028682	20102		Appropriative	Permitted	HUTCH H HUTCHISON	12/26/85	0.50	Nevada	UNSP
					HUTCH H HUTCHISON Total		0.50		
A010716	6336	3002	Appropriative	Licensed	IRVING N CHRISTENSEN	10/05/43	7.80	Sierra	UNSP
A019279	12546	7168	Appropriative	Licensed	IRVING N CHRISTENSEN	03/04/60	4.50	Sierra	UNSP
					IRVING N CHRISTENSEN Total		12.30		
A011257	6539	3342	Appropriative	Licensed	JACK E BERNDT	01/10/46	4.30	Sierra	UNSP, UNST
A014991	9201	5305	Appropriative	Licensed	JAMES NEWMAN	08/22/52	2.20	Nevada	UNST
					JAMES NEWMAN Total		2.20		
A012118	7160	3884	Appropriative	Licensed	James & Aileen Stevens Revocable Trust	10/03/47	15.00	Yuba	LITTLE DRY CREEK
A014946	9652	5084	Appropriative	Licensed	James & Aileen Stevens Revocable Trust	07/31/52	11.00	Yuba	LITTLE DRY CREEK
					James & Aileen Stevens Revocable Trust Total		26.00		
A019647	12870	8606	Appropriative	Licensed	JAMES K CHRISTENSEN	08/04/60	27.80	Sierra	EMPIRE SPRING
A018804	12160	8625	Appropriative	Licensed	JAMES L MOHAN	06/17/59	1.00	Yuba	MOONSHINE CREEK
					JAMES L MOHAN Total		1.00		
A010181	6026	2944	Appropriative	Licensed	James M & Aileen Stevens Rev Tr	04/09/41	98.70	Yuba	LITTLE DRY CREEK
A026522	18513	12362	Appropriative	Licensed	James M & Aileen Stevens Rev Tr Total	09/11/80	98.70	Nevada	UNST
A026282	18202	12016	Appropriative	Licensed	JAMES NELSON DEGLANDON	04/09/80	24.00	Yuba	UNST
A021865	14988	8879	Appropriative	Licensed	JAMES R CUMMINS	08/05/64	6.10	Placer	UNSP
A010839	6383	3431	Appropriative	Licensed	Jana Burgess-Henry	07/15/44	29.00	Yuba	WAGNER CREEK
A013342	8218	4055	Appropriative	Licensed	Jana Burgess-Henry Total	09/08/49	29.00	Yuba	SOUTH HONCUT CREEK
A024799	17750	12294	Appropriative	Licensed	Janie Kouch	04/14/75	1.20	Sierra	UNSP
A021644	14628	9333	Appropriative	Licensed	JAY CORY	02/13/64	0.40	Nevada	UNSP
A010856	6542	3299	Appropriative	Licensed	JERRY DON ELLSWORTH	03/14/01	57.00	Sierra	FIDDLE CREEK
A025403	17354	11466	Appropriative	Licensed	JERRY DON ELLSWORTH Total	06/23/77	57.00	Yuba	UNST
A020770	14744	9239	Appropriative	Licensed	JESSIE C TROST	05/10/62	0.10	Nevada	UNSP (2)
A021970	14989	8881	Appropriative	Licensed	JO HAMILTON	11/23/64	2.00	Placer	UNSP
A025503	18013	13383	Appropriative	Licensed	JOAN M HANSON	09/12/77	1.00	Yuba	UNST
A026515A	018442A	13384	Appropriative	Licensed	JOE W ALEXANDER	02/05/92	5.20	Yuba	UNST

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Application ID	Permit ID	License ID	Water Right Type	Status	Holder Name	Date	Face Amt	County	Source
A026515B	018422B	13385	Appropriative	Licensed	JOE W ALEXANDER	02/05/92	6.00	Yuba	UNST
A006057	3283	2041	Appropriative	Licensed	JOE W ALEXANDER Total		61.10		
A025542	17408	11250	Appropriative	Licensed	JOHN BARKER	09/17/28	5.10	Sierra	UNSP
A018696	12090	7389	Appropriative	Licensed	JOHN BARKER Total		5.10		
A013656	8167	5234	Appropriative	Licensed	JOHN FARACE	10/27/77	1.80	Yuba	KEYSTONE CREEK
A026073	18076	12085	Appropriative	Licensed	JOHN FARACE Total		1.80		
					JOHN A PARKER	05/07/59	0.20	Sierra	UNST
					JOHN A PARKER Total		0.20		
					JOHN H LUNDIN	03/28/50	1.60	Yuba	UNST
					JOHN H LUNDIN Total		1.60		
					JOHN R POWERS III & JANEY H POWERS	08/24/79	4.20	Nevada	UNST
					REVOC TRUST DATED 9/6/00				
					JOHN R POWERS III & JANEY H POWERS		4.20		
					REVOC TRUST DATED 9/6/00 Total		4.20		
A017288	10935	6019	Appropriative	Licensed	JOHN T SMEE	09/21/56	0.10	Sierra	UNST
A010173	5777	4026	Appropriative	Licensed	JOHN T SMEE Total		0.10		
A018484	11894	6979	Appropriative	Licensed	JOSEPH E MARCANTONIO	03/29/41	36.50	Sierra	SLATE CASTLE RAVINE
A012700	7530	3719	Appropriative	Licensed	JOSEPH E MARCANTONIO	01/21/59	0.50	Sierra	SLATE CASTLE CREEK
A016732	11900	6537	Appropriative	Licensed	JOSEPH E MARCANTONIO Total		37.00		
A019448	13768	8041	Appropriative	Licensed	JULI SHAPIRO-ABDEEN	09/15/48	25.00	Nevada	UNST
A018914	12417	7415	Appropriative	Licensed	JULI SHAPIRO-ABDEEN Total		25.00		
A020792	14164	8897	Appropriative	Licensed	JUNE BURCHAM WILHELM	11/10/55	0.50	Nevada	UNXX
A014740	9017	5273	Appropriative	Licensed	JUNE BURCHAM WILHELM Total		0.50		
A026245	18702	12528	Appropriative	Licensed	KATHARINE SPIERS	05/24/60	42.00	Yuba	UNST
A027819	19238	12680	Appropriative	Licensed	KATHARINE SPIERS Total		42.00		
A008330	4661	1928	Appropriative	Licensed	Katherine Greene	08/14/59	17.00	Yuba	GARDEN RAVINE
A023315	16073		Appropriative	Permitted	Katherine Greene Total		17.00		
					KATHLEEN H GOLDEN	05/25/62	0.20	Sierra	UNSP
					KATHLEEN H GOLDEN Total		0.20		
					KEITH L DOLAR	04/04/52	85.30	Butte	UNST
					KEITH L DOLAR Total		85.30		
					KEN BURKINDINE	03/04/80	0.40	Sierra	UNST
					KEN BURKINDINE Total		0.40		
					KEVIN HOMAN	08/04/83	2.00	Nevada	UNST
					KEVIN HOMAN Total		2.00		
					KIM HEMSTALK	05/04/35	5.00	Sierra	COYOTE RAVINE
					KIM HEMSTALK Total		5.00		
					KINGVALE PROPERTY OWNERS & WATER USERS, INC	07/18/69	20.00	Nevada	FOCHETTI SPRING, LOLA MONTEZ SPRING, S P SPRING
					KINGVALE PROPERTY OWNERS & WATER USERS INC Total		20.00		
A026074	18088		Appropriative	Permitted	LA PORTE PINES COUNTRY CLUB	08/24/79	55.00	Plumas	UNSP, UNSP(2), UNST

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A027273	18597		Appropriative	Permitted	LA PORTE PINES COUNTRY CLUB	09/17/02	54.80	Plumas	UNSP
A004494	2081	781	Appropriative	Licensed	LA PORTE PINES COUNTRY CLUB Total		109.80		
A005719	2979	782	Appropriative	Licensed	LAKE VERA MUTUAL WATER COMPANY	03/06/25	70.00	Nevada	ROCK CREEK
					LAKE VERA MUTUAL WATER COMPANY	10/13/27	729.90	Nevada	ROCK CREEK
					LAKE VERA MUTUAL WATER COMPANY Total		799.90		
A023047	15779	10779	Appropriative	Licensed	LAKE WILDWOOD ASSOCIATION	05/17/68	3,840.00	Nevada	DEER CREEK
A007657	4239	6379	Appropriative	Licensed	LAKE WILDWOOD ASSOCIATION Total		3,840.00		
A028134	20886	13842	Appropriative	Licensed	LANCE BARLEAN	08/28/33	3.40	Yuba	UNSP
A018396	11929	7012	Appropriative	Licensed	LANCE BARLEAN Total		3.40		
					LEAH M STOCKER	11/08/11	5.00	Yuba	UNST
A029180	20522	7012	Appropriative	Licensed	LEAH M STOCKER Total		5.00		
A026605	18765	13817	Appropriative	Licensed	LEONARD C FUQUA	11/05/58	0.20	Sierra	COLD SPRING
A024857	17681	12173	Appropriative	Licensed	LEONARD C FUQUA Total		0.20		
A012025	7313	6960	Appropriative	Licensed	LINDA BATES	03/19/02	5.00	Sierra	GRIZZLY GULCH
A022801	15654	10430	Appropriative	Licensed	LINDA BATES Total		5.00		
					LINDA BIRGE	01/05/11	45.00	Nevada	UNST
					LINDA BIRGE Total		45.00		
					LOUIS CLIFFORD LESTER SR	08/14/75	14.50	Nevada	UNST
					LOUIS CLIFFORD LESTER SR Total		14.50		
					LOWELL G ROBINSON	08/05/47	0.30	Sierra	UNSP
					LOWELL G ROBINSON Total		0.30		
A023795	16373		Appropriative	Permitted	MAPLE GROVE MUTUAL WATER COMPANY	06/05/67	1.10	Sierra	CEDAR SPRING
A006834	3665	1878	Appropriative	Licensed	MAPLE GROVE MUTUAL WATER COMPANY	06/02/71	10.00	Sierra	UNSP, WIXON SPRING
A024808	16940	11499	Appropriative	Licensed	MAPLE GROVE MUTUAL WATER COMPANY Total		11.10		
A026189	18266		Appropriative	Permitted	MARIE BERTILLION COLLINS	11/19/30	0.70	Sierra	UNSP
A018779	12139	8117	Appropriative	Licensed	MARIE BERTILLION COLLINS Total		0.70		
					MARIE BERTILLION COLLINS	05/07/75	0.70	Sierra	UNSP
					MARIE BERTILLION COLLINS Total		2.00		
					MARIE M LANDERS	01/08/99	3.40	Sierra	UNSP
					MARIE M LANDERS Total		0.30		
A013399	8022	3796	Appropriative	Licensed	MARIN COUNCIL BOY SCOUT TRUST FUND #2	10/13/49	42.50	Nevada	CHUBB LAKE
A014959	9301	5983	Appropriative	Licensed	MARIN COUNCIL BOY SCOUT TRUST FUND #2 Total		42.50		
A015345	9575	5185	Appropriative	Licensed	MARK MOORE	08/12/52	0.40	Placer	UNSP
					MARK MOORE Total		0.40		
					MARK ROTH	06/09/58	0.10	Placer	UNSP

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A018079	11547	6800	Appropriative	Licensed	MARK ROTH Total MARTIN FAMILY TRUST	04/02/58	0.10 3.70	Nevada	UNST
A027000	18773	13792	Appropriative	Licensed	MARTIN FAMILY TRUST Total				
A030728	21195	13793	Appropriative	Licensed	MAURICE ALTSHULER	05/28/09	20.00	Nevada	UNST
A021251	14195	9944	Appropriative	Licensed	MAURICE ALTSHULER Total	05/28/09	26.00	Nevada	UNST
A025891	17758	11770	Appropriative	Licensed	MICHAEL CIAFARDONI Total MICHAEL K SCHARF	12/26/78	17.00 1.70	Nevada	UNST
A009750	5462	3069	Appropriative	Licensed	MICHAEL K SCHARF Total	10/13/39	726.00	Sierra	EMPIRE CREEK, UNSP
A024730	17134	11755	Appropriative	Licensed	MILTON R HOLSTROM Total MILTON R HOLSTROM Modern Building Inc.	12/20/74	726.00 25.00 25.00	Butte	UNST
A001270	2082	12795	Appropriative	Licensed	Modern Building Inc. Total	07/10/91	130,701.50	Nevada	CANYON CREEK, FALL CREEK, JACKSON CREEK, TEXAS CREEK, TRAP CREEK
A001614	1481		Appropriative	Permitted	NEVADA IRRIGATION DISTRICT	01/08/20	60,000.00	Nevada	DEER CREEK
A001615	5801	8808	Appropriative	Licensed	NEVADA IRRIGATION DISTRICT	01/08/20	36,496.40	Nevada	DEER CREEK, SOUTH FORK DEER CREEK
A002276	2085	12797	Appropriative	Licensed	NEVADA IRRIGATION DISTRICT	03/25/21	60,000.00	Nevada, Sierra	MIDDLE YUBA RIVER
A005193	13770		Appropriative	Permitted	NEVADA IRRIGATION DISTRICT	09/08/26	50,000.00	Nevada, Sierra	MIDDLE YUBA RIVER (@ MILTON DAM), MIDDLE YUBA RIVER (@JACKSON MEADOWS DAM)
A006702	5807	12800	Appropriative	Licensed	NEVADA IRRIGATION DISTRICT	06/16/30	4,889.30	Nevada	CLEAR CREEK, FALL CREEK, TRAP CREEK
A008180	5815		Appropriative	Permitted	NEVADA IRRIGATION DISTRICT	11/27/34	207,894.90	Nevada	CLEAR CREEK, FALL CREEK, RUCKER CREEK, TEXAS CREEK, TRAP CREEK
A020017	13772		Appropriative	Permitted	NEVADA IRRIGATION DISTRICT	03/06/61	101,160.00	Nevada	SOUTH YUBA RIVER
A014961	9303	6158	Appropriative	Licensed	NEVADA IRRIGATION DISTRICT Total NORMAN R PICKLES	08/12/52	651,142.10 0.40	Placer	UNSP
A013957	11516		Appropriative	Permitted	NORMAN R PICKLES Total North Yuba Water District	08/18/58	145,084.30	Plumas, Yuba	SLATE CREEK
							North Yuba Water District Total	145,084.30	

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A013959	8944	4700	Appropriative	Licensed	O'Brien Ranch LLC	09/21/50	983.80	Butte, Yuba	SOUTH HONCUT CREEK
A018565	12005	6754	Appropriative	Licensed	O'Brien Ranch LLC Total		983.80		
A000481	203	368	Appropriative	Licensed	OLIVER G MILHOUS	03/03/59	20.00	Nevada	UNST
A001193	562	121	Appropriative	Licensed	OLIVER G MILHOUS Total		20.00		
					ORIGINAL SIXTEEN TO ONE MINE, INC	07/31/24	724.00	Sierra	BUCKEYE RAVINE
					ORIGINAL SIXTEEN TO ONE MINE, INC	02/25/19	362.00	Sierra	UNSP
					ORIGINAL SIXTEEN TO ONE MINE, INC Total		1,086.00		
A013689	8312	3836	Appropriative	Licensed	OSHA B READER	04/14/50	49.60	Sierra	UNST
A018928	12203	6983	Appropriative	Licensed	OSHA B READER	08/20/59	1.70	Sierra	UNSP
A011120	6599	3392	Appropriative	Licensed	OSHA B READER Total		51.30		
A011501	6713	3393	Appropriative	Licensed	OSTROM FAMILY TRUST	07/27/45	12.00	Sierra	UNSP
A017135	10850	6922	Appropriative	Licensed	OSTROM FAMILY TRUST	08/07/46	38.20	Sierra	UNSP
A017137	10850	6922	Appropriative	Licensed	OSTROM FAMILY TRUST	06/14/56	0.20	Sierra	UNSP
A017137	10852	5981	Appropriative	Licensed	OSTROM FAMILY TRUST	06/14/56	0.10	Sierra	UNSP
A018782	12221		Appropriative	Permitted	OSTROM FAMILY TRUST	10/02/01	40.10	Sierra	ANDERSON SPRING
A023778	16372		Appropriative	Permitted	OSTROM FAMILY TRUST	05/04/71	24.10	Sierra	UNSP, WIXON SPRING
A024165	16758	11081	Appropriative	Licensed	OSTROM FAMILY TRUST Total		114.70		
A015542	9622	5189	Appropriative	Licensed	PACIFIC EDGE INC	08/30/72	9.00	Yuba	UNST
A020823	13820	8729	Appropriative	Licensed	PACIFIC EDGE INC Total		9.00		
A018176	11803	8201	Appropriative	Licensed	PAUL F BUKENHOFER	09/17/53	72.50	Yuba	UNST
A024842	17048	11439	Appropriative	Licensed	PAUL F BUKENHOFER	06/20/62	72.50	Sierra	UNSP
A009617	5497	2705	Appropriative	Licensed	PAUL F BUKENHOFER Total		145.00		
A011994	7054	3526	Appropriative	Licensed	PAULA M SCHROEDER	06/10/58	0.60	Sierra	SHADY CREEK
					PAULA M SCHROEDER Total		0.60		
					PHILIP PERSONENI	07/22/75	91.70	Nevada	UNST
					PHILIP PERSONENI Total		91.70		
					PHILIP J SIMMONS	09/26/44	1.00	Sierra	WOODRUFF CREEK
					PHILIP J SIMMONS Total		1.00		
					PONTA, MELVIN J & MARCELLA M 1984	07/16/47	39.80	Sierra	UNSP
					REVOCABLE TRUST		1.60	Sierra	INDEPENDENCE CREEK
					PONTA, MELVIN J & MARCELLA M 1984 Total		41.40		
					REVOCABLE TRUST		2.00	Nevada	KENTUCKY RAVINE
					REVOCABLE TRUST Total		2.00		
					R MARILYN WILSON	01/24/83	3.70	Yuba	GOLDEN GATE RAVINE
					R MARILYN WILSON Total		3.70		
					RAENNE A KALFSBEEK	05/25/35	112.90	Placer	UNSP
					RAENNE A KALFSBEEK Total		112.90		
					RAINBOW HOLDING COMPANY, LTD	05/16/79	15.00	Yuba	UNST
					RAINBOW HOLDING COMPANY, LTD Total		15.00		
					RAMON HERNANDEZ	01/06/58	0.80	Sierra	INDEPENDENCE CREEK
					RAMON HERNANDEZ Total		0.80		
					RAY COLAIZZI				

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A022395	15508	10302	Appropriative	Licensed	RAY COLAIZZI Total	02/18/66	0.80	Sierra	PILOT LAKE (AKA DELAHUNTY LAKE)
A022396	15220	11011	Appropriative	Licensed	REGULAR BAPTIST CAMP INCORPORATED	09/19/02	3.20	Sierra	UNSP (3)
A018212	11725	9140	Appropriative	Licensed	REGULAR BAPTIST CAMP INCORPORATED Total		90.20		
A018279	11926	7127	Appropriative	Licensed	RENTIER INCORPORATED	07/09/58	0.70	Sierra	UNST
A017797	11267	7196	Appropriative	Licensed	RENTIER INCORPORATED Total		0.70		
A027542	18885	12513	Appropriative	Licensed	RICHARD L MILLER	08/21/58	0.20	Sierra	UNSP
A027603	18884	13380	Appropriative	Licensed	RICHARD L MILLER Total		0.20		
A019559	12914	7539	Appropriative	Licensed	RICHARD W WALKER	08/22/57	1.70	Placer	UNST
A021496	14525	9634	Appropriative	Licensed	RICHARD W WALKER Total		1.70		
A026640	18874		Appropriative	Permitted	RICHARDS LAND & CATTLE CO	09/30/82	12.00	Yuba	WOODS CREEK
A016792A	10815	008072A	Appropriative	Licensed	RICHARDS LAND & CATTLE CO	12/03/82	49.00	Yuba	WOODS CREEK
A014951	10084	5848	Appropriative	Licensed	RICHARDS LAND & CATTLE CO Total		61.00		
A018674	12824	8179	Appropriative	Licensed	ROBERT CARLSTROEM	07/20/60	0.20	Sierra	UNST
A021562	14484	8801	Appropriative	Licensed	ROBERT CARLSTROEM Total		0.20		
A026809	18475	12287	Appropriative	Licensed	ROBERT A HELLER	10/09/63	1.10	Sierra	UNXX
A027976	19244	12656	Appropriative	Licensed	ROBERT A HELLER Total		1.10		
A018286	11774	7006	Appropriative	Licensed	ROBERT A ROWE	12/02/80	3.20	Nevada	KENTUCKY RAVINE
					ROBERT A ROWE Total		3.20		
					ROBERT L RYAN	12/06/85	9.40	Nevada	UNST
					ROBERT L RYAN Total		9.40		
					ROBERTA D'ARCY	08/06/52	113.10	Yuba	DRY CREEK
					ROBERTA D'ARCY Total		113.10		
					ROCHELLE A FLEMING	04/28/59	0.30	Sierra	UNST
					ROCHELLE A FLEMING Total		0.30		
					ROGER P VAN CRAEYNEST	12/04/63	2.70	Sierra	UNSP
					ROGER P VAN CRAEYNEST Total		2.70		
					RONALD GUILD	04/29/81	4.00	Yuba	PRAIRIE CREEK
					RONALD GUILD Total		4.00		
					RONALD L GOODSPEED	02/08/84	0.30	Nevada	UNST
					RONALD L GOODSPEED Total		0.30		
					ROSS JACOBS	08/26/58	0.20	Sierra	UNST
					ROSS JACOBS Total		0.20		

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A026365	18355	12070	Appropriative	Licensed	ROY BRAATZ	05/19/80	3.30	Nevada	UNST
					ROY BRAATZ Total		3.30		
A020263	13977	10086	Appropriative	Licensed	ROY RAMEY	06/13/61	24.20	Nevada	WEST BRANCH GOLD RUN CREEK
					ROY RAMEY Total		24.20		
A008984	5142	2367	Appropriative	Licensed	RUBY DEVELOPMENT COMPANY	06/02/37	241.10	Sierra	ROCK CREEK
					RUBY DEVELOPMENT COMPANY Total		241.10		
A024904	17224	11479	Appropriative	Licensed	RUBY J RICKARD	10/17/75	2.00	Nevada	UNSP
					RUBY J RICKARD Total		2.00		
A018252	11757	7003	Appropriative	Licensed	SEGHEZZI INC	03/20/64	51.70	Nevada	UNST
					SEGHEZZI INC Total		51.70		
A020309	13944	8350	Appropriative	Licensed	SHAWN BEACHAMP	07/19/61	0.60	Sierra	UNSP
					SHAWN BEACHAMP Total		0.60		
A021727	14700	9328	Appropriative	Licensed	SHERMAN D WINSHIP	04/07/64	15.00	Nevada	UNST
					SHERMAN D WINSHIP Total		15.00		
A021417	14529	9226	Appropriative	Licensed	SIBLEY HANSEN	08/02/63	0.10	Sierra	SMALL SPRING
					SIBLEY HANSEN Total		0.10		
A006286	3316	2427	Appropriative	Licensed	SIERRA CLUB	05/13/29	2.80	Nevada	ZERO SPRING
					SIERRA CLUB Total		2.80		
A008465	4945	2628	Appropriative	Licensed	SIERRA CLUB	10/05/35	5.60	Nevada	UNSP
					SIERRA CLUB Total		8.40		
A020890	14177	9068	Appropriative	Licensed	SIERRA PACIFIC INDUSTRIES	08/06/62	5.60	Sierra	UNSP, UNST
					SIERRA PACIFIC INDUSTRIES Total		5.60		
A026028	18161	12301	Appropriative	Licensed	SOPER COMPANY	06/18/79	2.50	Nevada	UNST
					SOPER COMPANY Total		2.50		
A026067	18454	11796	Appropriative	Licensed	STARMASTER LAKE ASSOCIATION	08/17/79	27.00	Nevada	UNST
					STARMASTER LAKE ASSOCIATION Total		27.00		
A023591	16215	10645	Appropriative	Licensed	STEPHEN MAKI	08/24/70	2.30	Nevada	UNST
					STEPHEN MAKI Total		2.30		
A028615	20873		Appropriative	Permitted	STEVE MEHALAKIS	11/08/85	20.00	Yuba	UNST
A028616	20874		Appropriative	Permitted	STEVE MEHALAKIS	11/08/85	656.00	Yuba	UNST
					STEVE MEHALAKIS Total		676.00		
A016659	10458	6570	Appropriative	Licensed	Steven A Beckwitt	10/10/55	7.00	Nevada	UNCR
					Steven A Beckwitt Total		7.00		
A028564	20071	13055	Appropriative	Licensed	STEVEN NIGHTINGALE	09/26/85	0.40	Sierra	UNST
					STEVEN NIGHTINGALE Total		0.40		
A030074	20797		Appropriative	Permitted	SUGAR BOWL CORPORATION	06/15/95	136.00	Placer	LAKE MARY

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A030359	20798		Appropriative	Permitted	SUGAR BOWL CORPORATION	06/15/95	136.00	Placer	LAKE MARY
A017808	11602	6617	Appropriative	Licensed	SUGAR BOWL CORPORATION Total SUSAN TRIMBLE SILVEY	08/30/57	272.00 0.30	Nevada	UNSP, UNST
A022135	15294	9724	Appropriative	Licensed	SUSAN TRIMBLE SILVEY Total SUSAN M FORD	04/30/65	0.30 6.00	Sierra	UNSP
A028187	20186		Appropriative	Permitted	SUSAN M FORD Total SUSAN T TOWNSEND	07/10/84	35.00	Nevada	OWL CREEK
A017798	11268	6932	Appropriative	Licensed	SUSAN T TOWNSEND Total SUSANNAH SCHROLL	08/22/57	35.00 0.90	Placer	UNST
A010980	6391	3171	Appropriative	Licensed	SUSANNAH SCHROLL Total Terry Mitchell Riley	02/13/45	17.00	Yuba	MOONSHINE CREEK
A021079	14144	9865	Appropriative	Licensed	Terry Mitchell Riley Total THE KRUMP LIMITED PARTNERSHIP	12/11/62	29.00	Nevada	NORTH CREEK
A011106	6583	4849	Appropriative	Licensed	THE KRUMP LIMITED PARTNERSHIP Total THOMAS DE JONGHE	07/13/45	29.00 19.70	Sierra	UNSP, VAN JOAN CREEK
A018663	12077	6842	Appropriative	Licensed	THOMAS DE JONGHE Total THOMAS A JEKYLL	04/24/59	796.40 816.10	Sierra	SAN JUAN CANYON
A009651	5425	2777	Appropriative	Licensed	THOMAS A JEKYLL Total THOMAS R POPE	06/30/39	5.60 5.60	Yuba	MOONSHINE CREEK
A028126	20885		Appropriative	Permitted	THOMAS R POPE Total TIMOTHY WALKER	04/30/84	7.00	Yuba	UNST
A018395	11928	7011	Appropriative	Licensed	TIMOTHY WALKER Total TREVOR D ROBBINS	11/05/58	0.20	Sierra	COLD SPRING
A017142	10833	6907	Appropriative	Licensed	TREVOR D ROBBINS Total TRI-LODGE ASSOCIATION	06/20/56	2.60	Nevada	UNST
A014930	9266	5083	Appropriative	Licensed	TRI-LODGE ASSOCIATION Total TROY L JONES	07/28/52	16.80	Nevada	LYTTON CREEK
A015246	9585	4864	Appropriative	Licensed	TROY L JONES Total TSCHOPP MUTUAL WATER COMPANY	03/19/53	16.80 2.30	Nevada	UNSP
A022265	15651	13721	Appropriative	Licensed	TSCHOPP MUTUAL WATER COMPANY Total TYE ROMMEL	05/30/07	8.40	Sierra	UNSP, WIXON SPRING
A018581	11987	7507	Appropriative	Licensed	TYE ROMMEL Total U S FOREST SERVICE	03/10/59	8.40 0.10	Sierra	UNST
A006563	3462	4000	Appropriative	Licensed	U S FOREST SERVICE Total U S FOREST SERVICE	02/13/30	0.40	Sierra	UNSP
A007608	4266	1863	Appropriative	Licensed	U S FOREST SERVICE Total	07/05/33	1.80	Sierra	UNSP

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A007691	4232	1864	Appropriative	Licensed	U S FOREST SERVICE	09/28/33	0.40	Sierra	GENTLE ANNIE SPRING
A007767	4269	1865	Appropriative	Licensed	U S FOREST SERVICE	11/27/33	0.30	Sierra	UNSP
A008493	4684	2139	Appropriative	Licensed	U S FOREST SERVICE	11/13/35	6.20	Sierra	JERRETT SPRING
A009561	5364	2480	Appropriative	Licensed	U S FOREST SERVICE	04/19/39	8.40	Sierra	BAKER SPRING
A010038	5700	4893	Appropriative	Licensed	U S FOREST SERVICE	10/17/40	5.60	Placer	SUMMIT SPRING NO 1
A010153	5788	2659	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	1.10	Nevada	LOGAN SPRING
A010154	5789	2660	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	1.40	Nevada	BIG LICK SPRINGS
A010155	5790	2661	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	1.00	Nevada	DEMPESEY SPRINGS
A010156	5791	4888	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	9.20	Nevada	WHITE CLOUD SPRINGS
A010158	5793	2662	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	1.40	Nevada	COLEMAN SPRINGS
A010159	5794	4175	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	0.60	Nevada	SKILLMAN FLAT SPRING
A010160	5795	2663	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	0.60	Nevada	DEMORY SPRING
A010161	5796	2664	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	1.40	Nevada	UPPER DERBEC SPRING
A010162	5797	2665	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	9.80	Nevada	SNOWTENT SPRING
A010163	5798	2666	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	2.90	Nevada	DERBEC SPRINGS
A010164	5799	2667	Appropriative	Licensed	U S FOREST SERVICE	03/22/41	4.40	Nevada	WILLOW SPRINGS
A010446	6018	2891	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	3.10	Nevada	THIMBLEBERRY CREEK
A010447	6019	2892	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	3.70	Nevada	JUNCTION HOUSE SPRING
A010448	6020	4895	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	1.10	Nevada	GROUSE RIDGE SPRING NO 3
A010449	6021	3057	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	0.20	Nevada	MOGONIGAL SPRING
A010451	6023	2894	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	3.40	Nevada	BEAR TRAP CREEK
A010452	6024	3058	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	0.20	Nevada	GROUSE RIDGE SPRING NO 1
A010453	6025	3921	Appropriative	Licensed	U S FOREST SERVICE	05/06/42	0.60	Nevada	GROUSE RIDGE SPRING NO 2

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A010496	6091	2895	Appropriative	Licensed	U S FOREST SERVICE	07/15/42	0.90	Nevada	MOBLEY HOMESTEAD SPRING NO 1
A010497	6092	2896	Appropriative	Licensed	U S FOREST SERVICE	07/15/42	4.70	Nevada	HOLDEN SPRING
A010500	6095	2898	Appropriative	Licensed	U S FOREST SERVICE	07/15/42	1.80	Nevada	UNSP
A010502	6099	2899	Appropriative	Licensed	U S FOREST SERVICE	07/15/42	3.20	Nevada	MOBLEY HOMESTEAD SPRING NO 2
A010503	6100	2900	Appropriative	Licensed	U S FOREST SERVICE	07/15/42	4.10	Nevada	INDIAN SPRING
A010506	6103	2902	Appropriative	Licensed	U S FOREST SERVICE	07/15/42	0.90	Nevada	UPPER WOOLSEY SPRING
A010634	6150	2903	Appropriative	Licensed	U S FOREST SERVICE	05/01/43	2.20	Sierra	HALLS RANCH SPRING
A010637	6153	2905	Appropriative	Licensed	U S FOREST SERVICE	05/01/43	2.20	Sierra	WILD PLUM SPRING
A010639	6155	2907	Appropriative	Licensed	U S FOREST SERVICE	05/01/43	1.60	Sierra	DEADWOOD SPRING
A010640	6156	2908	Appropriative	Licensed	U S FOREST SERVICE	05/01/43	2.20	Sierra	GOLD LAKE SPRING
A010642	6158	2910	Appropriative	Licensed	U S FOREST SERVICE	05/01/43	1.50	Sierra	SADDLEBACK SPRING
A011382	6627	7752	Appropriative	Licensed	U S FOREST SERVICE	04/23/46	0.60	Nevada	RED MOUNTAIN SPRING NO 1
A012054	7080	3979	Appropriative	Licensed	U S FOREST SERVICE	08/21/47	210.30	Sierra	BEAR CREEK
A012104	7107	5532	Appropriative	Licensed	U S FOREST SERVICE	09/24/47	5.00	Sierra	HASKELL CREEK
A012105	7197	4210	Appropriative	Licensed	U S FOREST SERVICE	09/24/47	0.10	Sierra	GLEASON SPRING
A012108	7198	8987	Appropriative	Licensed	U S FOREST SERVICE	09/24/47	6.10	Sierra	CARVIN CREEK, UNSP
A012734	7577	4944	Appropriative	Licensed	U S FOREST SERVICE	10/07/48	17.90	Placer	UNSP
A013626	8115	5514	Appropriative	Licensed	U S FOREST SERVICE	03/10/50	8.20	Sierra	GRASSY LAKE CREEK
A013627	8116	4873	Appropriative	Licensed	U S FOREST SERVICE	03/10/50	12.20	Sierra	ORGAN CREEK
A014368	9086	4981	Appropriative	Licensed	U S FOREST SERVICE	06/27/51	0.10	Sierra	INDEPENDENCE RAVINE
A014369	8833	5423	Appropriative	Licensed	U S FOREST SERVICE	06/27/51	1.60	Sierra	FIDDLE CREEK
A014399	8880	5114	Appropriative	Licensed	U S FOREST SERVICE	07/19/51	2.00	Nevada	RATTLESNAKE CREEK
A014400	8830	6972	Appropriative	Licensed	U S FOREST SERVICE	07/19/51	0.60	Nevada	JACKSON CREEK

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A016642	10775	6162	Appropriative	Licensed	U S FOREST SERVICE	09/30/55	0.90	Sierra	CARVIN CREEK
A017236	14333	9873	Appropriative	Licensed	U S FOREST SERVICE	08/13/56	4,320.00	Nevada	WEAVER LAKE
A017827	11555	6959	Appropriative	Licensed	U S FOREST SERVICE	09/19/57	0.90	Sierra	UNSP (2)
A017867	11386	8642	Appropriative	Licensed	U S FOREST SERVICE	10/31/57	4.00	Nevada	UNSP
A018294	11777	7651	Appropriative	Licensed	U S FOREST SERVICE	08/28/58	0.20	Nevada	MARSH TRACT SPRING
A018744	13212	8632	Appropriative	Licensed	U S FOREST SERVICE	05/28/59	130.00	Sierra	UNST
A018745	13213	8633	Appropriative	Licensed	U S FOREST SERVICE	05/28/59	90.00	Sierra	PACKER CREEK
A018746	13214	8634	Appropriative	Licensed	U S FOREST SERVICE	05/28/59	380.00	Sierra	SALMON CREEK
A018747	13215	8635	Appropriative	Licensed	U S FOREST SERVICE	05/28/59	282.20	Sierra	SARDINE CREEK
A018748	13216	8983	Appropriative	Licensed	U S FOREST SERVICE	05/28/59	350.00	Sierra	SAWMILL CREEK
A018749	13217	8636	Appropriative	Licensed	U S FOREST SERVICE	05/28/59	250.00	Sierra	SALMON CREEK
A021130	14147	8582	Appropriative	Licensed	U S FOREST SERVICE	01/22/63	2.20	Sierra	UNSP
A021420	14530	8940	Appropriative	Licensed	U S FOREST SERVICE	08/06/63	0.20	Sierra	UNSP
A023124	15805	9651	Appropriative	Licensed	U S FOREST SERVICE	09/05/68	0.30	Sierra	UNSP
A028413	19713	13031	Appropriative	Licensed	U S FOREST SERVICE	03/29/85	0.80	Sierra	UNSP
A024067	16490	11008	Appropriative	Licensed	U S FOREST SERVICE Total WALTER BALDWIN	05/12/72	6,170.90	Yuba	UNST
					WALTER BALDWIN Total		8.00		
A022419	15278	9703	Appropriative	Licensed	WASHINGTON COUNTY WATER DISTRICT	03/11/66	48.00	Nevada	HENDERSON RAVINE
WASHINGTON COUNTY WATER DISTRICT Total									
A016823	10823	7089	Appropriative	Licensed	WAYNE L HARSHBARGER	01/09/56	35.00	Nevada	UNST
A018170	11648	7666	Appropriative	Licensed	WAYNE L HARSHBARGER Total WILLIAM C DOUB II	06/05/58	35.00	Yuba	LITTLE WILLOW CREEK
A026642	18723		Appropriative	Permitted	WILLIAM C DOUB II Total WILLIAM H CLEMENS	12/03/80	1.10	Nevada	RAPP RAVINE
A011355	6661	3358	Appropriative	Licensed	WILLIAM H CLEMENS Total WILLIAM R SMITH	03/28/46	3.00	Sierra	JIM CROW CANYON

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					WILLIAM R SMITH Total		0.60		
A002197	1154	435	Appropriative	Licensed	YUBA COUNTY WATER AGENCY	02/11/21	511,784.30	Yuba	NORTH YUBA RIVER
A003026	1354	436	Appropriative	Licensed	YUBA COUNTY WATER AGENCY	09/07/22	10,000.00	Yuba	NORTH YUBA RIVER
A005004	2604	777	Appropriative	Licensed	YUBA COUNTY WATER AGENCY	04/30/26	15,000.00	Yuba	NORTH YUBA RIVER
A005632	15026		Appropriative	Permitted	YUBA COUNTY WATER AGENCY	07/30/27	1,159,000.00	Yuba	NORTH YUBA RIVER, YUBA RIVER
A009516	6106	3050	Appropriative	Licensed	YUBA COUNTY WATER AGENCY	03/01/39	72,397.80	Yuba	NORTH YUBA RIVER
A010282	8330	5544	Appropriative	Licensed	YUBA COUNTY WATER AGENCY	09/12/41	5,335.00	Yuba	NORTH YUBA RIVER
A015204	15027		Appropriative	Permitted	YUBA COUNTY WATER AGENCY	03/28/66	246,000.00	Yuba	NORTH YUBA RIVER, YUBA RIVER
A015574	15030		Appropriative	Permitted	YUBA COUNTY WATER AGENCY	03/28/66	514,000.00	Nevada, Yuba	MIDDLE YUBA RIVER, NORTH YUBA RIVER, OREGON CREEK, YUBA RIVER
A029837	20595		Appropriative	Permitted	YUBA COUNTY WATER AGENCY	10/11/90	21,719.30	Yuba	DEADWOOD CREEK, OWL GULCH
					YUBA COUNTY WATER AGENCY Total		2,555,236.40		
A002978	1270	12984	Appropriative	Licensed	YUBA COUNTY WATER DISTRICT	08/12/22	6,060.00	Yuba	DRY CREEK
A013957	11516		Appropriative	Licensed	YUBA COUNTY WATER DISTRICT	09/20/50	145,082.64	Plumas, Yuba	NORTH YUBA RIVER, YUBA RIVER
A011596	7086	4699	Appropriative	Licensed	YUBA INVESTMENT COMPANY	10/28/46	2,558.70	Yuba	DRY CREEK
					YUBA INVESTMENT COMPANY Total		2,558.70		
A026914	18489	12619	Appropriative	Licensed	YUBA RIVER RECREATION GROUP INC	07/13/81	2.60	Nevada	HUMBUG CREEK
					YUBA RIVER RECREATION GROUP INC Total		2.60		
					Grand Total		3,595,920.74		

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A029052	20786	13687	ANNE K SOUSA	12/13/06	5.80	Nevada	UNST
			ANNE K SOUSA Total		5.80		
A029455	20562		ARTHUR W ARMSTRONG	3/28/89	7.00	Nevada	IRON CROSS CREEK, ROCK CREEK
			ARTHUR W ARMSTRONG Total		7.00		
A025897	18040	11864	BEN R RAWE	1/5/79	0.30	Nevada	WOLF CREEK
			BEN R RAWE Total		0.30		
A026042	17969	11895	Bethel Church Nevada County	7/5/79	1.50	Nevada	UNST
			Bethel Church Nevada County Total		1.50		
A019535	12763	7754	BETTY THOMAS	7/11/60	20.00	Nevada	UNST
			BETTY THOMAS Total		20.00		
A015964	10090	7264	BLEAU 1989 REVOCABLE TRUST DATED 12/22/89	5/5/65	14.80	Nevada	UNST
			BLEAU 1989 REVOCABLE TRUST DATED 12/22/89 Total		14.80		
A027768	19029	12402	BOB J BALDWIN	6/7/83	2.40	Nevada	UNST
			BOB J BALDWIN Total		2.40		
A000959	743	385	CAMP FAR WEST IRRIGATION DISTRICT	4/1/18	4,832.10	Yuba	BEAR RIVER
A002881	2089	2266	CAMP FAR WEST IRRIGATION DISTRICT	6/13/22	5,000.00	Yuba	BEAR RIVER
A003843	2090	2267	CAMP FAR WEST IRRIGATION DISTRICT	2/11/24	3,592.20	Yuba	BEAR RIVER
A010190	5852	2740	CAMP FAR WEST IRRIGATION DISTRICT	4/28/41	5,000.00	Yuba	BEAR RIVER
			CAMP FAR WEST IRRIGATION DISTRICT Total		18,424.30		
A021821	14841	9992	CITY OF GRASS VALLEY	6/18/64	4.00	Nevada	RHODE ISLAND RAVINE
A025601	17893		CITY OF GRASS VALLEY	12/16/77	2,200.00	Nevada	UNXX
			CITY OF GRASS VALLEY Total		2,204.00		
A029097	20492	13344	COX-HARTLEY FAMILY 1993 TRUST	8/17/87	17.00	Nevada	LONG RAVINE
A026932	18555	12337	CRAIG FERRARI	7/27/81	1.30	Nevada	LONG RAVINE
A029177	20384	13514	CRAIG FERRARI	1/26/88	3.30	Nevada	LONG RAVINE
			CRAIG FERRARI Total		4.60		
A020794	14711	10153	DANIEL HALE	5/28/62	8.30	Nevada	UNSP, UNST
			DANIEL HALE Total		8.30		
A017495	11042	5812	DARKHORSE GOLF CLUB LLC	3/5/57	9.00	Nevada	UNST
A027767	19028	12401	DARKHORSE GOLF CLUB LLC	6/7/83	1.90	Nevada	UNST
			DARKHORSE GOLF CLUB LLC Total		10.90		
A026161	18143	12136	DAVID MCFARLANE	1/3/80	0.10	Nevada	UNSP
			DAVID MCFARLANE Total		0.10		
A015282	9761	4714	DAVID L FERGUSON	4/7/53	15.00	Nevada	INDIAN RAVINE
A025099	16957	11240	DENNIS ACMOODY	7/14/76	15.00	Placer	CAMPBELL CREEK
			DENNIS ACMOODY Total		0.70		
A023012	15728	10361	Dept of Fish and Game	3/27/68	44.00	Yuba	UNST
A023013	15729	10387	Dept of Fish and Game	3/27/68	9.60	Nevada	UNST
A023014	15730	10388	Dept of Fish and Game	3/27/68	21.00	Yuba	UNST

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A024601	16798	11216	Dept of Fish and Game	5/2/74	3.00	Yuba	UNST
A024641	16797	11212	Dept of Fish and Game	4/22/82	5.10	Yuba	UNST
			Dept of Fish and Game Total		82.70		
A021495	14411	9027	DONALD L DAY	10/9/63	9.20	Nevada	UNST
A027513	18935	12432	DORIS L MINARD	9/13/82	3.10	Nevada	UNST
A021843	14973	9263	ELIZABETH STREATER	7/10/64	0.10	Nevada	UNSP
A017858	11509	6590	GARY M LAUGHLIN	10/23/57	0.80	Nevada	UNSP (2)
A027958	19299	12783	GLADYS MARTINES	1/25/84	3.00	Nevada	UNST
A029895	20705	20705	GLADYS MARTINES	1/25/91	27.00	Nevada	UNST
A023070	16276	11076	GREGORY W BOCK	6/18/68	30.00	Nevada	UNST
A014179	8713	4076	GREGORY W BOCK Total	3/7/51	52.30	Nevada	UNST
A017539	11052	6926	HERRMANN GOTTFIELD	4/3/57	21.30	Nevada	UNST
A015879	10532	5520	HERRMANN GOTTFIELD Total	5/19/54	91.80	Nevada	UNCR
			HIDDEN MEADOW RANCH Total		18.30		LONG HOLLOW
A028605	20716	20716	IKE GOMEZ	10/28/85	18.30	Nevada	SOUTH WOLF CREEK, UNST
A018371	11846	8036	JACK F ANDERSEN	10/14/58	6.50	Placer	UNST
A025408	18090	11807	JACK F ANDERSEN Total	6/28/77	29.00	Placer	UNST
A030915	21141		JAMES C PAGE		119.80	Yuba	VINEYARD CREEK
A025582	17443	11469	JAMES M SILLER	1/2/03	89.00	Nevada	UNST
A030508	20929		JAMES M SILLER Total	11/29/77	15.00	Nevada	ROCK CREEK, UNST
A025502	17606	12279	Jape Holley Taylor	9/7/77	56.00	Nevada	MEYER RAVTINE
A017437	11015	7742	Jape Holley Taylor Total	1/28/57	9.40	Nevada	UNST
A029100	20553	13829	JAY BETZ	1/11/11	3.50	Placer	UNST
A024814	17265	11749	JAY VICE	5/23/75	8.40	Nevada	UNST
A014896	9165	4969	JAY VICE Total	7/8/52	0.50	Nevada	UNST
A025493	17730	12042	JEFFREY L FINK	8/29/77	21.00	Nevada	INDIAN SPRINGS CREEK, UNST
			JEFFREY L FINK Total				
			Jim A Nevins Total				
			JOHN C HUSMANN Total				
			JOSEPH D LITCHEFIELD Total				

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A028102	19386	12709	JOSHUA L WITTLER Total Judy Bauer	4/4/84	21.00	Nevada	UNST
A017942B	11413	008536B	Judy Bauer Total LADSON I GEDDINGS	10/14/81	4.00	Nevada	LONG HOLLOW RAVINE
A019830	13852	8657	LADSON I GEDDINGS Total LAKE MANAGEMENT COMMITTEE	10/27/60	9.80	Nevada	BUTLER CREEK
A017258	11462	6296	LAKE MANAGEMENT COMMITTEE Total LAKE OF THE PINES ASSN INC	8/27/56	35.00	Nevada	RAGSDALE CREEK
A022535	15355	9675	LAKE OF THE PINES ASSN INC Total LAKE OF THE PINES ASSN INC	7/27/66	4,150.00	Nevada	MAGNOLIA CREEK
A018214	11635	6752	LAKE OF THE PINES ASSN INC Total LCB PROPERTIES LLC	7/11/58	4,167.00	Nevada	LONG HOLLOW RAVINE
A022821A	009610A	010658A	LCB PROPERTIES LLC Total Louis BARTOLUCCI	5/6/02	55.80	Nevada	UNST
A023549A	010658A	11924	Louis BARTOLUCCI Total Louis BARTOLUCCI	12/14/98	21.00	Nevada	UNST
A025375	17757	13032	Louis BARTOLUCCI Total LUELLA BURTON	6/1/77	35.00	Placer	UNST
A028660	19898	9020	LUELLA BURTON Total MARTIN P & BARBARA C BRUMM JOINT LIVING TRUST	12/13/85	23.00	Placer	UNST
A017863	11331	10988	MARTIN P & BARBARA C BRUMM JOINT LIVING TRUST Total MARTIN P & BARBARA C BRUMM JOINT	10/25/57	10.00	Nevada	UNST
A017918	11685	12458	MARTIN P & BARBARA C BRUMM JOINT LIVING TRUST Total MELBA C SMITH	12/17/57	26.80	Nevada	WOLF CREEK
A027040	18782	12817	MELBA C SMITH Total MICHAEL J BONELLI	10/13/81	53.00	Nevada	UNST
A028348	19601	21148	MICHAEL J BONELLI Total MICHAEL K SCHARF	12/4/84	14.50	Placer	UNST
A031298	20005	13060	MICHAEL K SCHARF Total MICHAEL S DICKEY	5/15/03	3.90	Nevada	UNST
A028630	008012C	10350	MICHAEL S DICKEY Total MIKE BASICH	12/2/85	49.00	Placer	CAMPBELL CREEK
A019749C	008012C	10350	MIKE BASICH Total MOREHEAD LAND LLC	10/13/00	0.10	Nevada, Sutter	EAST BORROW PIT OF SUTTER BYPASS, POODLE CREEK, UNST
A002652A	5803	8809	MOREHEAD LAND LLC Total NEVADA IRRIGATION DISTRICT	11/22/21	402.40	Nevada, Placer	BEAR RIVER
A006229	5804	11626	NEVADA IRRIGATION DISTRICT Total NEVADA IRRIGATION DISTRICT	3/26/29	12,500.00	Placer	BEAR RIVER
A002652B	16058	12977	NEVADA IRRIGATION DISTRICT Total PATRICK D BRYAN	11/22/21	50,936.30	Placer	BEAR RIVER
A023107	19808	12977	PATRICK D BRYAN Total PAUL R SEIDER	8/7/68	65,000.00	Placer	BEAR RIVER
A028561	19808	12977	PAUL R SEIDER Total	9/20/85	128,436.30	Nevada	UNST
					9.20	Nevada	SOUTH WOLF CREEK
					1.50	Nevada	
					1.50	Nevada	

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A026684	18972	12398	PINE LAKE ASSOCIATION	1/13/81	45.00	Nevada	UNST
			PINE LAKE ASSOCIATION Total		45.00		
A025922A	17889	11925	PITTS FAMILY TRUST	3/11/86	18.00	Nevada	UNST
			PITTS FAMILY TRUST Total		18.00		
A017912	11641	7101	RICHARD L BARBER	12/11/57	5.60	Placer	UNSP (2)
A021867	15251	9546	RICHARD L BARBER	8/10/64	358.30	Placer	LITTLE BEAR CREEK, UNST
			RICHARD L BARBER Total		363.90		
A020105	13690	7762	RICHARD P O'NEIL	5/1/61	2.50	Nevada	WOLF CREEK
A021473	14619	8876	ROBERT FORD	9/23/63	0.90	Nevada	UNST
			ROBERT FORD Total		0.90		
A025962	17954	12055	ROBERT C ERDMANN	4/3/79	5.00	Nevada	UNST
			ROBERT C ERDMANN Total		5.00		
A025922B	17889	11926	Robert M Rourke	3/11/86	5.30	Nevada	UNST
A003995	1847	1612	ROBERT N CAIN	5/20/24	40.00	Nevada	MAGNOLIA CREEK
A015607	9697	5685	ROBERT N CAIN	11/10/53	91.10	Nevada	MAGNOLIA CREEK
			ROBERT N CAIN Total		131.10		
A017942A	11413	008536A	ROBERT P WADMAN	10/14/81	48.30	Nevada	LONG HOLLOW RAVINE
			ROBERT P WADMAN Total		48.30		
A024624	18166	12199	ROBIN BURKE	4/27/87	8.80	Placer	UNST
			ROBIN BURKE Total		8.80		
A023550	16229	12355	RODRIC ANDERSON	7/10/70	8.00	Nevada	UNST
			RODRIC ANDERSON Total		8.00		
A025226	17450	12339	ROGER C PATTERSON	1/3/77	92.00	Placer	UNST
			ROGER C PATTERSON Total		92.00		
A031859			RON BINGAMAN	10/20/10	2,172.00	Nevada	UNST (AKA WOLF HANNAMAN RANDOM DITCH)
A030973	21073		RON BINGAMAN	10/14/99	2,172.00	Nevada	
			RON BINGAMAN Total		4,344.00		
A026072	18034	11907	RONALD F BURKHARDT	8/24/79	18.00	Nevada	UNST
			RONALD F BURKHARDT Total		18.00		
A017767	11458	8624	Ryan R Say	8/12/57	4.80	Nevada	UNST
			Ryan R Say Total		4.80		
A025492	17729	11941	SARAH JOELSON	8/29/77	15.00	Nevada	INDIAN SPRINGS CREEK
			SARAH JOELSON Total		15.00		
A026100	18035	11880	SCOTT C JASPAR	9/28/79	2.40	Nevada	UNST
			SCOTT C JASPAR Total		2.40		
A019003	12858	7437	SETH NOTO	9/25/59	1.10	Nevada	UNST
			SETH NOTO Total		1.10		
A023549B		010658B	SHARON EARHART	12/14/98	8.00	Nevada	UNST
			SHARON EARHART Total		8.00		
A026876	19442	12618	SHEILA ST GERMAIN	6/17/81	5,166.00	Nevada	UNST
			SHEILA ST GERMAIN Total		5,166.00		

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A024984	16847	11190	SMITH & SMITH RANCH, A PARTNERSHIP	1/29/76	3.00	Nevada	UNST
A027152	18851	12679	SMITH & SMITH RANCH, A PARTNERSHIP	12/17/81	2.40	Nevada	UNST
			SMITH & SMITH RANCH, A PARTNERSHIP Total		5.40		
A010221	14871	11120	SOUTH SUTTER WATER DISTRICT	5/15/81	130,745.10	Yuba	BEAR RIVER
A014804	11297	11118	SOUTH SUTTER WATER DISTRICT	5/12/52	139,534.80	Yuba	BEAR RIVER
			SOUTH SUTTER WATER DISTRICT Total		270,279.90		
A014773B	9106	006560B	SPRING VALLEY HOMEOWNERS ASSOCIATION	12/10/82	24.00	Placer	UNST
A020632	13760	8381	SPRING VALLEY HOMEOWNERS ASSOCIATION	3/1/62	52.00	Placer	UNST
A025139	17584	13120	SPRING VALLEY HOMEOWNERS ASSOCIATION	8/31/76	4.70	Placer	UNST
			SPRING VALLEY HOMEOWNERS ASSOCIATION Total		80.70		
A017430	11047	6954	STEVE KOTHE	1/23/57	84.90	Nevada	RAGSDALE CREEK
			STEVE KOTHE Total		84.90		
A022382	15366	10099	THE LAKEWOOD ASSOCIATION INC	2/4/66	486.00	Nevada	DRY CREEK
A026160	18323	12118	THE LAKEWOOD ASSOCIATION INC Total		486.00		
A027695	19793	12934	THOMAS S VAN HORNE	12/31/79	3.10	Nevada	UNSP
			THOMAS S VAN HORNE Total		11.90	Nevada	UNST
A010150	5785	2656	U S FOREST SERVICE	3/22/41	0.50	Nevada	KING WOOLFORD SPRING
A010439	6011	2888	U S FOREST SERVICE	5/6/42	0.70	Nevada	FOWLER SPRING
A010504	6101	4977	U S FOREST SERVICE	7/15/42	10.50	Nevada	MULE SPRING
			U S FOREST SERVICE Total		11.70		
A025211	17449	12756	UNITED AUBURN INDIAN DEVELOPMENT CORP	12/13/76	49.90	Placer	UNST
			UNITED AUBURN INDIAN DEVELOPMENT CORP Total		49.90		
A028170	19598	13007	William Scott	6/25/84	0.10	Nevada	UNST
			William Scott Total		0.10		
A028138	19417		WILLIAM M DONNELLY JR	5/23/84	2.00	Nevada	UNST
			WILLIAM M DONNELLY JR Total		2.00		
			Grand Total		436,025.40		

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A010397	5958	3042	AL RENKER	3/11/1942	0.10	Ei Dorado	SOUTH FORK AMERICAN RIVER
			AL RENKER Total		0.10		
A007905	4344	1801	ALBERT E CASH	4/12/1934	0.20	Ei Dorado	BULL CREEK
			ALBERT E CASH Total		0.20		
A027366	19846		ALBERT R DAVIDSON	6/21/1982	30.00	Ei Dorado	UNST
			ALBERT R DAVIDSON Total		30.00		
A016894	11321	7150	ALLEN E NEWTON	2/14/1956	18.20	Placer	UNST
			ALLEN E NEWTON Total		18.20		
A013849	8397	5518	ALLEN FAMILY TRUST	7/17/1950	53.30	Placer	UNST
			ALLEN FAMILY TRUST Total		53.30		
A026457	18473	12786	American River Conservancy	7/15/1980	49.00	Ei Dorado	GRANITE CREEK
			American River Conservancy Total		49.00		
A013296	8191	6304	ANN BATEY	8/15/1949	137.00	Ei Dorado	INDIAN CREEK
			ANN BATEY Total		137.00		
A029219	20482		ANTHONY J FREITAS	4/7/1988	21.20	Ei Dorado	JOHNTOWN CREEK
			ANTHONY J FREITAS Total		21.20		
A027928	19263	12703	APPLE MOUNTAIN LP	12/7/1983	11.80	Ei Dorado	SOUTH CANYON, UNST
			APPLE MOUNTAIN LP Total		11.80		
A011184	6479	3390	ARDEN HALL	10/16/1945	0.10	Ei Dorado	SOUTH FORK AMERICAN RIVER
			ARDEN HALL Total		0.10		
A011516	6699	3383	ARTHUR S DEAN	8/15/1946	36.20	Ei Dorado	UNSP
			ARTHUR S DEAN Total		36.20		
A021648	14938	11111	AUBURN LAKE TRAILS PROPERTY OWNERS ASSOC	2/21/1964	34.00	Ei Dorado	MAINE BAR CANYON
			AUBURN LAKE TRAILS PROPERTY OWNERS ASSOC		34.00		
A023556	16296	11112	AUBURN LAKE TRAILS PROPERTY OWNERS ASSOC	7/14/1970	20.00	Ei Dorado	MAINE BAR CANYON
			AUBURN LAKE TRAILS PROPERTY OWNERS ASSOC		20.00		
A026410	18279	12013	AUBURN LAKE TRAILS PROPERTY OWNERS ASSOC	6/10/1980	14.00	Ei Dorado	MAINE BAR CANYON
			AUBURN LAKE TRAILS PROPERTY OWNERS ASSOC		14.00		
A011817	6920	6045	BAKER FAMILY TRUST 1999	4/8/1947	68.00	Ei Dorado	HANGTOWN CREEK
			BAKER FAMILY TRUST 1999		68.00		
A011850	6959	3357	BAKER FAMILY TRUST 1999	5/1/1947	13.70	Ei Dorado	HANGTOWN CREEK
			BAKER FAMILY TRUST 1999 Total		17.10		
A019125	12391	7458	BARBARA ELLEN HOLLAND	12/8/1959	5.30	Ei Dorado	UNSP, UNST
			BARBARA ELLEN HOLLAND Total		5.30		
A0202568	13189	9778	BARBAREE JERNIGAN	5/5/1971	2.20	Ei Dorado	WHITE ROCK CREEK
			BARBAREE JERNIGAN Total		2.20		
A017420	11173	6289	BEADLE LIVING TRUST DATED SEPTEMBER 12, 1995	1/11/1957	5.90	Placer	UNST
			BEADLE LIVING TRUST DATED SEPTEMBER 12, 1995 Total		5.90		
A027752	19827		BEAR STATE WATER WORKS	5/10/1983	37.00	Ei Dorado	UNSP
			BEAR STATE WATER WORKS Total		37.00		
A021855	14852	9503	BENJAMIN KEH	7/20/1964	4.00	Placer	MINERS Ravine
			BENJAMIN KEH Total		4.00		
A022037	15105	9621	Berry Patty LLC	2/4/1965	2.20	Ei Dorado	UNSP (2)
			Berry Patty LLC Total		2.20		
A018182	11853	6484	BERTABELLE STEAD	6/13/1958	0.50	Ei Dorado	NEW WORLD TUNNEL
			BERTABELLE STEAD Total		0.50		
A014263	8672	4696	BISHOP FAMILY TRUST	4/20/1951	0.30	Ei Dorado	UNSP
			BISHOP FAMILY TRUST		0.30		

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A015346	9640	7253	BISHOP FAMILY TRUST	5/18/1953	0.40	El Dorado	UNSP
A016123	10244	10898	BISHOP FAMILY TRUST	11/4/1954	2.20	El Dorado	UNSP
A018515	13834	10899	BISHOP FAMILY TRUST	2/3/1959	1.20	El Dorado	UNSP
			BISHOP FAMILY TRUST Total		4.10		
A010731	6307	5449	BLACK ROCK RANCH	11/17/1943	715.10	El Dorado	HASTINGS CREEK (AKA BLACK ROCK CREEK)
A013123	7488	5450	BLACK ROCK RANCH	5/31/1949	52.00	El Dorado	HASTING CREEK (AKA BLACK ROCK CREEK)
A019943	13983	9915	BLACK ROCK RANCH	1/31/1961	104.60	El Dorado	BLACK ROCK CREEK
A023438	16059	10241	BLUE CANYON PROPERTIES INC	1/16/1970	15.00	Placer	UNST
A004365	2048	1112	BORIS T YEN	12/15/1924	2.80	El Dorado	EVANS CREEK
A025841	17711	12427	BRETTE MARK GREEN	10/3/1978	2.80	El Dorado	UNST
A016974	10644	5862	Brian P Tucker	3/28/1956	1.30	Placer	UNDR
A006999	2797	1419	Brian P Tucker Total	7/7/1931	9.60	El Dorado	UNST
A014138	8583	4878	BRIAN K BRAY Total	1/22/1951	0.20	El Dorado	BULL CREEK
A020543	13567	9133	BURNS LIVING TRUST	12/29/1961	0.40	El Dorado	UNSP (3)
A013971	8391	6961	BURNS LIVING TRUST Total	9/29/1950	0.60	El Dorado	UNXX
A004868	2458	945	BYRON D SHER Total	12/19/1925	76.00	El Dorado	NORTH INDIAN CREEK
			BYRON W BACCHI IRREVOCABLE TRUST, THE		36.20		
			Total		36.20		
A013766	8755	5825	C A JONES	5/31/1950	12.00	El Dorado	NORTON RAVINE
A021806	15127	9611	CARDWELL R CURREN	6/8/1964	4.70	El Dorado	WEST FORK SAWMILL CREEK
A022052	15107	9622	CARDWELL R CURREN Total	2/24/1965	4.70	El Dorado	UNSP (2)
A005806	3036	1071	CAROL BERCIER	1/16/1928	1.00	Placer	ANTELOPE CREEK
A009500	5335	3137	CAROL WARD	1/31/1939	90.30	Placer	ANTELOPE CREEK
A007586	4189	3154	CAROL WARD Total	6/14/1933	169.90	El Dorado	LONG CANYON
A026475	18404	12899	CECIL L WESTEL JR	7/28/1980	5.00	Placer	UNST
A023990	16722	10947	CHARLES DAVIS	3/7/1972	0.30	Placer	UNST
A018053	11628	10069	CHARLES DAVIS Total	3/17/1958	4.50	El Dorado	UNST
A026380	19259	19260	CHARLES D BRADARIC	5/22/1980	6.00	El Dorado	ROCK CREEK
A027353	19260	19260	CHARLES D BRADARIC Total	6/4/1982	72,397.80	El Dorado	ROCK CREEK
A023939	16492	11032	CHARLES K MCCLATCHY	12/6/1971	139,876.50	El Dorado	UNST
			CHARLES K MCCLATCHY Total		3.90		
			CHI WEST INC Total		3.90		
			CHRIS BEAUCHAMP Total		3.90		

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A018929	12275	10064	CHRISTIAN CHURCHES OF N CALIF-W NEVADA	8/20/1959	12.30	Placer	UNSP
			NEVADA Total		12.30		
A025097	17594	11694	CINDY WHITE	7/9/1976	0.60	El Dorado	UNST
A012149	7201	4847	CINDY WHITE Total		0.60		
A014708	9209	6282	CITY OF PLACERVILLE	11/4/1947	10.00	El Dorado	UNST
			CITY OF PLACERVILLE Total		10.00		
A011853	859	1070	CITY OF SACRAMENTO	5/29/1920	2.10	El Dorado	SAYLES CANYON
A012140	11358	1070	CITY OF SACRAMENTO	10/29/1947	271,739.50	Sacramento	AMERICAN RIVER
A012321	11359		CITY OF SACRAMENTO	2/13/1948	443,478.50	El Dorado	BRUSH CREEK, SILVER CREEK, SOUTH FORK SILVER CREEK
A016060	11361		CITY OF SACRAMENTO	5/7/1958	95,108.80	Sacramento	AMERICAN RIVER
A012622	11360		CITY OF SACRAMENTO	10/30/2000	966,174.80	El Dorado	BRUSH CREEK, GERLE CREEK, LOON LAKE, ROCKBOUND LAKE, RUBICON RIVER, SILVER CREEK, SOUTH FORK RUBICON RIVER
A004062	1853	1434	CITY OF SACRAMENTO Total		1,776,503.70		
A007952	4514	2248	CITY OF STOCKTON	9/21/1939	12.20	Amador	UNCR
A025809	17623	12579	CITY OF STOCKTON Total		12.20		
A019791	12964	8081	CLARENCE DILTS	8/21/1978	2.40	El Dorado	UNSP
A029657			CLARENCE DILTS Total		2.40		
A017398	10943	6893	CLARIS GOULART	10/4/1960	62.40	Placer	UNST
A019975	13230	10022	CLARIS GOULART Total		62.40		
A024427	16890	11259	COUNTY OF SAN JOAQUIN	2/9/1990	147,000.00		
A013521	8424	4467	COUNTY OF SAN JOAQUIN Total		147,000.00		
A024575	16850	11161	Dale Capper	12/17/1956	31.00	El Dorado	UNST
A017571B	11120	9732	Dale Capper Total		31.00		
A005704	3038	1884	DALE B COOK	3/16/1973	14.70	El Dorado	UNST
A017571A	11120	9731	DALE B COOK Total		14.70		
A005024	2663	857	DANIEL E LITTLE	8/3/1973	2.80	El Dorado	UNST
A012462	7434	3529	DANIEL E LITTLE Total		2.80		
A016289	10247	5507	Daniel J Peterson	12/27/1949	145.00	El Dorado	UNST
A026778	19076	12620	Daniel J Peterson Total		145.00		
			DARREL PEARSON	3/21/1974	2.90	El Dorado	KELLEY CREEK
			DARREL PEARSON Total		2.90		
			DAVE TOGNETTI	4/25/1957	2.90	Placer	ANTELOPE CREEK
			DAVE TOGNETTI Total		2.90		
			DAVID B BARTHLOMEW	9/30/1927	4.10	Placer	ANTELOPE CREEK
			DAVID B BARTHLOMEW Total		4.10		
			DAVID C MOORE	4/25/1957	0.30	El Dorado	UNSP (2)
			DAVID C MOORE Total		0.30		
			DAVID HAYNES MERING	5/18/1926	3.90	Placer	ANTELOPE CREEK
			DAVID HAYNES MERING Total		3.90		
			DAVID W GIRARD	4/6/1948	0.30	El Dorado	UNSP
			DAVID W GIRARD Total		0.30		
			David William Barton	3/18/1955	4.00	El Dorado	CHUNK RAVINE
			David William Barton Total		4.00		
			DE ANZA PLACER GOLD MINING COMPANY	4/6/1981	14.60	Placer	UNSP
			DE ANZA PLACER GOLD MINING COMPANY Total		14.60		
					9.80	Placer	PAGGE CREEK

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A027566	19829	13841	DE ANZA PLACER GOLD MINING COMPANY	11/8/2011	215.20	Placer	NORTH FORK FORBES CREEK
A029364	20777	13844	DE ANZA PLACER GOLD MINING COMPANY	12/9/2011	11.20	Placer	PAGGE CREEK
			Total		236.20		
A021763	15075	8882	DEAN P A ELBERT	5/6/1964	9.00	EI Dorado	THIRD OTTER CREEK
A011689	6706	5205	DEAN P A ELBERT Total	1/9/1947	9.00	EI Dorado	UNST
A016995	11491	7992	DEER HILLS PROPERTY OWNERS ASSN	4/9/1956	45.00	Placer	UNST
A018211B	11657	9367	DENNIS R DALTON	7/9/1958	3.00	EI Dorado	UNSP
A022791	15500	10062	DIAMANTE DEVELOPMENT LLC	5/18/1967	0.30	EI Dorado	UNST
A009134	5059	3790	DIAMANTE DEVELOPMENT LLC Total	10/2/1937	0.80	EI Dorado	COLD STREAM
A021857	15201	10018	DIANE COSGROVE	7/20/1964	0.10	EI Dorado	BEAR CREEK
A028208A	019433A	13035	DIANE W BUCHHOLZ	3/8/1991	5.50	EI Dorado	UNST
A029958	20856	13724	DIANE W BUCHHOLZ Total	6/6/2007	14.50	EI Dorado	UNST
A004357	2047	1348	DIANNA NEWBORN	12/9/1924	1.80	EI Dorado	UNCR
A022596	15410	9637	DIANNA NEWBORN	9/30/1966	0.20	EI Dorado	UNST
A026436	18729	12676	DIANNA NEWBORN Total	6/30/1980	0.50	EI Dorado	UNSP
A026438	18731	12677	DINO E ANDREOTTI	6/30/1980	0.40	EI Dorado	UNSP
A005413	2955	3008	DINO E ANDREOTTI Total	4/11/1927	0.90	Placer	RED RAVINE (AKA BUCKEYE RAVINE)
A023032	15758	10314	DOBBS RANCH	4/19/1968	137.60	Placer	UNST
A014328	9289	5017	DOBBS RANCH Total	5/29/1951	12.60	Placer	ANTELOPE CREEK
A012598	7431	4049	DON K AND J A TAYLOR, TRUSTEES	7/19/1948	43.90	EI Dorado	UNSP
A018559	12063	8421	DON K AND J A TAYLOR, TRUSTEES Total	2/26/1959	2.50	EI Dorado	UNST
A013752	8200	4756	DONALD DEAN HUTCHISON	5/23/1950	4.10	EI Dorado	WEBER CREEK
A009952	5622	2563	DONALD DEAN HUTCHISON Total	7/12/1940	4.10	EI Dorado	PYRAMID CREEK
A024705	17798	12232	DONALD G RHODES	11/6/1974	0.20	EI Dorado	WHITE ROCK CREEK
A028159	20087	13231	DONALD G RHODES Total	6/12/1984	1.80	Placer	UNSP
A030352	20882	9202	DONNA MCTAGGART	4/14/1994	0.10	EI Dorado	UNST
A021696	14623	9202	DONNA MCTAGGART Total	3/17/1964	88.00	Placer	UNST
A018590	13585	8107	DOROTHY A MARTIN	3/12/1959	20.00	EI Dorado, Placer	DEVILS CANYON CREEK
			DOROTHY A MARTIN Total		61.30		
			DOUGLAS R. GINGERICH		20.00		
			DOUGLAS R. GINGERICH Total		61.30		
			DOUGLAS B VEERKAMP		20.00		
			DOUGLAS B VEERKAMP Total		20.00		
			DRONE GRANT INVESTMENT GROUP		20.00		
			DRONE GRANT INVESTMENT GROUP Total		20.00		

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A024514C	16976	11411	DWIGHT R DENTON	1/25/1984	6.00	El Dorado	SWEETWATER CREEK
A024514D	16976	11412	DWIGHT R DENTON	1/25/1984	20.00	El Dorado	SWEETWATER CREEK
A027630	18901	12613	DWIGHT R DENTON	1/13/1983	9.00	El Dorado	SWEETWATER CREEK
A027703	19034	12615	DWIGHT R DENTON	4/4/1983	5.00	El Dorado	SWEETWATER CREEK
A025711	17843	12515	ECHO LANE INVESTORS	4/6/1978	40.00	El Dorado	INDIAN CREEK
A013369	8403	5210	EDWARD MACKAY	9/28/1949	110.00	El Dorado	UNCR
A026573	19066	12660	EDWARD L PURKEY	10/8/1980	9.50	El Dorado	UNST
A012475	7386	3889	EDWARD L PURKEY	4/14/1948	1.40	El Dorado	UNST
A001692	1053	2184	EDWARD P AKIN	3/25/2008	40.00	El Dorado	UNST
A019532	13536	8231	EL DORADO IRRIGATION DISTRICT	7/8/1960	1,125.00	El Dorado	NORTH FORK WEBER CREEK
A012875	7654	4021	ELAINE BARKER	12/23/1948	1.20	Placer	UNST
A014603	8953	5587	ELAINE BARKER	12/14/1951	25.00	El Dorado	COLD SPRINGS CREEK
A022364	15320	9022	ELIZABETH MILLER	1/13/1966	15.00	El Dorado	UNST
A011628	6789	3206	ELIZABETH MILLER	11/18/1946	40.00	El Dorado	UNST
A018541	12027	9676	ELIZABETH CRONIN	2/19/1959	0.10	El Dorado	UNSP
A024535	17217	11424	ELIZABETH A NILES	1/25/1974	0.80	El Dorado	BLUE CANYON CREEK, UNST
A011523B	6700	005447B	EMIGRANT GAP MUTUAL WATER CO	8/21/1946	73.00	Placer	COLOMA CANYON CREEK
A025016	17647	11750	ERLINE M MELLO	3/5/1976	16.00	Placer	UNSP
A026825	18611	12395	Estate of Rudolf K. Sachau	3/5/1976	1.00	Placer	UNSP
A019826	12972	9337	Estate of Rudolf K. Sachau Total	5/11/1981	37.40	El Dorado	UNST
A006431	3395	1287	ESTHER E TOWNZEN	10/24/1960	2.10	El Dorado	UNSP (3)
A016037	10068	5822	EUGENE FILEV	9/10/1929	2.00	El Dorado	UNST
A025631	17347	11246	EUGENE FILEV	9/8/1954	0.10	El Dorado	UNST
A000548	258	176	EUGENE LANGENBACH	1/3/1978	1.40	El Dorado	BURNT SHANTY CREEK
A012318	7162	4341	EUGENE LANGENBACH	12/28/1916	0.20	El Dorado	SECRET Ravine
A019553	12930	7751	EUGENE A WILSON	2/11/1948	53.70	Placer	SOUTH FORK TENNESSEE CREEK
A016544	10554	6167	EUGENE H MEYER	7/18/1960	2.00	El Dorado	UNST
A018211A	11657	9366	EUGENE H MEYER	8/23/1955	1.70	Placer	UNST
			EVELYN T WICKS	7/9/1958	1.60	El Dorado	GREEN SPRING CREEK
			EVERETT B DYER III		10.00	El Dorado	
			FARHAD MORTAZAVI				
			FAY F CARVER				
			FAY F CARVER Total				

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A022226	15448	9324	FAY LOUIE LIVING REVOCABLE TRUST OF 5/11/01	7/16/1965	17.00	El Dorado	GREEN SPRINGS CREEK
			5/11/01 Total		27.00		
A031074	21172		FLA Roseville LP	8/5/2005	49.00	Placer	UNST
A018551	13584	9959	FORESTHILL PUBLIC UTILITY DISTRICT	2/24/1959	81.00	Placer	MILL CREEK
A021945	15375		FORESTHILL PUBLIC UTILITY DISTRICT	10/22/1964	24,075.80	Placer	NORTH SHIRTTAIL CANYON
A024596	16644	13038	FORESTHILL PUBLIC UTILITY DISTRICT	4/22/1974	166.80	Placer	MILL CREEK
			FORESTHILL PUBLIC UTILITY DISTRICT Total		24,323.60		
A012131	7200	5976	FOUR CORNERS LANDOWNERS ASSOC	10/16/1947	587.00	El Dorado	JACOBS CREEK
A007776	4364	2233	FOUR CORNERS LANDOWNERS ASSOC Total		587.00		
			FRANCINE MARQUIS	12/5/1933	0.40	El Dorado	UNST
A029955	20661		FRANCINE MARQUIS Total		0.40		
			FRANCIS P ALLEN TRUST	5/15/1991	2.50	El Dorado	PEACOCK RAVINE
A006540	3509	1119	FRANCIS P ALLEN TRUST Total		2.50		
			FRANK D MORILLAS	1/20/1930	61.10	Placer	SECRET RAVINE
A020339	13427	8239	FRANK D MORILLAS Total		61.10		
			FRANK P ROMANO	8/2/1961	3.40	El Dorado	UNSP
A024683	17146	11477	FRANK P ROMANO Total		3.40		
			FRED H RUSSELL III	8/30/1974	6.00	El Dorado	UNST
A011588A	6729	003374A	FRED H RUSSELL III Total		6.00		
A011588B	6729	003374B	FREDERICK R MCLAREN	9/20/1982	8.80	El Dorado	INDIAN CREEK
A011588C02	6729	003374C02	FREDERICK R MCLAREN	9/20/1982	8.80	El Dorado	INDIAN CREEK
A016368A	10290	008701A	FREDERICK R MCLAREN	12/13/1985	75.70	El Dorado	INDIAN CREEK
A016368B	10290	008701B	FREDERICK R MCLAREN	9/20/1982	3.80	El Dorado	INDIAN CREEK
A016368C02	10290	008701C02	FREDERICK R MCLAREN	9/20/1982	3.80	El Dorado	INDIAN CREEK
			FREDERICK R MCLAREN Total		144.50		
A003405	2329	2053	Gael M Barsotti	5/18/1923	188.40	El Dorado	BRUSH CANYON
A020305	14796	9696	Gael M Barsotti	7/18/1961	70.20	El Dorado	BRUSH CANYON
A020306	14797	9679	Gael M Barsotti	7/18/1961	70.20	El Dorado	BRUSH CANYON
A020307	14798	9680	Gael M Barsotti	7/18/1961	70.20	El Dorado	BRUSH CANYON
A026060	18050	11935	Gael M Barsotti Total		399.00		
			GAIL IRENE WHITE	8/8/1979	0.40	Placer	UNST
A007013	3806	1699	GAIL IRENE WHITE Total		0.40		
			GALE A MCGUIRE	7/20/1931	0.30	El Dorado	BULL CREEK
A018657	12072	6495	GALE A MCGUIRE Total		0.30		
			GARY T MATSON	4/21/1959	9.00	El Dorado	UNST
A018158	11644	8402	GARY T MATSON Total		9.00		
			GEOFF H JOHNSON	5/26/1958	72.20	El Dorado	UNSP, UNST
A015252	9538	7761	GEOFF H JOHNSON Total		72.20		
			George Popescu	3/24/1953	15.00	El Dorado	KELLEY CREEK
A015522	10016	7542	George Popescu Total		15.00		
			George & Geri Grant LP	9/2/1953	36.20	Placer	OWL CREEK, UNST
A002458	1632	486	George & Geri Grant LP Total		36.20		
			GEORGE A FARIS	7/27/1921	0.40	El Dorado	UNSP (2)
A016763	10509	5508	GEORGE A FARIS Total		0.40		
			GEORGE A LAY	12/5/1955	11.00	Placer	UNDR
			GEORGE A LAY Total		11.00		

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A022996	15659	10207	GEORGE ANGELO TSAKOPOULOS	2/28/1968	15.00	Sacramento	ALDER CREEK
A018004	11546	8163	GEORGE ANGELO TSAKOPOULOS Total		15.00		
A021211	14210	8855	GEORGE L COX	2/18/1958	36.70	Placer	UNST
A013131	7830	3813	GEORGE W SHRIVER	3/29/1963	8.60	Placer	UNST
A005644A	12827		GEORGE W SHRIVER Total	6/2/1949	45.30		SOUTH FORK AMERICAN RIVER
			GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	3/24/2000	0.20	Ei Dorado	PILOT CREEK
					74,347.90	Ei Dorado	BACON CANYON, BRANCH OF FIRST CANYON OTTER CREEK, BRANCH OF SECOND CANYON OTTER CREEK, BRANCH OF THIRD CANYON OTTER CREEK, DEEP CANYON, PILOT CREEK, UNXX, UNXX (2)
A016212	11304		GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	3/24/2000	20,000.00	Ei Dorado	ONION CREEK
A016688	11306		GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT	10/24/1955	20,363.90	Ei Dorado	
A018487	11895	7157	GERALD E HAWKINS Total	1/23/1959	8.10	Ei Dorado	UNSP
A002944	1193	296	Gerald R Decamp	7/26/1922	0.30	Ei Dorado	COLD STREAM
A007305	3982	1701	GILBERT A ALBIANI	6/27/1932	0.20	Ei Dorado	UNSP
A018566	11912	6634	GLEN EASTMAN	3/4/1959	0.90	Ei Dorado	UNSP, UNST
A015804	9984	8171	GLEN EASTMAN Total	3/30/1954	0.90		BURNER SHANTY CREEK, UNST
A01588C01	6729	003374C01	GORDON J VICINI Total	12/13/1985	98.80	Ei Dorado	INDIAN CREEK
A026722	18583	12463	GREENSTONE COUNTRY OWNER'S ASSOC	12/13/1985	101.80	Ei Dorado	INDIAN CREEK
A026815	18584	12463	GREENSTONE COUNTRY OWNER'S ASSOC	2/20/1981	30.00	Ei Dorado	UNST
A026816	18585	12461	GREENSTONE COUNTRY OWNER'S ASSOC	5/1/1981	1.70	Ei Dorado	UNST
A026817	18586	12599	GREENSTONE COUNTRY OWNER'S ASSOC	5/1/1981	3.80	Ei Dorado	UNST
A026818	18587	12462	GREENSTONE COUNTRY OWNER'S ASSOC	5/1/1981	39.00	Ei Dorado	UNST
			GREENSTONE COUNTRY OWNER'S ASSOC Total		4.10	Ei Dorado	
					391.30		
A003793	1743	590	GREGORY D HAWES	1/10/1924	0.60	Ei Dorado	COLD STREAM
A015043	9282	6572	GREGORY D HAWES Total	10/7/1952	0.60	Placer	UNST
A016508	10555	5837	GREGORY M WATSON	10/22/1959	5.00	Ei Dorado	UNSP (2)
A027615	18865	12406	GREGORY W PAINTER	12/20/1982	0.10	Ei Dorado	UNST
A026099	18080	11266	GREGORY W PAINTER Total	9/27/1979	0.90	Ei Dorado	UNSP
A006797	3653	1400	HARLEY DELANO	9/17/1930	1.30	Ei Dorado	FORNI CREEK
A014439	8850	4857	HARLEY DELANO Total	8/23/1951	0.20	Placer	UNXX
			HENRIETTA DENNIS		1.30		
			HENRIETTA DENNIS Total		1.30		
			HENRIK KAM		0.20		
			HENRIK KAM Total		0.20		
			HENRY TEICHERT		3.00		

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A015338	9553	5071	HENRY TEICHERT	5/12/1953	20.00	Placer	GRAPEVINE RAVINE
			HENRY TEICHERT Total		23.00		
A013839	8361	5452	HENRY WALTHER	7/16/1950	38.00	Placer	UNST
A015077	9273	5687	HENRY WALTHER	11/5/1952	16.00	Placer	UNST
			HENRY WALTHER Total		54.00		
A013419	7692	5430	HIDDEN VALLEY COMMUNITY ASSOC	10/26/1949	165.50	Placer	MINERS RAVINE
A014525	8892	5431	HIDDEN VALLEY COMMUNITY ASSOC	10/16/1951	57.30	Placer	MINERS RAVINE, UNST
			HIDDEN VALLEY COMMUNITY ASSOC Total		222.80		
A012364	8127	4118	JACALYN GAY WINJE	2/27/1948	12.30	El Dorado	UNST
A024351A	017135A	12736	JACK E DEL CONTE	4/27/1990	12.30	Sacramento	LINDA CREEK
			JACK E DEL CONTE Total		1.40		
A008756	4822	2431	JACK R WEAVER	8/8/1936	0.20	El Dorado	UNSP
A025930	17740	11751	JAMES HART	2/28/1979	15.00	El Dorado	UNST
A014370	8994	5229	JAMES PETRIKIN	6/27/1951	50.70	Placer	DIRTY FACE RAVINE
A025854	17735	12594	JAMES A CROFF	10/13/1978	6.80	El Dorado	UNST
			JAMES A CROFF Total		6.80		
A007294	3973	1684	JAMES A WATT	6/16/1932	0.20	Alpine	UNSP
A009643	5394	2489	JAMES D & JANIS L ALDEA REVOKABLE TRUST	6/26/1939	0.10	El Dorado	UNST
A010477	6004	2967	JAMES D & JANIS L ALDEA REVOKABLE TRUST	6/12/1942	0.30	El Dorado	UNST
			JAMES D & JANIS L ALDEA REVOKABLE TRUST Total		0.40		
A028184	19584	12693	JAMES D MCCLAIN	7/16/1984	0.30	El Dorado	UNST
A028474	19727	13389	JAMES G CLARK	6/12/1985	0.50	El Dorado	UNST
			JAMES G CLARK Total		0.50		
A012124	7129	6648	JAMES W ARNOLD	10/8/1947	14.00	El Dorado	NORTON RAVINE
A019052A	12310	10056	JAMI MANDEL	10/29/1959	14.00	Placer	UNST
A023041	15939	11075	JANICE M SUTHERLAND	5/10/1968	7.10	Placer	CLIPPER CREEK, UNST
A004597B	000948B	000948B	JANICE M SUTHERLAND Total	8/20/2004	45.00	El Dorado, Placer	AUBURN RAVINE
A004781	2403	943	JEFF LITTLE	9/24/1925	16.30	Placer	SOUTH FORK AMERICAN RIVER
A020490	13614	8160	JEFF WEAVER	11/10/1961	0.40	El Dorado	MOSQUITO CREEK
A010751	6237	3966	JEFFREY TILFORD	1/18/1944	1.40	El Dorado	UNST
A014545	9004	5160	JEFFREY TILFORD	11/1/1951	21.20	Placer	UNXX
A022817	15561	11707	JEFFREY C OLSON	6/14/1967	170.50	El Dorado	MARTEL CREEK, UNST
A013542	8041	4134	JEFFREY R LEONG	1/18/1950	23.00	Placer	UNCR
A014884	9127	8123	JEFFREY S HUBER	7/1/1952	85.30	Placer	CAPS RAVINE
			JEFFREY S HUBER Total		12.00		

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A005601	2905	1003	JEFFREY S HUBER Total JEFFREY S HUBER JEREMIAH FLYNN JEREMIAH FLYNN Total	7/11/1927	12.00	El Dorado	UNSP
A013502	8031	4853	Jerome Vickrey Jerome Vickrey Total	12/7/1949	0.30	El Dorado	UNST
A024109	16523	10713	JERRY DUNCAN JERRY DUNCAN Total	7/6/1972	0.80	Placer	UNST
A019185	12425	7817	JERRY JOHNSON JERRY JOHNSON Total	1/18/1960	9.00	Placer	UNST
A019392	13781	8664	JERRY W BALLEW JERRY W BALLEW Total	4/26/1960	35.00	El Dorado	UNSP
A025855	17736	11800	JOANNE K BATEMAN JOANNE K BATEMAN Total	10/13/1978	2.80	El Dorado	UNST
A012156	7142	3777	JOHN BRIGGS JOHN BRIGGS Total	11/17/1947	15.00	El Dorado	UNST
A015662	9733	6523	JOHN METROPULOS III JOHN METROPULOS III Total	12/28/1953	10.00	El Dorado	SOUTH FORK AMERICAN RIVER
A009199	5174	2571	John A. Cunningham John A. Cunningham Total	12/3/1937	5.30	El Dorado	COLD STREAM
A011813	6852	4317	JOHN C SUNDIN JOHN C SUNDIN Total	4/4/1947	0.10	El Dorado	CHUNK CREEK
A020259	13374	8114	JOHN E MARLOW JOHN E MARLOW Total	6/12/1961	1.10	El Dorado	UNST
A020514	13836	10791	JOHN H PETERSON JOHN H PETERSON Total	12/5/1961	16.20	El Dorado	UNST
A007662	4251	1980	JOHN P HENDERSON JOHN P HENDERSON Total	9/6/1933	15.60	El Dorado	UNSP
A021802	14569	9251	John Ryan Neil John Ryan Neil Total	5/29/1964	0.20	El Dorado	IRISH CREEK
A018157	11643	8687	JOHN T LUKKONEN JOHN T LUKKONEN Total	5/26/1958	28.00	El Dorado	UNST
A017223	11314	6248	JON KNUDSEN JON KNUDSEN Total	8/9/1956	185.30	Placer	SAILORS RAVINE
A002190	1003	510	JOSEPH MALONEY JOSEPH MALONEY Total	11/16/1948	266.50	Placer	CAPS RAVINE
A023302	15955	11159	JOSEPH M KEATING JOSEPH M KEATING Total	7/2/1969	87.00	El Dorado	UNST
A030402	20968	13804	JOSEPH S LANZA JOSEPH S LANZA Total	4/6/2010	14.70	El Dorado	UNST
A012999	7757	4363	KARL HEMPFING KARL HEMPFING Total	3/24/1949	14.00	El Dorado	FISH CREEK
A018684	12034	7387	KATHERINE A TUTTLE KATHERINE A TUTTLE Total	4/30/1959	173.80	Placer	UNSP
A025560	17345	12476	KEN JOSEPH KEN JOSEPH Total	11/10/1977	3.40	El Dorado	UNST
A025567	17346	11420	KENNETH PIMENTEL KENNETH PIMENTEL Total	11/15/1977	4.00	El Dorado	UNST
A012240	7239	6374		1/13/1948	2.40	El Dorado	WHITE ROCK CANYON
A025728	17560	12394		3/17/1989	6.40	El Dorado	UNST
A024875	16908	13688		12/13/2006	70.00	El Dorado	BRUSHY CANYON

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A013616	8147	3839	KENNETH PIMENTEL Total KENNETH SAYLOR	3/6/1950	2.50	El Dorado	UNST
A027651	19312		KENNETH SAYLOR Total KENNETH WILSON	2/10/1983	0.20	El Dorado	CANYON CREEK
A006685	3565	1290	KENNETH WILSON Total KENNETH J MAGRI	5/21/1930	8,398.10	El Dorado	UNCR
A018579	11931	7229	KENNETH J MAGRI Total KENNETH J TURTON	3/30/1965	0.30	El Dorado	MORMON RAVINE
A012885	7656	4479	KENNETH J TURTON Total KENNETH S HILL	12/29/1948	15.00	Placer	UNST
A013146	7822	3824	KENNETH S HILL Total KEVIN CAIRNS	6/9/1949	36.00	El Dorado	EVANS CREEK
A010212	5851	3524	KEVIN CAIRNS Total KIRKWOOD MOUNTAIN RESORT LLC	5/28/1941	0.20	Alpine	UNSP
A030062	20851		KIRKWOOD MOUNTAIN RESORT LLC	2/7/1992	250.00	Alpine	CAPLES LAKE
A030453	20852		KIRKWOOD MOUNTAIN RESORT LLC	6/8/1995	250.00	Alpine	CAPLES LAKE
A010484	6044	3289	KIRKWOOD MOUNTAIN RESORT LLC Total KRISTAN OTTO	6/26/1942	500.20	El Dorado	SOUTH FORK AMERICAN RIVER
A008623	4765	3541	KRISTAN OTTO Total KYBURZ MUTUAL WATER COMPANY	3/30/1936	0.10	El Dorado	SOUTH FORK AMERICAN RIVER
A026486	18511		KYBURZ MUTUAL WATER COMPANY	8/7/1980	1.10	El Dorado	UNST, UNST (2)
A013718	8159	4471	KYBURZ MUTUAL WATER COMPANY Total LAGUNA HOMEOWNERS ASSOCIATION	5/3/1950	146.00	Placer	UNST
A016650	10445	7204	LAGUNA HOMEOWNERS ASSOCIATION Total LAKEVIEW HILLS COMMUNITY ASSOCIATION	3/10/1965	10.00	Placer	CARROLL CREEK, MINERS RAVINE
			LAKEVIEW HILLS COMMUNITY ASSOCIATION Total		113.60		
A012040	7093	4445	LARANE INVESTMENTS LARANE INVESTMENTS Total	8/13/1947	18.00	Placer	GRAPEVINE RAVINE
A025667	17805	11717	LARISA LYSAK	2/2/1978	18.00	Placer	UNST
A021888	15625	10773	LARISA LYSAK Total Larry Bowser	8/31/1964	0.90	Placer	UNST
A018617	12314	7997	Larry Bowser Total LARRY JONES	3/31/1959	2.10	Placer	UNST
A024514A	16976	11409	LARRY JONES Total LARRY R GOULDEN	1/25/1984	7.80	Placer	UNST
A007316	4014	1942	LARRY R GOULDEN Total LAWRENCE E SWENSON	7/8/1932	12.00	El Dorado	UNST
A021225	14566	10002	LAWRENCE E SWENSON Total LAWRENCE L CABODI	4/8/1963	0.10	El Dorado	UNST
A008356	4626	1933	LAWRENCE L CABODI Total LAWRENCE T WELDEN	6/11/1935	2.20	El Dorado	UNSP
A028467	19739		LAWRENCE T WELDEN Total LEE A CHIUSANO	6/4/1985	0.10	El Dorado	UNSP
A025315	17212	11457	LEE A CHIUSANO Total LEE F SMITH	3/31/1977	2.80	El Dorado	UNST
A020840	13791	8411	LEE F SMITH Total LEO E FINNERAN	7/3/1962	7.00	El Dorado	TENNESSEE CREEK
A013519	8104	5414	LEO E FINNERAN Total LEON M GASTALDI	12/27/1949	4.00	El Dorado	UNCR
					83.00	El Dorado	UNST

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A013292	7867	3787	LEON M GASTALDI Total	8/11/1949	83.00		
			LEV V RIKOFF		0.30	El Dorado	UNSP
A002011	937	152	LEV V RIKOFF Total	9/18/1920	0.30		
			LEZLIE ELAINE DORSETT		0.20	El Dorado	UNSP
A026523	18777	12447	LEZLIE ELAINE DORSETT Total	9/11/1980	0.30	Placer	UNST
			LINDA D WALDECK		0.30		
A019325	12555	8113	LINDA D WALDECK Total	3/24/1960	0.30	Placer	UNST
			LINDA R MURRAY		9.00		
A021407	14357	8866	LINDA R MURRAY Total	7/24/1963	26.60	El Dorado	UNST
			LINZY L COTHAM JR		26.60		
A019825	12971	8225	LINZY L COTHAM JR Total	10/24/1960	4.50	El Dorado	UNSP
			Lionell Williams Trust		4.50		
A013318	7868	3788	Lionell Williams Trust Total	8/29/1949	0.30	El Dorado	UNSP
			LOIS PENMAN		0.30		
A018512	12002	7506	LOIS PENMAN Total	1/29/1959	25.00	El Dorado	UNCR
			LORI JANOWSKI		6.00	El Dorado	UNST
A030239	20915		LORI JANOWSKI Total	3/23/1993	31.00		
			LORI JANOWSKI		6.00		
A029223	20717	13677	LORI JANOWSKI Total	11/27/2006	1.20	Placer	UNST
			LOUIS W HEBERT		1.20		
A013612	8402	3842	LOUIS W HEBERT Total	3/1/1950	10.00	El Dorado	DUTCH MARY RAVINE
			LUCILLE HONIG		10.00		
A003910	1970	586	LUCILLE HONIG Total	3/18/1924	0.10	El Dorado	UNSP
			LYDIA BACA		0.10		
A026406	18219	12068	LYDIA BACA Total	6/6/1980	0.20	Placer	UNST
			MARC ALLISON		0.20		
A019764	12790	7667	MARC ALLISON Total	9/30/1960	19.00	El Dorado	MOSQUITO CREEK
			MARCIA C TAFFY WARNER		19.00		
A014410	9394	5598	MARCIA C TAFFY WARNER Total	7/30/1951	29.20	Placer	SECRET RAVINE
			MARK FOSTER		29.20		
A0112588	6528	9363	MARK FOSTER Total	1/10/1946	11.80	Placer	UNST
			MARK HANNUM		11.80		
A026934	18880	12449	MARK HANNUM Total	7/30/1981	0.60	Placer	UNST
			MARtha J CROWL		0.60		
A010344	5940	3071	MARtha J CROWL Total	12/12/1941	0.10	El Dorado	UNSP
			Mary Hillbrand		0.10		
A008163	4500	3553	Mary Hillbrand Total	11/20/1934	3.40	El Dorado	UNSP
			MARY WOOD		3.40		
A007070	3919	1555	MARY WOOD Total	9/1/1931	0.10	El Dorado	UNST
			Mary Leslie Rev. Trust		0.10		
A020796	13838	8489	Mary Leslie Rev. Trust Total	5/29/1962	149.50	El Dorado	SHENOGLA CREEK
			MELINDA S LAU		149.50		
A019880	13228	10465	MELINDA S LAU Total	12/16/1960	152.00	Placer	KELLY CREEK
			MHC TT, INC.		44.00	Placer	KELLY CREEK
A021480	14567	10466	MHC TT, INC.	10/1/1963	196.00		
			MHC TT, INC. Total		0.20	El Dorado	UNST
A009026	5162	2557	MHC TT, INC. Total	6/28/1937	0.20	El Dorado	UNST
			MICHAEL HICKOX		0.20		
A027979	19335	12741	MICHAEL HICKOX Total	2/17/1984	6.00	Placer	UNST
			Michael K Baughman		6.00		
A014244	9003	4648	Michael K Baughman Total	4/10/1951	161.30	Placer	UNXX
			Michael K Baughman		161.30		

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A026057	17953	12833	Michael K Baughman Total	7/30/1979	161.30		
			MICHAEL KIM		30.00	El Dorado	UNST
A018653	12245	7914	MICHAEL MCCARTY Total	4/20/1959	3.80	Placer	UNST
A009463	5323	2485	MICHAEL CARL VISMAN	8/4/1942	543.00	El Dorado	COON GULCH
A014620	9007	5860	MICHAEL R POSEHN Total	1/15/1952	1.00	Placer	UNST
A030430	20999		MICHAEL W DENNIS Total	11/22/1994	10.00	Placer	UNST
A017382	10898	7668	Michelle D. Menard	12/7/1956	19.00	El Dorado	UNST
A020086	13353	9954	Michelle D. Menard Total	4/13/1961	2.50	Placer	UNXX
A020653	13784	9955	MICHIGAN BLUFF MUTUAL WATER COMPANY	3/14/1962	8.10	Placer	UNSP
A024997	17213	11598	MICHIGAN BLUFF MUTUAL WATER COMPANY	2/18/1976	8.10	Placer	UNSP
A027642	19719	13254	MICHIGAN BLUFF MUTUAL WATER COMPANY	1/31/1983	3.40	Placer	UNSP (AKA BOHEA MINE TUNNEL)
			Total		22.10		
A024514B	16976	11410	MIKE LEMIRE	1/25/1984	10.00	El Dorado	SWEETWATER CREEK
A027602	18877	12443	MIKE LEMIRE	4/25/1989	7.00	El Dorado	SWEETWATER CREEK
A026427	18499	13619	MINERS COVE HOMEOWNERS ASSOCIATION	11/21/2005	17.00	Placer	MINERS RAVINE
			Total		15.00		
A021616	14965	9252	MINERS RAVINE ESTATES HOMEOWNERS ASSOCIATION	1/24/1964	21.00	Placer	MINERS RAVINE
A017414	12359	7015	MITCHELL D HOPE	3/20/1964	25.50	Placer	MINERS RAVINE
A011264	6934	10829	MT RALSTON PROPERTIES ASSN INC	8/2/2005	13.20	El Dorado	TAMARACK CREEK
A015623	10214	10830	MT RALSTON PROPERTIES ASSN INC	8/2/2005	6.00	El Dorado	TAMARACK CREEK
A026577	18519	12457	MT RALSTON PROPERTIES ASSN INC	8/2/2005	23.60	El Dorado	UNSP
A018485	12089	9025	N JON NELSON	1/21/1959	42.80	El Dorado	CHINA CREEK
A009358	5288	2246	NANCY BAUER	7/29/1938	3.10	El Dorado	UNST
A011097	6445	3024	NANCY BALCH-PRICE FISCHER	7/5/1945	0.10	Alpine	UNSP
A004027	1878	893	NANCY E DOLCINI	6/14/1924	0.10	El Dorado	UNSP
A006529	5805	4403	NEVADA IRRIGATION DISTRICT	1/9/1930	3,411.60	Placer	AUBURN RAVINE
A008177	5812	12801	NEVADA IRRIGATION DISTRICT	11/27/1934	1,580.00	Placer	UNST (AKA WILSON CRK)
A019872	13025	8108	New Forestry, LLC	12/9/1960	4,991.60	Placer	UNSP
A017207	10885	8289	NIKOLAI BARADIN	8/3/1956	3.70	Placer	UNSP
			NIKOLAI BARADIN Total		35.00	El Dorado	UNST

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A025424	17385	12027	NORMA JEAN SCHNEIDER	7/11/1977	2.10	El Dorado	UNST
A025425	17386	11497	NORMA JEAN SCHNEIDER	7/11/1977	2.00	El Dorado	UNST
			NORMA JEAN SCHNEIDER Total		4.10		
A025144	19837	13175	NORTH CANYON LAKE ASSOCIATION	9/10/1976	35.00	El Dorado	NORTH CANYON CREEK
A014794	9291	9738	NORTH FORK ASSOCIATION	5/5/1952	22.00	Placer	FREEMAN CREEK
			NORTH CANYON LAKE ASSOCIATION Total		35.00		
			NORTH FORK ASSOCIATION Total		22.00		
A011836	6927	4243	NORTHERN CALIFORNIA CONFERENCE ASSOC OF 7TH DAY ADVENTISTS	4/22/1947	13.00	El Dorado	MOUND SPRINGS CREEK
A013592	8214	4244	NORTHERN CALIFORNIA CONFERENCE ASSOC OF 7TH DAY ADVENTISTS	2/20/1950	20.00	El Dorado	MOUND SPRINGS CREEK
			NORTHERN CALIFORNIA CONFERENCE ASSOC OF 7TH DAY ADVENTISTS Total		33.00		
A004219	2598	941	ORENO J TONARELLI	9/17/1924	0.20	El Dorado	COLD STREAM
A026078	17930	11863	ORVILLE F SLINGSBY	8/28/1979	0.30	Placer	UNST
A026633	18492	12411	OSCAR R CAMPBELL JR	11/25/1980	0.20	El Dorado	UNST
A014229	8620	6653	OUR LADY OF THE OAKS, A CALIF CORP	4/5/1951	63.00	Placer	UNST
A004597A	000948A		PATRIC JAMES HILLENBRAND LIVING TRUST	8/20/2004	63.00	Placer	AUBURN RAVINE
			PATRIC JAMES HILLENBRAND LIVING TRUST Total		21.00		
A021423	14598	8781	PATRICIA MCCORMICK	8/8/1963	0.20	El Dorado	STATION CREEK
A016326	11492	7303	Patty A Hooper	6/9/1965	318.60	Placer	UNST (2)
			Patty A Hooper Total		318.60		
A013994	8520	5323	PATTY BERRY	10/13/1950	2.50	El Dorado	UNSP
A022051	15106	9620	PATTY BERRY	2/24/1965	0.60	El Dorado	UNSP (2)
A022053	15108	9625	PATTY BERRY	2/24/1965	0.10	El Dorado	UNSP (2)
A020326	13199	9365	Paul Perron	7/26/1961	3.20	Placer	UNST
			PATTY BERRY Total		3.20		
			Paul Perron Total		23.00		
A006842	3735	1467	PAUL HEWES	12/6/1930	0.90	El Dorado	FORNI CREEK
A017571C	11120	9733	PAUL NIPPERT	4/25/1957	4.10	Placer	ANTELOPE CREEK
A024146	16670	10954	PAUL THOMASSON	8/17/1972	2.00	El Dorado	OTTER CREEK
A004344	2305	1423	Paul A Zanetta	4/10/1934	18.10	El Dorado	MILL CREEK
A025973	17940	11867	PAUL S BURNS	4/16/1979	18.10	Placer	UNST
			PAUL S BURNS Total		0.10		
A013160	8316	4332	PAULA S DWELLY	6/17/1949	11.60	Placer	LIVE OAK RAVINE (AKA LIVE OAK CREEK)
A007018	3808	1837	PAULINE RODGERS	7/25/1931	11.60	El Dorado	UNSP
A016327	11493	7912	PETE JENSON	4/7/1967	0.30	Placer	UNST
			PAULINE RODGERS Total		32.00		

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A018858	12718		PETE JENSON Total		32.00		
		7828	PETER M LA TONA	7/15/1959	2.30	Placer	MINERS Ravine
A001923	843		PETER M LA TONA Total		2.30		
		352	PETER N BERBOHM	5/12/1924	30.30	Placer	SAILORS Ravine
A003982	1791		PETER N BERBOHM Total		30.30		
		1111	PETER R BOHLEY	5/8/1924	2.70	El Dorado	EVANS CREEK
A022299	15076		PETER R BOHLEY	10/1/1965	0.20	El Dorado	EVANS CREEK
A013576	8457		PETER R BOHLEY Total		2.90		
		4797	PILOT HILL ESTATES HOMEOWNERS ASSOC	2/9/1950	57.00	El Dorado	UNST
			PILOT HILL ESTATES HOMEOWNERS ASSOC Total		57.00		
A018085	13856		PLACER COUNTY WATER AGENCY	4/7/1958	839,438.40	Placer, Sacramento	DUNCAN CANYON, MIDDLE FORK AMERICAN RIVER, NORTH FORK AMERICAN RIVER, RUBICON RIVER, MIDDLE FORK AMERICAN RIVER, NORTH FORK AMERICAN RIVER, NORTH FORK LONG CANYON, RUBICON RIVER, SOUTH FORK LONG CANYON
A018087	13858		PLACER COUNTY WATER AGENCY	4/8/1958	451,592.40	Placer, Sacramento	UNSP, UNST
A003887A	001093A		PLACER COUNTY WATER AGENCY Total		1,291,030.80		
			PLASSE HOMESTEAD WATER ASSOCIATION	1/29/2003	1.10	Amador	UNSP, UNST
A003887B	001093B		PLASSE HOMESTEAD WATER ASSOCIATION Total		1.10		
A018095	11572		PLASSE'S MEADOW GROUP LLC	1/29/2003	1.90	Amador	UNSP, UNST
A019052B	10371		PLASSE'S MEADOW GROUP LLC Total		1.90		
		10057	QUINTETTE SERVICE	4/17/1958	9.30	El Dorado	CRYSTAL SPRING
A013520	8423		QUINTETTE SERVICE Total		9.30		
		10057	R W VELON	7/20/2004	7.10	El Dorado	UNST
A026940	18496		R W VELON Total		7.10		
		3833	RALPH MILLER	12/27/1949	40.00	El Dorado	UNST
A006801	3746		RALPH MILLER Total		40.00		
		12409	Randolph G Wilson	8/4/1981	1.00	El Dorado	UNST
A018189	11652		Randolph G Wilson Total		1.00		
		1802	RAYMOND BENDER	9/20/1930	0.30	El Dorado	UNSP
A006414	3366		RAYMOND BENDER Total		0.30		
		6789	RAYMOND KRINGEL	6/10/1963	1.70	El Dorado	UNST
A013644	8219		RAYMOND KRINGEL Total		1.70		
		1803	RAYMOND A YOUNG	8/19/1929	0.10	El Dorado	UNSP
A006410	3669		RAYMOND A YOUNG Total		0.10		
		5979	RAYMOND BEST PATCHEN	3/22/1950	110.00	El Dorado	MANHATTAN CREEK
A019633	12835		RAYMOND BEST PATCHEN Total		110.00		
		1904	RAYMOND W LARSEN	8/16/1929	362.00	El Dorado	SOUTH FORK BRUSH CANYON
A007647	4207		RAYMOND W LARSEN Total		362.00		
		7725	RICHARD E. FREY	8/1/1960	42.50	Placer	UNST
A013829	8347		RICHARD E. FREY Total		42.50		
		1652	RICHARD FIELLEN	8/14/1933	1.10	El Dorado	ROCKY CANYON
			RICHARD FIELLEN Total		1.10		
		4092	RICHARD C PAYNE & RUTH L PAYNE FAMILY TRUST	7/5/1950	0.10	El Dorado	UNSP

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			RICHARD C PAYNE & RUTH L PAYNE FAMILY TRUST Total		0.10		
A012184	7096	3602	RICHARD E AKIN	12/3/1947	29.20	Ei Dorado	UNST
A008698	4803	2471	RICHARD E AKIN Total	6/8/1936	29.20	Ei Dorado	UNST
A002262	938	491	RICHARD K JONES Total	3/15/1921	0.10	Ei Dorado	COLD STREAM
A028122	19361	12714	RICHARD L GALLAGHER	4/26/1984	1.20	Ei Dorado	UNST
A019328	12673	7810	RICHARD SCOTT HEER Total	3/28/1960	3.00	Ei Dorado	OTTER CREEK
A001778	819	789	RICK MANICA Total	4/17/1975	21.00	Placer	CLOVER VALLEY CREEK
A014377	8812	4865	RICK MASSIE Total	6/28/1951	27.00	Ei Dorado	ROCKY CANYON
A009728	5617	2573	Robert Aichele Total	9/18/1939	0.10	Ei Dorado	STATION CREEK
A020627A	13629	008487A	ROBERT BRUCIA Total	8/13/1992	0.10	Ei Dorado	UNST
A024672	16897	11435	ROBERT DEITZ II Total	8/16/1974	4.50	Ei Dorado	JOHNTOWN CREEK
A024888	17819	12469	ROBERT B JORDAN Total	9/29/1975	14.90	Placer	MINERS Ravine
A011142	6453	3354	ROBERT D BERGTHOLD Total	5/24/1963	1.00	Ei Dorado	SOUTH FORK AMERICAN RIVER
A013740	8740	5312	ROBERT E JONES Total	5/15/1950	0.10	Placer	UNST
A024948	16889	11244	Robert E Woodward, Jr Total	12/3/1975	33.00	Ei Dorado	UNST
			ROBERT H AND ERIKA L ANDERSON REVOCABLE TRUST		4.30		
A012181	7152	4478	ROBERT H AND ERIKA L ANDERSON REVOCABLE TRUST Total	12/1/1947	4.30	Ei Dorado	UNST
A025495	17339	13232	ROBERT H POWELL Total	9/2/1977	7.00	Ei Dorado	UNST
A025453	17375	12048	ROBERT I RIDGWAY Total	8/10/1977	1.40	Placer	UNST
A006263	3318	1122	ROBERT N DUPRIEST Total	4/20/1929	0.40	Ei Dorado	UNSP
A020018	13096	7970	ROBERT P STANLEY Total	3/6/1961	0.10	Placer	UNST
A020827	13966	9648	Roberta Kanter Total	6/22/1962	1.00	Ei Dorado	UNST
A028821	19942	13743	RODNEY PIMENTAL Total	10/31/2007	5.00	Placer	DRY CREEK
A008951	4960	2152	ROGER E TURNER Total	4/22/1937	1.30	Ei Dorado	UNSP
A003934	1848	2369	ROLF W MORROW Total	3/31/1924	0.10	Ei Dorado	UNSP
			RONALD JAVOR Total		0.40		

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A007387	4140	1820	RONALD E MINER	9/23/1932	0.20	El Dorado	UNSP
			RONALD E MINER Total		0.20		
A003496	1509	488	RONALD J BELL	7/2/1923	0.30	El Dorado	UNSP
A017173	11536	6987	RONALD J COLEMAN	7/12/1956	0.30	Placer	UNST
A012463	7383	3771	RONALD J COLEMAN Total	4/7/1948	25.50	El Dorado	INDIAN CREEK, UNST
A021171	14326	9258	RONALD N HUSTON	2/27/1963	24.00	Placer	SECRET RAVINE
			RONALD N HUSTON Total		1.70		
A013233	7831	10052	RONALD ROSS CLOVER	7/13/1949	121.00	El Dorado	PILOT CREEK
A023937	16494	11030	ROSE ANN GUTIERREZ	12/6/1971	19.00	El Dorado	PILOT CREEK
A023938	16493	11031	ROSE ANN GUTIERREZ	12/6/1971	16.00	El Dorado	UNST
A021876	14859	9227	ROSE ANN GUTIERREZ Total	8/24/1964	156.00	Placer	DUTCH RAVINE
A023903	16642	10803	RSC DEVELOPMENT CORPORATION	10/22/1971	57.10	El Dorado	UNSP
			RSC DEVELOPMENT CORPORATION Total		0.90		
A025122	16986	11267	RYAN ENNIS	8/2/1976	0.90	Placer	UNST
			RYAN ENNIS Total		10.00		
A008011	4474	2509	S360 Granite Lakes LLC	7/5/1934	10.00	El Dorado	UNSP
A025316	17145	11453	SACRAMENTO MOUNTAINEERS	3/31/1976	1.00	Placer	UNST
			SACRAMENTO MOUNTAINEERS Total		6.00		
			SACRAMENTO VALLEY TEEN CHALLENGE INC		6.00		
A026969	18764	13757	Saeed Zarakani	3/20/2008	3.00	Placer	UNST
A026137	18210	12245	SALLY MARKSTEIN	11/19/1979	3.00	Placer	UNST
A005830	4009	6324	SALLY MARKSTEIN Total	2/11/1928	1.40	Placer	NORTH FORK AMERICAN RIVER
A022515	15318	9950	San Juan Water District	6/30/1966	4,581.90	Placer	RINGOLD CREEK
			San Juan Water District Total		12.00		
A011917	7176	10135	SCHOENNAUER FAMILY PARTNERSHIP	6/5/1947	83.00	El Dorado	UNST
A013663	8222	10134	SCHOENNAUER FAMILY PARTNERSHIP Total	3/30/1950	150.00	El Dorado	UNST
A014778	9141	10136	SCHUBIN RANCH LP	4/25/1952	90.00	El Dorado	UNST
A003321	1554	5488	SCHUBIN RANCH LP Total	3/23/1923	323.00	El Dorado	CODY CREEK
A005683	3035	1201	SCOTTS TRACT CABIN OWNERS ASSN	9/7/1927	15.60	El Dorado	UNSP
A018320	11778	6978	SCOTT E ADAMS	9/16/1958	0.10	El Dorado	CHINA CREEK
A007340	4026	2295	SCOTT KRIGER	8/6/1932	1.30	El Dorado	UNSP
A007341	4027	1584	Sharon Warden	8/6/1932	0.10	El Dorado	UNSP
A010325	5939	3291	Sharon Warden Total	11/21/1941	0.20	El Dorado	UNSP
A020256A	13189	9779	SHARON L CAMERON	5/5/1971	0.10	El Dorado	WHITE ROCK CREEK
			SHARON L CAMERON Total		2.60		
			SHARON L CAMERON Total		2.70		

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A028993	20394	13325	SHIRLAND LAKEVIEW ESTATES HOMEOWNERS ASSOC	3/24/1987	6.60	Placer	UNST
A018955	12217	8621	SHIRLAND LAKEVIEW ESTATES HOMEOWNERS ASSOC Total	9/1/1959	6.60		
A020601	14248		SHIRLIE ROBERTS	1/3/1964	9.70	El Dorado	JOHNTOWN CREEK
A019114	12541		SHIRLIE ROBERTS Total	1/3/1964	9.70	Placer	ICE LAKES
A028208B	019433B		SIERRA LAKES COUNTY WATER DISTRICT		1,177.00		
A019119	12388		SIERRA LAKES COUNTY WATER DISTRICT Total		1,177.00		
A010012	5671	9031	SIERRA PACIFIC INDUSTRIES	12/2/1959	1.10	El Dorado	ONION CREEK
A012180	7151	13036	SIERRA PACIFIC INDUSTRIES Total	3/8/1991	1.10	El Dorado	UNST
A013257	8373	9032	SILVER SPRINGS LLC	12/3/1959	0.50	El Dorado	UNST
A025310	17844		SILVER SPRINGS LLC Total		0.50		
A006080	3181		SLEEPY HOLLOW OWNERS ASSOCIATION		47.50	El Dorado	UNST
A021185	14483		SLEEPY HOLLOW OWNERS ASSOCIATION Total		47.50		
A025380	17876	7195	SOUTHFORK PARTNERSHIP	9/24/1940	23.00	Placer	BADGER RAVINE, UNST
A006549	3477	4477	SOUTHFORK PARTNERSHIP Total	12/1/1947	23.00	El Dorado	UNST
A019922	13052	4480	STAR-CREST LUMBER, INC	7/25/1949	49.00	El Dorado	UNST
A015298	9533	11713	STAR-CREST LUMBER, INC Total		56.70	El Dorado	UNST
A018752	12366		STEPHEN HOFFMAN	3/29/1977	4.50	El Dorado	UNST
A020144	13369	2038	STEPHEN HOFFMAN Total	10/3/1928	4.50	El Dorado	UNSP
A016885	10910	10075	STEPHEN RULAND	3/8/1963	0.10	El Dorado	WEBER CREEK
A021232	14404	12386	STEPHEN RULAND Total	6/2/1977	0.10	El Dorado	UNST
A025340	17257	1888	STEPHEN C MARIANOS	2/4/1930	6.00	El Dorado	EMIGRANT RAVINE CREEK
A026023	18081	1888	STEPHEN C MARIANOS Total	1/17/1961	6.00	El Dorado	UNST
A026024	18082	1888	STEPHEN W BEAM	4/17/1953	3.20	El Dorado	SOUTH FORK DRY CREEK
A026025	18083	1888	STEPHEN W BEAM Total	5/29/1959	3.20	El Dorado	SOUTH FORK DRY CREEK
			STEVEN BENNETTS	5/23/1961	0.10	Placer	UNST
			STEVEN BENNETTS Total		0.10		
			STEVEN FORD	2/8/1956	15.00	El Dorado	UNST
			STEVEN FORD Total	4/10/1963	7.20	El Dorado	UNST
			STEVEN FORD Total	4/22/1977	8.00	El Dorado	UNST
			STEVEN FORD Total	6/13/1979	8.00	El Dorado	UNST
			STEVEN FORD Total	6/13/1979	23.00	El Dorado	UNST
			STEVEN FORD Total	6/13/1979	40.50	El Dorado	UNST
			STEVEN FORD Total	6/13/1979	17.00	El Dorado	REDBIRD CREEK

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A026026	18084	11984	SWANSBORO COUNTRY PROPERTY OWNERS ASSOCIATION INC	6/13/1979	7.10	El Dorado	UNST
A026027	18085	11849	SWANSBORO COUNTRY PROPERTY OWNERS ASSOCIATION INC	6/13/1979	40.00	El Dorado	UNST
A028792	20056	13240	SWANSBORO COUNTRY PROPERTY OWNERS ASSOCIATION INC	2/3/1986	9.00	El Dorado	UNST
A009269	5187	2694	SWANSBORO COUNTRY PROPERTY OWNERS ASSOCIATION INC Total		136.60		
A024351B	017135B	13157	SWORD & SANDALS INC	4/13/1938	0.60	El Dorado	UNCR
A008791	4877	3191	SWORD & SANDALS INC Total		0.60		
A022478	15551	10769	TANYA M BOYD	4/27/1990	0.80	Sacramento	LINDA CREEK
A029233	20340	3799	TANYA M BOYD Total	9/14/1936	0.10	El Dorado	UNSP
A007036	3799	1416	TAYLOR T WHEELER	5/27/1966	0.10	El Dorado	EMPIRE CREEK
A011055	6442	3324	TAYLOR T WHEELER Total	4/19/1988	15.00	Placer	UNSP
A022465	15447	9913	TERENCE A HALL	8/10/1931	181.00	El Dorado	UNSP
A006440	3396	1549	TERENCE A HALL Total	5/22/1945	0.20	El Dorado	UNSP
A020627D	13629	008487D	TERRIL R LUKENS EXEMPTION TRUST & SURVIVOR'S TRUST UDT		0.20		SOUTH FORK AMERICAN RIVER
A020627B	13629	008487B	TERRIL R LUKENS EXEMPTION TRUST & SURVIVOR'S TRUST UDT Total		181.00		
A026981	19271	12888	TERRY D. HERRINGSHAW	5/13/1966	1.50	El Dorado	BURN'T SHANTY CREEK
A017411	11024	6810	TERRY D. HERRINGSHAW Total	9/18/1929	1.50	El Dorado	UNST
A004510	2315	776	THE BRUCE & PAT BLAIKIE FAMILY TRUST DATED 5/20/1993	8/13/1992	0.10	El Dorado	UNST
A017108	11013	7716	THE BRUCE & PAT BLAIKIE FAMILY TRUST DATED 5/20/1993 Total	8/13/1992	25.20	El Dorado	UNST
A007788	4294	1674	THE BRUCE & PAT BLAIKIE FAMILY TRUST DATED 5/20/1993 Total	12/26/1933	25.20	El Dorado	UNST
A022062	15099	9129	THE PEPPER FAMILY TRUST	9/2/1981	1.30	El Dorado	UNST
A006817	3718	1906	THE PEPPER FAMILY TRUST Total	12/27/1956	7.00	Placer	UNST
A006988	3836	1343	THE RITO S CASTANON FAMILY TRUST	3/19/1925	17.00	El Dorado	UNSP
			THE RITO S CASTANON FAMILY TRUST Total	5/29/1956	6.50	Placer	UNST
			THOMAS WALTERS		12.00		
			THOMAS WALTERS Total		0.20		
			THOMAS E WALTERS	12/26/1933	0.20	El Dorado	UNSP
			THOMAS E WALTERS Total		0.20		
			THOMAS L PIATANESI	3/1/1965	0.40	El Dorado	UNSP (2)
			THOMAS L PIATANESI Total		0.40		
			THOMAS S VAN HORNE	10/8/1930	0.20	El Dorado	UNST
			THOMAS S VAN HORNE Total		0.20		
			TIFFANY HOLBROOK	6/29/1931	0.10	El Dorado	ROCK CREEK
			TIFFANY HOLBROOK Total		0.10		
			TIMBERLAKE ESTATES HOMEOWNERS ASSOC				
			TIMBERLAKE ESTATES HOMEOWNERS ASSOC Total				
			TIMOTHY B COLLINS				
			TIMOTHY B COLLINS Total				
			TIMOTHY J MANDELLA				
			TIMOTHY J MANDELLA Total				
			TONY PLANCHON				
			TONY PLANCHON Total				
			TRACY ANN BRENNAN-MULLIGAN				

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A018807	12161	6790	TRACY ANN BRENNAN-MULLIGAN	6/17/1959	0.10	El Dorado	SOUTH FORK AMERICAN RIVER
A016402	10552	6008	TRACY ANN BRENNAN-MULLIGAN Total	6/2/1955	0.20		
A004597C	000948C	000948C	TROOP #1 B S A Total Trudy Reed, et al	8/20/2004	0.50	El Dorado	CODY LAKE, UNSP
A022914	15682	13080	TRUDY REED, et al Total	9/29/1967	8.20	Placer	AUBURN Ravine
A025406	17863	13081	TRUST OF WILLIAM & MARY ROTHHAUS	6/24/1977	3.00	El Dorado	JOHNTOWN CREEK
A018106	11630	6767	TRUST OF WILLIAM & MARY ROTHHAUS Total	4/28/1958	15.00	El Dorado	JOHNTOWN CREEK
A021880	14767	9277	TRUSTEN B WADSWORTH	8/26/1964	18.00	El Dorado	UNST
A012046	7203	6975	TRUSTEN B WADSWORTH Total	1/28/1964	2.00	Placer	UNST
A002141	936	245	TWILIGHT RIDE LLC	12/17/1920	0.80	El Dorado	EAST FORK SAWMILL CREEK, SAWMILL CREEK
A003879	1719	534	TWILIGHT RIDE LLC Total	2/28/1924	31.10	El Dorado	
A004722	2382	1420	Tyson Muncher	8/6/1925	1.20	El Dorado	COLD STREAM
A004740	2383	2102	Tyson Muncher Total	8/19/1925	0.10	El Dorado	ATWOOD SPRING
A005142	2644	1001	UNST	8/4/1926	0.30	El Dorado	UNST
A006730	3585	2405	UNST	4/14/1930	2.30	El Dorado	UNST
A007196	3959	1679	UNST	2/27/1932	0.50	El Dorado	UNST
A007304	4010	2441	UNST	6/27/1932	0.50	Amador	UNST
A007498	4170	4543	UNST	2/7/1933	3.00	El Dorado	UNST
A007522	4163	4099	UNST	3/24/1933	0.80	El Dorado	UNST
A008271	4576	1856	UNST	3/4/1935	0.60	Alpine	UNST
A008582	4761	3767	UNST	3/11/1936	0.40	El Dorado	UNST
A008929	4944	2159	UNST	3/30/1937	0.50	El Dorado	ASPEN CREEK
A008936	4984	3972	UNST	4/3/1937	0.50	El Dorado	COX CREEK
A009058	5052	2161	UNST	7/29/1937	3.40	Amador	UNSP
A009086	5020	2164	UNST	8/21/1937	0.40	El Dorado	FRY CREEK
A009087	5021	2164	UNST	8/21/1937	2.60	El Dorado	UNST
A009120	5050	3254	UNST	9/18/1937	1.30	El Dorado	ROCKY CANYON
A009122	5051	2336	UNST	9/21/1937	1.00	El Dorado	ROCKY CANYON
A009128	5100	2166	UNST	9/27/1937	0.60	El Dorado	PYRAMID CREEK
A009129	5101	2167	UNST	9/27/1937	0.20	El Dorado	PYRAMID CREEK
A009189	5104	2168	UNST	11/27/1937	0.20	El Dorado	PYRAMID CREEK
A009251	5195	3922	UNST	3/4/1938	0.70	El Dorado	UNSP
A009289	5177	4059	UNST	5/6/1938	5.20	Amador	BLACK ROCK SPRING
A009298	5178	3129	UNST	5/19/1938	1.10	El Dorado	OATES SPRING
A009310	5191	3256	UNST	6/6/1938	0.70	El Dorado	OLANIE SPRING
A009399	5261	3388	UNST	8/26/1938	0.50	El Dorado	SNOW SLIDE CREEK
A009408	5251	4016	UNST	9/10/1938	0.90	El Dorado	UNSP
A009425	5273	2337	UNST	9/24/1938	0.30	El Dorado	UNST
A009655	5407	2864	UNST	7/15/1939	0.30	El Dorado	UNSP
A009843	5566	3273	UNST	2/28/1940	1.80	Placer	BUCKEYE SPRING
A009869	5580	2865	UNST	4/9/1940	1.00	El Dorado	UNST
A009884	5581	2866	UNST	4/26/1940	0.50	El Dorado	UNST
A009890	5588	2867	UNST	5/8/1940	1.30	El Dorado	UNCR
					1.10	El Dorado	ASPEN CREEK

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A009955	5646	3502	U S ELDORADO NATL FOREST	7/20/1940	1.90	El Dorado	BRYANT FORK CREEK
A010110	5844	5870	U S ELDORADO NATL FOREST	2/15/1941	5.30	Amador	SHEEP CORRAL CREEK
A010192	5858	3161	U S ELDORADO NATL FOREST	4/29/1941	0.20	Alpine	ROSS SPRING
A010289	5907	2921	U S ELDORADO NATL FOREST	9/24/1941	0.20	El Dorado	UNST
A010360	5977	4095	U S ELDORADO NATL FOREST	1/13/1942	0.20	El Dorado	UNST
A010385	5979	2948	U S ELDORADO NATL FOREST	2/16/1942	0.30	El Dorado	STATION CREEK
A010405	5980	3288	U S ELDORADO NATL FOREST	3/16/1942	2.00	El Dorado	UNSP
A010463	5975	2933	U S ELDORADO NATL FOREST	5/16/1942	2.00	El Dorado	UNST
A010593	6143	4548	U S ELDORADO NATL FOREST	1/25/1943	1.80	El Dorado	CHAMPAGNE CANYON, UNST
A010604	6178	3643	U S ELDORADO NATL FOREST	2/24/1943	0.20	El Dorado	ASPEN CREEK
A010608	6179	4044	U S ELDORADO NATL FOREST	3/4/1943	0.70	El Dorado	UNSP
A010614	6144	3297	U S ELDORADO NATL FOREST	3/16/1943	6.90	El Dorado	ALDER CREEK
A010773	6281	2940	U S ELDORADO NATL FOREST	2/23/1944	0.10	El Dorado	UNST
A010821	6282	4870	U S ELDORADO NATL FOREST	5/19/1944	12.70	El Dorado	CODY CREEK
A010823	6283	3084	U S ELDORADO NATL FOREST	5/26/1944	1.00	El Dorado	UNSP, UNST
A010827	6284	5654	U S ELDORADO NATL FOREST	6/5/1944	5.20	El Dorado	UNSP
A011256	6733	7767	U S ELDORADO NATL FOREST	1/10/1946	44.90	El Dorado	TAMARACK FLAT CREEK
A011370	6734	3497	U S ELDORADO NATL FOREST	4/12/1946	0.20	El Dorado	UNST
A011464	6682	3573	U S ELDORADO NATL FOREST	7/10/1946	0.10	El Dorado	FORN CREEK
A011608	6759	3330	U S ELDORADO NATL FOREST	11/6/1946	0.20	El Dorado	FRY CREEK
A011742	6881	3419	U S ELDORADO NATL FOREST	2/25/1947	0.20	El Dorado	ROCKY CANYON
A011867	7003	3395	U S ELDORADO NATL FOREST	5/9/1947	0.10	El Dorado	UNSP
A011893	6976	4861	U S ELDORADO NATL FOREST	5/26/1947	0.70	El Dorado	ASPEN CREEK
A011971	7009	4744	U S ELDORADO NATL FOREST	7/13/1947	0.50	El Dorado	SAVLES CANYON
A012000	7051	3346	U S ELDORADO NATL FOREST	7/21/1947	0.70	El Dorado	UNST
A012057	7081	3399	U S ELDORADO NATL FOREST	8/26/1947	0.20	El Dorado	UNSP
A012397	7324	3721	U S ELDORADO NATL FOREST	3/12/1948	0.20	El Dorado	PYRAMID CREEK
A012552	7449	5535	U S ELDORADO NATL FOREST	6/22/1948	1.20	El Dorado	BULL CREEK
A013383	7911	3834	U S ELDORADO NATL FOREST	10/5/1949	0.50	El Dorado	UNSP
A013410	8004	3797	U S ELDORADO NATL FOREST	10/24/1949	0.10	Alpine	JONES SPRING
A013653	8136	6630	U S ELDORADO NATL FOREST	3/27/1950	1.70	El Dorado	BRYAN CREEK
A014409	9031	4382	U S ELDORADO NATL FOREST	7/27/1951	0.10	El Dorado	UNSP
A014452	9026	4713	U S ELDORADO NATL FOREST	8/29/1951	0.40	El Dorado	UNSP
A014902	9262	4533	U S ELDORADO NATL FOREST	7/10/1952	483.70	El Dorado	ASPEN CREEK
A015490	10028	4996	U S ELDORADO NATL FOREST	8/31/1953	55.00	El Dorado	SMITH LAKE
A015492	10029	4997	U S ELDORADO NATL FOREST	8/31/1953	54.00	El Dorado	CLYDE LAKE
A015493	10030	4998	U S ELDORADO NATL FOREST	8/31/1953	30.00	El Dorado	TOEM LAKE
A015494	10031	4999	U S ELDORADO NATL FOREST	8/31/1953	160.00	El Dorado	WRIGHTS LAKE
A015495	10032	5000	U S ELDORADO NATL FOREST	8/31/1953	80.00	El Dorado	ROPT LAKE
A015496	10033	5001	U S ELDORADO NATL FOREST	8/31/1953	85.40	El Dorado	LOIS LAKE
A015497	10034	5002	U S ELDORADO NATL FOREST	8/31/1953	203.60	El Dorado	LAKE SCHMIDELL
A015498	10035	5003	U S ELDORADO NATL FOREST	8/31/1953	40.00	El Dorado	LYONS LAKE
A015499	10036	6199	U S ELDORADO NATL FOREST	8/31/1953	110.00	El Dorado	BUCK ISLAND LAKE
A015500	10037	5004	U S ELDORADO NATL FOREST	8/31/1953	38.00	El Dorado	LAWRENCE LAKE
A015501	10038	6058	U S ELDORADO NATL FOREST	8/31/1953	190.00	El Dorado	SPIDER LAKE
A015503	10040	5005	U S ELDORADO NATL FOREST	8/31/1953	30.00	El Dorado	BARRETT LAKE
A015506	10043	5006	U S ELDORADO NATL FOREST	8/31/1953	148.40	El Dorado	MIDDLE VELMA LAKE
A015509	10046	6025	U S ELDORADO NATL FOREST	8/31/1953	160.00	Alpine	WINNEMUCCA LAKE
A015512	10049	5011	U S ELDORADO NATL FOREST	8/31/1953	60.00	El Dorado	ISLAND LAKE
A015513	10050	4985	U S ELDORADO NATL FOREST	8/31/1953	21.00	El Dorado	UPPER TWIN LAKE

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A015514	10051	5164	U S ELDORADO NATL FOREST	8/31/1953	26.00	El Dorado	LOWER TWIN LAKE
A015616	10052	6200	U S ELDORADO NATL FOREST	11/23/1953	440.00	El Dorado	ROCKBOUND LAKE
A016564	10564	5531	U S ELDORADO NATL FOREST	8/31/1955	0.20	El Dorado	UNST
A017521	11280	8645	U S ELDORADO NATL FOREST	3/22/1957	2.80	El Dorado	GERLE CREEK
A017846	11577	6935	U S ELDORADO NATL FOREST	10/11/1957	0.20	El Dorado	ROCKY CANYON
A018022	11627	7172	U S ELDORADO NATL FOREST	3/3/1958	2.90	Amador	UNSP
A019541	12806	7807	U S ELDORADO NATL FOREST	7/13/1960	3.50	El Dorado	PILLIKEN SPRING
A019544	12808	7971	U S ELDORADO NATL FOREST	7/13/1960	0.40	Placer	JERRYS CANYON SPRING
A019546	12810	7972	U S ELDORADO NATL FOREST	7/13/1960	0.40	Placer	CHIPMUNK RIDGE SPRING
A019547	12811	7973	U S ELDORADO NATL FOREST	7/13/1960	0.40	Placer	LYNCHBURG SPRING
A019548	12812	7974	U S ELDORADO NATL FOREST	7/13/1960	0.40	Placer	BEAR SPRINGS
A019549	12813	7975	U S ELDORADO NATL FOREST	7/13/1960	0.40	Placer	DESERT COLD SPRING
A020659	13789	8325	U S ELDORADO NATL FOREST	3/19/1962	0.40	El Dorado	UNST
A020675	13795	8324	U S ELDORADO NATL FOREST	3/26/1962	0.20	El Dorado	OWENS CAMP SPRING
A023420	16189	10597	U S ELDORADO NATL FOREST	12/23/1969	4.50	Placer	SOUTH FORK LONG CANYON
A028204	19518	12944	U S ELDORADO NATL FOREST	8/3/1984	2.20	El Dorado	UNSP
U S ELDORADO NATL FOREST Total							
A007629	4209	1702	U S FOREST SERVICE	7/26/1933	2,565.40	El Dorado	UNST
A007848	4350	2138	U S FOREST SERVICE	2/14/1934	0.40	Placer	GREEK STORE SPRING
A009114	5095	2611	U S FOREST SERVICE	9/14/1937	13.40	Placer	BLUE CANYON RANGER STATION SP
A009816	5536	2599	U S FOREST SERVICE	1/29/1940	4.30	Placer	UNSP
A010126	5779	2886	U S FOREST SERVICE	2/20/1941	4.70	Placer	TEXAS HILL SPRING
A010129	5782	2655	U S FOREST SERVICE	2/20/1941	0.60	Placer	DAWSON SPRING
A010442	6014	4181	U S FOREST SERVICE	5/6/1942	0.10	Placer	NORTH FORK SPRING
A010443	6015	3037	U S FOREST SERVICE	5/6/1942	5.50	Placer	ONTON VALLEY SPRING NO 3
A010445	6017	2890	U S FOREST SERVICE	5/6/1942	0.60	Placer	LONG VALLEY SPRING
A011157	6589	3207	U S FOREST SERVICE	9/19/1945	1.00	Placer	TADPOLE SPRING
A011787	6897	4862	U S FOREST SERVICE	3/19/1947	0.30	Placer	UNSP
A012036	7055	3250	U S FOREST SERVICE	8/12/1947	1.10	Placer	PAGGE CREEK
A014193	8704	4112	U S FOREST SERVICE	3/14/1951	11.00	Placer	ELLIOTT MEADOW SPRING
A014194	8705	4113	U S FOREST SERVICE	3/14/1951	34.10	Placer	ELLIOTT RANCH SPRING
A014195	9308	4964	U S FOREST SERVICE	3/14/1951	1.40	Placer	BEAR SPRING
A014196	8706	4126	U S FOREST SERVICE	3/14/1951	0.40	Placer	CHICKEN HAWK SPRING
A014197	8707	4127	U S FOREST SERVICE	3/14/1951	0.30	Placer	ORCHARD SPRING
A014198	8708	4876	U S FOREST SERVICE	3/14/1951	0.20	Placer	SECRET HOUSE SPRING
A016517	10278	7335	U S FOREST SERVICE	8/11/1955	96.80	Placer	CODY CREEK
A016691	10621	7367	U S FOREST SERVICE	10/26/1955	6.10	Placer	FULDA SPRING
A017304	11837	7098	U S FOREST SERVICE	1/14/1965	84.90	Placer	POWDERHORN CREEK
A021489	14495	8892	U S FOREST SERVICE	10/7/1963	5.20	Placer	BEARTRAP SPRING
A023221	16016	10309	U S FOREST SERVICE	1/30/1969	0.40	Placer	DELLER SPRING
A023222	16177	10620	U S FOREST SERVICE	1/30/1969	1.10	Placer	MT MILDRED CREEK
A023223	16178	10611	U S FOREST SERVICE	1/30/1969	4.20	Placer	DOLLY CREEK
A023224	16179	10618	U S FOREST SERVICE	1/30/1969	3.90	Placer	FRENCH MEADOW CREEK
A023227	16013	10543	U S FOREST SERVICE	1/30/1969	0.80	Placer	WILLMONT SPRING
A023228	16012	10310	U S FOREST SERVICE	1/30/1969	0.50	Placer	GIANT GAP SPRING #1
A023229	16011	10311	U S FOREST SERVICE	1/30/1969	0.50	Placer	GIANT GAP SPRING #2
U S FOREST SERVICE Total							
A013103	7803	4220	U.S. BUREAU OF RECLAMATION	3/21/1956	4.00	El Dorado	KNICKERBOCKER CREEK
A013370	11315		U.S. BUREAU OF RECLAMATION	4/22/1958	5,347,832.00	Contra Costa, Sacramento	AMERICAN RIVER, OLD RIVER, SACRAMENTO RIVER

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A013371	11316		U.S. BUREAU OF RECLAMATION	7/29/2002	680,435.30	Contra Costa, Sacramento	AMERICAN RIVER, Sacramento River
A013629	8151	6654	U.S. BUREAU OF RECLAMATION	3/1/1963	30.00	El Dorado	UNST
A014165	8572	4221	U.S. BUREAU OF RECLAMATION	3/21/1956	22.00	El Dorado	KNICKERBOCKER CREEK
A014515	8887	4798	U.S. BUREAU OF RECLAMATION	10/24/1957	14.30	El Dorado	UNST
A015028	9246	5878	U.S. BUREAU OF RECLAMATION	11/17/1959	15.00	El Dorado	UNST
A017371	10923	5824	U.S. BUREAU OF RECLAMATION	10/22/1959	19.60	El Dorado	MIDDLE FORK AMERICAN RIVER
A018196	12706	7596	U.S. BUREAU OF RECLAMATION	3/9/1966	0.10	Placer	UNSP (2)
A019977	13093	8229	U.S. BUREAU OF RECLAMATION	2/8/1961	21.70	Placer	CARLTON SPRING, NORTH FORK AMERICAN RIVER
A020011	13161		U.S. BUREAU OF RECLAMATION	2/28/1961	22.00	El Dorado	KNICKERBOCKER CREEK
A020478	13934	8588	U.S. BUREAU OF RECLAMATION	11/7/1961	0.10	Placer	AMERICAN RIVER
A021189	14220	8871	U.S. BUREAU OF RECLAMATION	3/13/1963	18.00	El Dorado	NORTH FORK AMERICAN RIVER
A005214	2776	1075	ULF ASPENLIND	9/17/1926	6,028,434.10	Placer	CANYON CREEK
A023318	15937	11043	UNION PACIFIC RAILROAD COMPANY	6/4/1980	4.00	Placer	UNXX
A027266	18612		UNION PACIFIC RAILROAD COMPANY Total		4.00		
A005981	3152		US BUREAU OF LAND MANAGEMENT	11/4/1982	2,533.90	Placer	DARDANELLES CREEK, POND CREEK
A010290	5988	6099	USDA-FOREST SERVICE, LAKE TAHOE BASIN MANAGEMENT UNIT	7/16/1928	4.30	El Dorado	HAWLEY SPRING
A015510	10047	5009	USDA-FOREST SERVICE, LAKE TAHOE BASIN MANAGEMENT UNIT	9/24/1941	0.70	El Dorado	BENWOOD CREEK
A027518	19091	12562	USDA-FOREST SERVICE, LAKE TAHOE BASIN MANAGEMENT UNIT	8/31/1953	141.80	El Dorado	HEATHER LAKE
A004026	1899	738	VERYL T KUCHAR	9/15/1982	0.30	El Dorado	HAWLEY SPRING
A011258A	6528	9362	VERYL T KUCHAR	10/5/1928	147.10		
A015953	9902	5786	VERYL T KUCHAR Total	1/10/1946	113.10	Placer	BIG CHIEF CREEK, BOULDER CREEK
A005535	3114	1098	VICKIE L LONGO	7/26/1954	61.00	Placer	UNST
A017916	11348	7619	VICKIE L LONGO Total	6/17/1927	174.10		
A028603	20086	13242	VICTOR HERRERO	12/16/1957	3.80	El Dorado	SOUTH FORK AMERICAN RIVER
A011162	6477	3032	VICTOR HERRERO Total	9/27/1945	3.80	El Dorado	UNSP
A024241	16911	12453	VINCENT J GRAVES	11/8/1972	0.10	Placer	BABIE CREEK
A027705	19112	12678	VINCENT J GRAVES Total	4/5/1983	2.20	Placer	UNXX
A027173	18747	13544	WAYNE BRUMMOND	7/11/2003	2.50	El Dorado	ACORN CREEK
			WAYNE BRUMMOND Total		2.50		
			WAYNE HILLARD		0.20	El Dorado	SOUTH FORK AMERICAN RIVER
			WAYNE HILLARD Total		0.20		
			WILLIAM FAWX		0.10	Placer	DUTCH RAVINE
			WILLIAM FAWX Total		0.10		
			WILLIAM OZAWA		1.30	El Dorado	UNST
			WILLIAM OZAWA Total		1.30		
			WILLIAM SMITH		19.00	El Dorado	

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A016891	10691	7265	WILLIAM SMITH Total WILLIAM WHITAKER	2/14/1956	19.00 0.40	El Dorado	UNST
A019850	13243		WILLIAM B ASHTON	11/21/1960	37.00	El Dorado	SILVER FORK OF SOUTH FORK AMERICAN RIVER, SUGAR LOAF CREEK
A001963	935	428	WILLIAM B ASHTON Total	8/11/1920	37.00	El Dorado	NILSSON SPRING
A005989	3394	1436	WILLIAM B TIMBERLAKE Total	7/19/1928	2.90	El Dorado	UNST
A027491	19229	13413	WILLIAM C SAWTELL Total	8/31/1982	0.80	Placer	UNST
A028034	20068	13411	WILLIAM P KLEIN JR	3/15/1984	12.00	Placer	UNST
A028035	20069	13412	WILLIAM P KLEIN JR	3/15/1984	11.00	Placer	UNST
A027520	19118	13269	WILLIAM P KLEIN JR Total	9/16/1982	23.80	Placer	UNST
A010121	5976	3045	WILLIAM V DALLAS Total	2/20/1941	0.20	El Dorado	UNST
A014086	8441	4369	WILLIS H LAMBERT	12/1/1950	0.70	El Dorado	UNSP
A015918	9886	5630	WILLIAMS H LAMBERT Total	6/18/1954	0.70	El Dorado	UNSP
A022029	15275	10683	WILLIAMS H LAMBERT Total	1/15/1965	1.10	Placer	UNST
A013893	8603	4079	WILSON GRANAT Total	8/14/1950	3.30	Sacramento	UNCR
A008015	4390	2604	WOODBRIDGE RANCH HOMEOWNERS ASSOCIATION	7/9/1934	33.00	Placer	ANTELOPE CREEK
A013394	8207	4781	WOODBRIDGE RANCH HOMEOWNERS ASSOCIATION Total	10/11/1949	287.90	Placer	ANTELOPE CREEK
A016437	10551	5511	YANKEE HILL ESTATES OWNERS ASSOCIATION	6/23/1955	142.70	Placer	ANTELOPE CREEK
			YANKEE HILL ESTATES OWNERS ASSOCIATION		455.60		
			ASSOCIATION Total		9,560,977.90		
			Grand Total				

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A009802	5719	2809	BIRD HAVEN RANCH LLC	1/11/1940	852.90	Glenn	BUTTE CREEK
A002234	1114	5236	BIRD HAVEN RANCH LLC Total	2/28/1921	852.90		BUTTE CREEK
A023025	16330	10776	BUTTE VALLEY IRRIGATION DISTRICT	4/10/1968	10,000.00	Siskiyou	BUTTE CREEK
			BUTTE VALLEY IRRIGATION DISTRICT Total		27,163.80		
A013794	8624	8176	CAMERON PARK COMMUNITY SERVICES DISTRICT	6/14/1950	240.00	El Dorado	DEER CREEK
A009216	5153	6113	CAMERON PARK COMMUNITY SERVICES DISTRICT Total	12/30/1937	240.00		
A013675	8194	7075	CITY OF CHICO	4/7/1950	258.90	Butte	BIG CHICO CREEK
A013728	8195	7076	CITY OF CHICO SHOOTING CLUB	5/10/1950	258.90	Collusa	BUTTE CREEK
A009625	5717	2984	CITY OF CHICO SHOOTING CLUB	6/19/1939	1,386.90	Collusa	BUTTE CREEK
A013008	7747	8712	CITY OF CHICO SHOOTING CLUB Total	7/24/1968	2,240.80		
A013323	7885	4793	Dept of Fish and Game	10/24/1957	5,474.50	Butte, Glenn	BUTTE CREEK
A014354	9663	4794	Dept of Fish and Game	10/24/1957	5,182.50	Butte, Glenn	BUTTE CREEK
A015467	14438	9973	Dept of Fish and Game	12/21/1972	2,554.80	Glenn	BUTTE CREEK DRAINAGE DISTRICT
A015468	14439	9974	Dept of Fish and Game	12/21/1972	2,700.70	Butte	BUTTE CREEK
A024590	17233	9974	Dept of Fish and Game	4/10/1974	5,463.00	Glenn	BUTTE CREEK DRAINAGE DISTRICT
A022564	16029	10433	Dept of Fish and Game Total	8/29/1966	7,428.00		
A002777	1779	2389	GAIL BROWN	3/6/1922	34,266.50		BUTTE CREEK
A004664	2448	2390	GAIL BROWN Total	6/30/1925	493.00		
A004665	2449	2391	GORRILL LAND COMPANY	3/13/1942	4,581.90	Butte	BUTTE CREEK, HAMLIN SLOUGH
A022321	16018	11044	GORRILL LAND COMPANY	10/25/1965	4,523.50	Butte	HAMLIN SLOUGH
A025717	17845	11996	GORRILL LAND COMPANY	4/12/1978	3,930.10	Butte	BUTTE CREEK
A022799	15502	9911	GORRILL LAND COMPANY Total	5/31/1967	2,500.00		
A023298	15950	10194	LOUIS A PAVEN	6/17/1969	4,400.00	Butte	HAMLIN SLOUGH
A005109	3210	2614	LOUIS A PAVEN Total	7/17/1926	19,935.50		
A008188	4700	2617	LUCIAN B VANDEGRIFT TRUST	12/1/1934	45.00		LITTLE DEER CREEK
A008565	4744	2617	LUCIAN B VANDEGRIFT TRUST Total	2/27/1936	45.00		

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A009735	5847		M & T INCORPORATED	9/22/1939	13,587.00	Butte	BIG BUTTE CREEK
A015866	10390		M & T INCORPORATED	5/10/1954	500.00	Butte	BUTTE CREEK
			M & T INCORPORATED Total		27,281.40		
A014546	9664		MCPHERRIN LAND CO	11/2/1951	6,396.80	Butte	BUTTE CREEK
A015710	14021		MCPHERRIN LAND CO	6/25/1968	2,122.40	Butte	BUTTE CREEK
			MCPHERRIN LAND CO Total		8,519.20		
A019743	13039		MELVIN D MYERS	9/19/1960	142.00	Lassen	BUTTE CREEK
			MELVIN D MYERS Total		142.00		
A023084	15727		MICHAEL HARRIS	7/15/1968	32	Butte	LITTLE CHICO CREEK
			MICHAEL HARRIS Total		32		
A000476	271		Paradise Irrigation District	5/3/1917	9,500.00	Butte	LITTLE BUTTE CREEK
A022061	16040		Paradise Irrigation District	6/17/1970	8,800.00	Butte	LITTLE BUTTE CREEK
			Paradise Irrigation District Total		18,300.00		
A005110	3211		PARROTT INVESTMENT COMPANY	7/17/1926	5,060.00	Butte	BUTTE CREEK
A008187	4699		PARROTT INVESTMENT COMPANY	12/1/1934	5,060.00	Butte	BUTTE CREEK
A008559	4743		PARROTT INVESTMENT COMPANY	2/19/1936	3,074.40	Butte	BIG BUTTE CREEK
A009736	5848		PARROTT INVESTMENT COMPANY	9/22/1939	13,587.00	Butte	BIG BUTTE CREEK
A015867	10391		PARROTT INVESTMENT COMPANY	5/10/1954	500.00	Butte	BUTTE CREEK
			PARROTT INVESTMENT COMPANY Total		27,281.40		
A001656	794		880 RANCHO ESQUON INC	2/5/1920	3,665.45	Butte	HAMLIN SLOUGH
A002576	1722		1027 RANCHO ESQUON INC	10/6/1921	1,832.80	Butte	BUTTE CREEK
A002805	1872		1028 RANCHO ESQUON INC	3/24/1922	3,832.10	Butte	BUTTE CREEK
A002909	2027		1029 RANCHO ESQUON INC	6/27/1922	3,014.90	Butte	BUTTE CREEK
A004663	2447		1030 RANCHO ESQUON INC	6/30/1925	4,598.48	Butte	HAMLIN SLOUGH
A022039	16039		11046 RANCHO ESQUON INC	2/5/1965	5,540.00	Butte	BUTTE CREEK
			RANCHO ESQUON INC Total		22,483.73		
A023201	16771		RECLAMATION DISTRICT #1004	12/1/1978	36,000.00	Colusa, Sutter	BUTTE CREEK, BUTTE SLOUGH
			RECLAMATION DISTRICT #1004 Total		36,000.00		
A007925	4365		RECLAMATION DISTRICT #833	5/1/1934	2,217.20	Colusa	BUTTE CREEK
			RECLAMATION DISTRICT #833 Total		2,217.20		
A004989	2706		SIERRA PACIFIC INDUSTRIES	1/8/1965	1,831.70	Butte	WEST BRANCH BUTTE CREEK
			SIERRA PACIFIC INDUSTRIES Total		1,831.70		
A001041	542		485 STANFORD VINA RANCH IRRIGATION CO	8/5/1918	4,581.90	Tehama	DEER CREEK
			STANFORD VINA RANCH IRRIGATION CO Total		4,581.90		
A020531			STATE WATER RESOURCES CONTROL BOARD	12/19/1961	0.00	Lassen, Modoc	ASH CREEK, BUTTE CREEK, UNST, WILLOW CREEK
			STATE WATER RESOURCES CONTROL BOARD Total		0.00		
A022534	16022	10432	Stephen Melline IV	7/27/1966	1,695.00	Butte	BUTTE CREEK

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A012437	7368	3458	Stephen Meline IV Total		1,695.00		
A013540	8838	4472	U S FISH & WILDLIFE SERVICE	3/25/1948	1,097.00	Colusa	BUTTE CREEK
A014316	9662	7053	U S FISH & WILDLIFE SERVICE	1/12/1950	44,162.60	Shasta, Tehama	BATTLE CREEK
A017862	11615	6591	U S FISH & WILDLIFE SERVICE	5/21/1951	590.30	Colusa	BUTTE CREEK
A020288	13384	7993	U S FISH & WILDLIFE SERVICE	10/25/1957	7,963.80	Shasta	BATTLE CREEK
A022227	15046	9561	U S FISH & WILDLIFE SERVICE	7/3/1961	21,719.30	Shasta	BATTLE CREEK, Battle Creek
			U S FISH & WILDLIFE SERVICE Total	7/19/1965	90,012.60		BATTLE CREEK, Battle Creek
A031071	21277		U S KLAMATH NATIONAL FOREST - GOOSENEST RECLAMATION DISTRICT	6/6/2011	185.00	Siskiyou	BUTTE CREEK
			U S KLAMATH NATIONAL FOREST - GOOSENEST RECLAMATION DISTRICT Total		185.00		
			Grand Total		326,104.54		

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A017927	11586	9898	ANTHONY D CRUYSEN	12/26/1957	23.00	Shasta	CLEAR CREEK
A023232	16007	10906	ANTHONY D CRUYSEN Total	2/6/1969	23.00	Shasta	SOUTH FORK CLEAR CREEK
A016145	10125	9563	BENNETT FAMILY TRUST	11/18/1954	74.00	Shasta, Tehama	COTTONWOOD CREEK
A013972	8537	4100	BENNETT FAMILY TRUST Total		627.00		
A016373D			BILL GIBSON Total		627.00		
A016373C			BILL GIBSON	9/29/1950	5.80	Shasta	MIDDLE FORK COTTONWOOD CREEK
A012074	7559	6320	CALIF DEPT OF TRANSPORTATION	6/3/1991	167.20	Tehama	COTTONWOOD CREEK
A02695	19372	006033D	CARPENTER FAMILY REVOCABLE TRUST	6/3/1991	167.20	Tehama	COTTONWOOD CREEK
A027382	20308	006033C	CARPENTER FAMILY REVOCABLE TRUST Total		45.70		
A016373A			CEVASCO ROBT CEVASCO REVOC TRUST 2/18/9	9/8/1947	3,728.93	Yolo	WILLOW SLOUGH
A013764	8578	4460	CEVASCO ROBT CEVASCO REVOC TRUST 2/18/9 Total	1/27/1981	10,000.00	Yolo	CACHE CREEK, YOLO BYPASS
A024723	16873	11283	CONAWAY PRESERVATION GROUP LLC	7/8/1982	13,728.93	Colusa	STONY CREEK UNDERFLOW
A007284	4198	2006	CONAWAY PRESERVATION GROUP LLC Total		10.00		
A021223	14272	8831	COUNTY OF COLUSA	6/3/1991	64.10	Shasta	COTTONWOOD CREEK
A030232	20993	8588	COUNTY OF COLUSA Total		64.10		
A013976	8588	6976	DENNIS C DIERKSEN	5/29/1950	18.30	Tehama	SOUTH FORK COTTONWOOD CREEK
A000334	157	153	DENNIS C DIERKSEN Total		18.30		
A013701	8225	4312	DONALD KRENN	12/11/1974	10.20	Shasta	CLEAR CREEK
A016373B			DONALD KRENN Total		10.20		
A013110	7843	4736	FRENCH GULCH-WHISKEYTOWN SCHOOL DISTRICT	6/8/1932	1,463.80	Tehama	SOUTH FORK COTTONWOOD CREEK
A023234	16005	10921	FRENCH GULCH-WHISKEYTOWN SCHOOL DISTRICT Total		1,463.80		
A031558			HAMMER FAMILY TRUST	4/8/1963	2.70	Tehama	SOUTH FORK COTTONWOOD CREEK
A023233	16000	10540	HAMMER FAMILY TRUST Total		2.70		
			HARRY A BAKER REVOCABLE TRUST	3/8/1993	245.00	Lake	CRAZY CREEK, PUTAH CREEK, UNST
			HARRY A BAKER REVOCABLE TRUST Total		245.00		
			Heart Consciousness Church, Inc.	10/3/1950	341.20	Shasta	COTTONWOOD CREEK
			Heart Consciousness Church, Inc. Total		341.20		
			IGO ONO COMMUNITY SERVICE DISTRICT	5/11/1916	24.60	Glenn, Sonoma	NORTH FORK STONY CREEK
			IGO ONO COMMUNITY SERVICE DISTRICT Total		24.60		
			JOSHUA L SOSKE JR	4/24/1950	122.20	Tehama	COTTONWOOD CREEK
			JOSHUA L SOSKE JR Total		122.20		
			KENT W PERIMMER	6/3/1991	41.30	Tehama	COTTONWOOD CREEK
			KENT W PERIMMER Total		41.30		
			KEVIN J DEVINE	5/24/1949	219.90	Tehama	COTTONWOOD CREEK
			KEVIN J DEVINE Total		219.90		
			LEMA 1992 TRUST	2/6/1969	1.20	Shasta	SOUTH FORK CLEAR CREEK
			LEMA 1992 TRUST Total		1.20		
			MARY ANN SMITH	3/30/2007	434.00	Lake	HARBIN CREEK, PUTAH CREEK, UNST
			MARY ANN SMITH Total		434.00		
			MIDDLETOWN FARM & CATTLE COMPANY	2/6/1969	69.00	Shasta	SOUTH FORK CLEAR CREEK
			MIDDLETOWN FARM & CATTLE COMPANY Total		69.00		

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A024785	16939	11368	ROBERT W ANDERSON	3/24/1975	2.20	Shasta	SOUTH FORK CLEAR CREEK, UNST
A025261	17823		ROBERT W ANDERSON Total	2/14/1977	71.20		LITTLE STONY CREEK, STONY CREEK
A020104	13490	8028	STONY CREEK WATER DISTRICT Total	4/27/1961	3,000.00		STONY CREEK UNDERFLOW
A019104	12653	7454	THE REVOCABLE TRUST OF ROBERT F RETZLOFF	11/24/1959	271.70		CLEAR CREEK
A002212	2339	2652	U S NATIONAL PARK SERVICE Total	2/17/1921	3.20	Shasta	STONY CREEK
A018115	13776		U.S. BUREAU OF RECLAMATION	4/30/1958	50,200.00	Glenn	STONY CREEK
A017376	12364		U.S. BUREAU OF RECLAMATION	7/28/1960	160,000.00	Contra Costa, Tehama	STONY CREEK
A015424	12363	9957	U.S. BUREAU OF RECLAMATION	4/15/2002	1,335,371.20	Contra Costa, Shasta	CLEAR CREEK
A016373E	006033E		U.S. BUREAU OF RECLAMATION Total	6/3/1991	1,230,761.80	Shasta	CLEAR CREEK
A012994	7469	3822	WAYNE ROCHLITZ Total	3/23/1949	2,776,333.00		COTTONWOOD CREEK
A011389	12848		WILLIAM T GRAY Total	5/3/1946	85.00		COTTONWOOD CREEK
			YOLO COUNTY F C & W C DISTRICT		114.60	Shasta	CACHE CREEK, NORTH FORK CACHE CREEK
			YOLO COUNTY F C & W C DISTRICT Total		431,000.00	Lake, Yolo	
			Grand Total		431,000.00		
					3,228,548.83		

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A011384	6629	3641	A & L AG RENTAL & LEASING INC	4/25/1946	1,094.90	Colusa	SACRAMENTO RIVER
A000657	338	237	A & L AG RENTAL & LEASING INC Total ALICE K MARKS	4/27/1917	1,094.90 136.50	Sutter	SACRAMENTO RIVER
A001976	1243	1206	ALICE K MARKS Total ALLEN A EHRKE	5/31/1932	136.50 158.80	Colusa	SACRAMENTO RIVER
A012469A	7267	003722A	ALLEN A EHRKE Total Anna C. Byrd 1997 Trust	4/13/1948	1,598.50	Sutter	SACRAMENTO RIVER
A008931	4985	3169	Anna C. Byrd 1997 Trust Total ARNOLD ANDREOTTI	4/1/1937	1,094.90	Colusa	SACRAMENTO RIVER
A011618	6793	3170	ARNOLD ANDREOTTI Total ARTHUR ANDREOTTI	11/14/1946	2,007.30	Colusa	SACRAMENTO RIVER
A013454	8010	7251	ARTHUR ANDREOTTI Total BARRY A MCCLAIN	11/9/1949	3,102.20 4,927.00	Colusa	SACRAMENTO RIVER
A012482	7399	3655	ARTHUR ANDREOTTI Total BARRY A MCCLAIN	4/23/1948	182.50	Sacramento	SACRAMENTO RIVER
A005100	2609	989	BARRY A MCCLAIN Total BURTIS RANCH	7/13/1926	140.50	Sutter	SACRAMENTO RIVER
A010900	6375	3569	BURTIS RANCH Total BURTON H LAUPPE	10/9/1944	140.50 1,069.10	Sutter	SACRAMENTO RIVER
A000186	72	1753	BURTON H LAUPPE Total CACHIL DEHE BAND OF WINTUN INDIANS OF	11/22/1915	3,198.40	Colusa	SACRAMENTO RIVER
A014445A	16481		CACHIL DEHE BAND OF WINTUN INDIANS OF Total CALIF DEPT OF WATER RESOURCES	8/25/1951	3,198.40 1,575,212.40	Contra Costa, Sacramento	ITALIAN SLOUGH, SACRAMENTO RIVER DELTA CHANNELS
A017512	16482		CALIF DEPT OF WATER RESOURCES Total CALIF DEPT OF WATER RESOURCES	3/15/1957	1,100,000.00	Madera, Merced, Sacramento	ITALIAN SLOUGH, SACRAMENTO RIVER DELTA CHANNELS, SAN LUIS CREEK
A014682	9061	6380	CALIF DEPT OF WATER RESOURCES Total CARTER FAMILY TRUST & CARTER FAMILY MARTIAL TRUST	2/15/1952	2,675,212.40 2,498.20	Colusa	SACRAMENTO RIVER
A000230B	204	001788B	CARTER FAMILY TRUST & CARTER FAMILY MARTIAL TRUST Total CHARLES W SEAVER	1/10/1916	1,568.10	Colusa	SACRAMENTO RIVER
A001179	609	1478	CHARLES W SEAVER Total CHARLES W TUTTLE JR	2/15/1919	1,568.10 4,169.50	Colusa	SACRAMENTO RIVER
A006716	3630	1849	CHARLES W TUTTLE JR Total CITY OF REDDING	6/30/1930	53.70	Shasta	SACRAMENTO RIVER
A008884	5163	2640	CITY OF REDDING Total CITY OF REDDING	1/26/1937	3,619.90	Shasta	SACRAMENTO RIVER
A010320	5921	2736	CITY OF REDDING Total CITY OF REDDING	11/18/1941	325.80	Shasta	SACRAMENTO RIVER

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A015197	9821	5677	CITY OF REDDING	2/16/1953	211.70	Shasta	SACRAMENTO RIVER
			CITY OF REDDING Total		4,211.10		
A001743	992		CITY OF SACRAMENTO	10/30/2000	81,800.00	Sacramento	SACRAMENTO RIVER
			CITY OF SACRAMENTO Total		81,800.00		
A025616	18150		CITY OF WEST SACRAMENTO	12/22/1977	18,350.00	Yolo	SACRAMENTO RIVER
			CITY OF WEST SACRAMENTO Total		18,350.00		
A010363	5952	3585	COLUSA DRAIN MUTUAL WATER COMPANY	1/16/1942	5,668.10	Glenn	SACRAMENTO RIVER
A016305	14595	12087	COLUSA DRAIN MUTUAL WATER COMPANY	4/7/1955	3,660.00	Yolo	SACRAMENTO RIVER
			COLUSA DRAIN MUTUAL WATER COMPANY Total		9,328.10		
A015452	9647	7332	COLUSA PROPERTIES INC	8/6/1953	2,032.70	Colusa	SACRAMENTO RIVER
			COLUSA PROPERTIES INC Total		2,032.70		
A001199	614	904	CONAWAY PRESERVATION GROUP LLC	3/1/1919	43,557.70	Yolo	SACRAMENTO RIVER
A001588	792	905	CONAWAY PRESERVATION GROUP LLC	4/18/1930	5,354.00	Yolo	SACRAMENTO RIVER
A012073	7234	5487	CONAWAY PRESERVATION GROUP LLC	9/8/1947	70,143.50	Yolo	SACRAMENTO RIVER
			CONAWAY PRESERVATION GROUP LLC Total		119,055.20		
A001061	513	1062	COUNTY OF SACRAMENTO	6/6/1931	2,715.30	Sacramento	SACRAMENTO RIVER
A014494	8921	4060	COUNTY OF SACRAMENTO	8/19/1982	479.60	Sacramento	SACRAMENTO RIVER
			COUNTY OF SACRAMENTO Total		3,194.90		
A017210	13872	9926	Cranmore Farms LLC	8/6/1956	100.00	Sutter	SACRAMENTO RIVER
A004376	2021	1241	DANIEL A SERPA REV TRUST	12/15/1932	100.00	Sacramento	SACRAMENTO RIVER
			DANIEL A SERPA REV TRUST Total		116.10		
A017134	10734	6192	DIAMOND LANDS CORPORATION	6/14/1956	650.00	Tehama	SACRAMENTO RIVER
			DIAMOND LANDS CORPORATION Total		650.00		
A016199	13860	8205	DIANNE E BUTLER	9/7/1967	721.60	Colusa, Sutter	SACRAMENTO RIVER
A012469B	7267	003722B	DOLORES AZEVEDO	4/13/1948	91.20	Sutter	SACRAMENTO RIVER
A005993	3112	2393	DONNA L REED	3/19/1942	857.70	Yolo	SACRAMENTO RIVER
			DONNA L REED Total		857.70		
A014314	8782	5080	DRISCOLL STRAWBERRY ASSOCIATES	5/21/1951	240.90	Tehama	SACRAMENTO RIVER
			DRISCOLL STRAWBERRY ASSOCIATES Total		240.90		
A007641A	4215	006389A	E D WILLEY & SON INC	8/4/1933	9,582.70	Sutter	SACRAMENTO RIVER

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A011274	6725	3527	E D WILLEY & SON INC Total	2/4/1946	9,582.70		SACRAMENTO RIVER
			EASTSIDE MUTUAL WATER COMPANY		5,474.50	Colusa	
A013796	8337	4758	EASTSIDE MUTUAL WATER COMPANY Total	6/16/1950	5,474.50		SACRAMENTO RIVER
			ELLIS FAMILY TRUST		580.40	Sutter	
A005916	3066	1994	ELLIS FAMILY TRUST Total	5/16/1928	580.40		SACRAMENTO RIVER
A009987	5664	2763	EMERY BURKE POUNDSTONE	8/22/1940	2,717.70	Colusa	SACRAMENTO RIVER
A006672	3588	10019	EMERY BURKE POUNDSTONE Total	5/8/1930	2,788.40	Colusa	SACRAMENTO RIVER
			Erdman Family Trust		5,506.10		
A017150	13871	10221	Erdman Family Trust Total	6/25/1956	1,400.00	Colusa	SACRAMENTO RIVER
			Faraz A Saeed		997.00	Yolo	
A009032	5004	3674	Faraz A Saeed Total	7/8/1937	997.00		SACRAMENTO RIVER
A013511	8061	3675	FEDORA FARMS INC	12/15/1949	547.50	Colusa, Sutter	SACRAMENTO RIVER
A013512	8062	3676	FEDORA FARMS INC	12/15/1949	328.50	Colusa, Sutter	SACRAMENTO RIVER
A006670	3654	1516	FEDORA FARMS INC Total	5/6/1930	587.60	Colusa, Sutter	SACRAMENTO RIVER
			Frank J. O'Brien Family Trust		1,463.60		
A014584	9188	5432	Frank J. O'Brien Family Trust Total	11/20/1951	1,681.40	Sutter	SACRAMENTO RIVER
			FRANK LAMB TRUST		1,527.30		
A013487	7835	7216	FRANK LAMB TRUST Total	11/29/1949	1,527.30	Tehama	SACRAMENTO RIVER
			GARY J RUMIANO		726.00		
A000018	29	2871	GARY J RUMIANO Total	5/3/2006	726.00		SACRAMENTO RIVER
			GLENN-COLUSA IRRIGATION DISTRICT		53,673.00	Yuba	
A001554	796	7208	GLENN-COLUSA IRRIGATION DISTRICT	12/3/1919	28,078.20	Glenn	SACRAMENTO RIVER
A001624	797	7209	GLENN-COLUSA IRRIGATION DISTRICT	1/14/1920	10,793.60	Glenn	SACRAMENTO RIVER
A008688	4795	5387	GLENN-COLUSA IRRIGATION DISTRICT	5/28/1936	674.38	Colusa	HUNTERS CREEK
A012125	8272	4340	GLENN-COLUSA IRRIGATION DISTRICT	10/8/1947	3,360.00	Colusa	STONE CORRAL CREEK
A023005	15687	10635	GLENN-COLUSA IRRIGATION DISTRICT	3/12/1968	415.00	Colusa	UNST
A030838	21101		GLENN-COLUSA IRRIGATION DISTRICT	2/18/1999	182,900.00	Glenn	SACRAMENTO RIVER
A001653	1248	439	GLENN-COLUSA IRRIGATION DISTRICT Total	2/5/1920	279,894.18		SACRAMENTO RIVER
			GREEN VALLEY CORPORATION A CA CORP		2,106.70	Colusa	
A011281	7288	5261	GREEN VALLEY CORPORATION A CA CORP Total	2/11/1946	2,106.70		SACRAMENTO RIVER
			HAMMOND RESERVOIR IRRIGATION ASSN		5,742.20	Siskiyou	NORTH FORK SACRAMENTO RIVER
A016219	10679	6531	HAMMOND RESERVOIR IRRIGATION ASSN	1/26/1955	348.00	Siskiyou	NORTH FORK SACRAMENTO RIVER
A006696	3589	3566	HAMMOND RESERVOIR IRRIGATION ASSN Total	6/12/1930	6,090.20		SACRAMENTO RIVER
			HAROLD ARMSTRONG		1,885.10	Colusa	
A003466	1552	646	HAROLD ARMSTRONG Total	6/5/1923	1,885.10		SACRAMENTO RIVER
			Heidrick & Heidrick Properties LP		345.20	Sutter	
			Heidrick & Heidrick Properties LP Total		345.20		SACRAMENTO RIVER

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A018154	14510	8798	HEIDRICK & MCGINNIS PROP LP	1/2/1969	484.00	Sutter	SACRAMENTO RIVER
			HEIDRICK & MCGINNIS PROP LP Total		484.00		
A006146	3234	1484	HENLE FAMILY LIMITED PARTNERSHIP	12/27/1928	3,503.70	Sutter	SACRAMENTO RIVER
			HENLE FAMILY LIMITED PARTNERSHIP Total		3,503.70		
A006418A	001799A		HENRY D RICHTER JR	6/20/1991	3,178.80	Sutter	SACRAMENTO RIVER
A013646	8156	7218	HENRY D RICHTER JR	3/22/1950	239.80	Yolo	SACRAMENTO RIVER
			HENRY D RICHTER JR Total		3,418.60		
A016361A	013861A		HERSHEY LAND COMPANY ROW CROP LLC	6/10/2002	4,195.00	Sutter, Yolo	COLUSA BASIN DRAINAGE CANAL, SACRAMENTO RIVER
			HERSHEY LAND COMPANY ROW CROP LLC Total		4,195.00		
A001765B	1111	000613B	HIATT DOWNER RANCH LLC	4/9/1920	1,697.90	Sutter	SACRAMENTO RIVER
A003290B	002827B		HIATT DOWNER RANCH LLC	7/27/1990	1,184.30	Sutter	SACRAMENTO RIVER
			HIATT DOWNER RANCH LLC Total		2,882.20		
A001617	1888	1407	JACK W BABER	3/20/1934	1,959.90	Colusa	SACRAMENTO RIVER
A002317A	1259	001130A	JAMES T MUNSON	2/4/1980	82.50	Sutter	SACRAMENTO RIVER
			JACK W BABER Total		82.50		
A012899	7681	3766	JOHN ZUPPAN	1/13/1949	275.20	Butte, Tehama	SACRAMENTO RIVER
A014447	8840	8011	JOHN ZUPPAN	8/27/1951	575.70	Tehama	SACRAMENTO RIVER
			JOHN ZUPPAN Total		850.90		
A017537	11071	5955	JOHN AND JANE FITZGERALD FAMILY REVOCABLE TRUST	4/2/1957	109.50	Sutter	OLD CHANNEL SACRAMENTO RIVER
			JOHN AND JANE FITZGERALD FAMILY REVOCABLE TRUST Total		109.50		
A003994	1850	651	Johnathan Tucker	1/13/1928	76.40	Glenn	SACRAMENTO RIVER
			Johnathan Tucker Total		76.40		
A007308	3980	1949	Joseph Alamo	6/29/1932	2,622.70	Colusa	SACRAMENTO RIVER
			Joseph Alamo Total		2,622.70		
A006418B	001799B		KENNETH L WALLACE	6/20/1991	1,127.70	Sutter	SACRAMENTO RIVER
A014728	9002	4951	KENNETH L WALLACE	3/24/1952	160.60	Sutter	SACRAMENTO RIVER
			KENNETH L WALLACE Total		1,288.30		
A014520	8928	5112	KENNETH R PYLMAN	10/15/1951	146.00	Yolo	SACRAMENTO RIVER
			KENNETH R PYLMAN Total		146.00		
A004364	2227	981	Knights Landing Investors LLC	12/13/1924	3,537.60	Sutter, Yolo	SACRAMENTO RIVER
			Knights Landing Investors LLC Total		3,537.60		
A006454	3388	1469	KRAMER RANCH	10/8/1929	474.50	Yolo	SACRAMENTO RIVER
			KRAMER RANCH Total		474.50		
A013667B	8303	11188	LAKE CALIFORNIA PROPERTY OWNERS ASSN INC	3/26/1982	1,220.00	Tehama	SACRAMENTO RIVER
A023140	16056	11186	LAKE CALIFORNIA PROPERTY OWNERS ASSN INC	9/23/1968	985.00	Tehama	SACRAMENTO RIVER
			LAKE CALIFORNIA PROPERTY OWNERS ASSN INC Total		2,205.00		
A004501	2285	1728	LAWRENCE SCHNEIDER AND RUTH SCHNEIDER FAMILY REV TRUST	4/19/1937	73.40	Yolo	SACRAMENTO RIVER
A012803	7563	4098	LAWRENCE SCHNEIDER AND RUTH SCHNEIDER FAMILY REV TRUST	11/17/1948	110.90	Yolo	SACRAMENTO RIVER
			LAWRENCE SCHNEIDER AND RUTH SCHNEIDER FAMILY REV TRUST Total		184.30		

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A000882A	429	001205A	LEE W RICHTER	12/30/1982	336.90	Sutter	SACRAMENTO RIVER
			LEE W RICHTER Total		336.90		
A001074A	591	004676A	LOMO COLD STORAGE A CAL GEN PARTNERSHIP	9/10/1918	1,951.80	Sutter	SACRAMENTO RIVER
A004613	2347	940	LOMO COLD STORAGE A CAL GEN PARTNERSHIP	11/28/1955	212.20	Sutter	SACRAMENTO RIVER
A004699	2364	1154	LOMO COLD STORAGE A CAL GEN PARTNERSHIP	3/21/1932	670.40	Sutter	SACRAMENTO RIVER
A006486	3615	4168	LOMO COLD STORAGE A CAL GEN PARTNERSHIP	11/14/1929	20,255.50	Sutter	SACRAMENTO RIVER
			LOMO COLD STORAGE A CAL GEN PARTNERSHIP Total		23,089.90		
A007232	3903	1651	LORNA KELSO	4/7/1932	64.10	Yolo	SACRAMENTO RIVER
			LORNA KELSO Total		64.10		
A003700	1633	1458	LOUISE A MARTIN-KOBELLAS	10/31/1923	558.70	Sutter	SACRAMENTO RIVER
			LOUISE A MARTIN-KOBELLAS Total		558.70		
A002707	1162	1729	M & H REALTY PARTNERS VI L P	12/29/1921	305.50	Sacramento	SACRAMENTO RIVER
			M & H REALTY PARTNERS VI L P Total		305.50		
A008213	4516	2618	M & T INCORPORATED	1/15/1935	1,450.00	Butte	SACRAMENTO RIVER
			M & T INCORPORATED Total		1,450.00		
A007641D2		006389D 2	MARIA JOHN NICHOLAS KELLY RANCH LLC	1/5/2001	761.00	Sutter	SACRAMENTO RIVER
A012120	7127	4666	MARIA JOHN NICHOLAS KELLY RANCH LLC Total	10/7/1947	761.00		
			MARIETTE B HOLLINS Total		387.80	Colusa	SACRAMENTO RIVER
A008631	5128	7210	MAXWELL IRRIGATION DISTRICT	4/8/1936	28,990.80	Colusa	SACRAMENTO RIVER
A030445	21004		MAXWELL IRRIGATION DISTRICT	2/17/1995	13,630.00	Colusa	COLUSA BASIN DRAIN, LURLINE CREEK, SACRAMENTO RIVER, STONE CORRAL CREEK
A011956	8266	4586	MAXWELL IRRIGATION DISTRICT	6/24/1947	2,596.36	Colusa	RECLAMATION DISTRICT 2047 MAIN DRAIN
A014378	8808	4523	MAXWELL IRRIGATION DISTRICT	6/28/1951	1,636.36	Colusa	LATERAL DRAIN OF RECLAMATION DISTRICT 2047
A011955	8265	4643	MAXWELL IRRIGATION DISTRICT	6/24/1957	4,720.66	Colusa	RECLAMATION DISTRICT 2047 MAIN DRAIN
A011597	8267	4644	MAXWELL IRRIGATION DISTRICT	6/24/1957	22,085.95	Colusa	LOGAN AND HUNTER CREEK, AND RECLAMATION DISTRICT 2047 MAIN DRAIN CANAL
A011958	8268	4694	MAXWELL IRRIGATION DISTRICT	6/24/1957	5,226.45	Colusa	STONE CORRAL CREEK
A013919	9042	5692	MAXWELL IRRIGATION DISTRICT	8/25/1950	4,946.78	Colusa	LURLINE CREEK
A030445	21004		MAXWELL IRRIGATION DISTRICT	5/30/1995	13,630.00	Colusa	SACRAMENTO RIVER, COLUSA BASIN DRAIN, STONE CORRAL CREEK, LURLINE CREEK
			MAXWELL IRRIGATION DISTRICT Total		97,463.36		
A015150	9391	4775	MCM PROPERTIES, A CALIF CORP	1/12/1953	1,094.90	Sutter	SACRAMENTO RIVER
A015152	9393	4776	MCM PROPERTIES, A CALIF CORP	1/12/1953	474.50	Sutter	SACRAMENTO RIVER
			MCM PROPERTIES, A CALIF CORP Total		1,569.40		

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A001074B	591	004676B	MERIDIAN FARMS WATER CO	9/10/1918	67,335.90	Sutter	SACRAMENTO RIVER
A007641B	4215	006389B	MERIDIAN FARMS WATER CO Total		67,335.90		
A004355A			MERILYN C SCHEIDEL	8/4/1933	3,484.60	Sutter	SACRAMENTO RIVER
A007598	4220	1693	MERILYN C SCHEIDEL Total		3,484.60		
A015811	9814	5407	MICHAEL E LONON	6/9/2000	822.00	Sutter	SACRAMENTO RIVER
A004367	2012	1394	MICHAEL E LONON Total		822.00		
A000534	247	1050	MILDRED HEIDRICK	6/23/1933	447.70	Yolo	SACRAMENTO RIVER
A001056	511	2814	MILDRED HEIDRICK Total		447.70		
A001203	580	3109	Moore Bros.	3/31/1954	794.20	Colusa	SACRAMENTO RIVER
A001413	1129	3110	Moore Bros. Total		794.20		
A015572	15150	9794	Narusuke Monguchi	12/15/1924	161.50	Yolo	SACRAMENTO RIVER UNDERFLOW
A007641D1			Narusuke Monguchi Total		161.50		
A022309	15314	9989	NATOMAS CENTRAL MUTUAL WATER CO	5/28/1931	15,394.20	Sacramento, Sutter	NATOMAS CROSS CANAL, SACRAMENTO RIVER
A025727	19400	511	NATOMAS CENTRAL MUTUAL WATER CO	8/22/1918	16,205.20	Sutter	NATOMAS CROSS CANAL, SACRAMENTO RIVER
A000880B	418	002820B	NATOMAS CENTRAL MUTUAL WATER CO	3/5/1919	58,394.20	Sacramento, Sutter	NATOMAS CROSS CANAL, SACRAMENTO RIVER
A000880C	418	002820C	NATOMAS CENTRAL MUTUAL WATER CO	8/27/1919	36,655.10	Sacramento, Sutter	NATOMAS CROSS CANAL, SACRAMENTO RIVER
A003290A	6377	3242	NATOMAS CENTRAL MUTUAL WATER CO	10/8/1953	11,846.00	Sacramento, Sutter	NATOMAS CROSS CANAL, SACRAMENTO RIVER
A010951	8137	3835	NATOMAS CENTRAL MUTUAL WATER CO	10/8/1965	2,627.00	Sacramento, Sutter	RECLAMATION DISTRICT 1000 EAST DRAIN, RECLAMATION DISTRICT 1000 WEST DRAIN, RECLAMATION DISTRICT 1000 MAIN DRAIN
A013590	1111	000613A	NATOMAS CENTRAL MUTUAL WATER CO	2/7/1985	10,000.00	Sacramento, Sutter	NATOMAS CROSS CANAL, RD 1000 EAST DRAIN, RD 1000 MAIN DRAIN, RD 1000 WEST DRAIN, SACRAMENTO RIVER
A001765A	007268B	008547B	NATOMAS CENTRAL MUTUAL WATER CO Total		151,121.70		
A012470B	007268B	008547B	NICOLI G NICHOLAS	1/5/2001	761.00	Sutter	SACRAMENTO RIVER
			NICOLI G NICHOLAS Total		761.00		
			OJI BROTHERS, A CO-PARTNERSHIP	3/6/1946	636.60	Sutter	SACRAMENTO RIVER
			OJI BROTHERS, A CO-PARTNERSHIP	1/3/1918	1,880.70	Sutter	SACRAMENTO RIVER
			OJI BROTHERS, A CO-PARTNERSHIP	7/27/1990	3,985.80	Sutter	SACRAMENTO RIVER
			OJI BROTHERS, A CO-PARTNERSHIP	1/11/1945	2,854.00	Sutter	SACRAMENTO RIVER
			OJI BROTHERS, A CO-PARTNERSHIP	2/20/1950	1,047.50	Sutter	SACRAMENTO RIVER
			OJI BROTHERS, A CO-PARTNERSHIP Total		10,404.60		
			PELGER MUTUAL WATER COMPANY	3/13/1972	1,697.90	Sutter	SACRAMENTO RIVER
			PELGER MUTUAL WATER COMPANY	4/13/1948	22,815.20	Sutter	SACRAMENTO RIVER

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A030410	20933		PELGER MUTUAL WATER COMPANY	9/16/1994	5,000.00	Sutter	SACRAMENTO RIVER
A000882B	429	001205B	PELGER MUTUAL WATER COMPANY Total PHIL KNOX LEISER TRUST PHIL KNOX LEISER TRUST Total	12/30/1982	29,513.10 307.10 307.10	Sutter	SACRAMENTO RIVER
A000244	463	2646	PRINCETON-CODORA-GLENN IRRIGATION DISTRICT	12/17/2001	50,936.30	Glenn	SACRAMENTO RIVER
A000770	464	4161	PRINCETON-CODORA-GLENN IRRIGATION DISTRICT	12/17/2001	20,936.30	Glenn	SACRAMENTO RIVER
A017066	13869	8989	PRINCETON-CODORA-GLENN IRRIGATION DISTRICT	5/2/1956	15,074.38	Colusa, Glenn	COLUSA BASIN DRAIN
A030812	21132		PRINCETON-CODORA-GLENN IRRIGATION DISTRICT	11/19/1998	24,370.00	Colusa, Glenn	COLUSA BASIN DRAIN, SACRAMENTO RIVER
A000462	303	7205	PRINCETON-CODORA-GLENN IRRIGATION DISTRICT Total PROVIDENT IRRIGATION DISTRICT	2/27/2001	111,316.98 88,000.00	Glenn	COLUSA DRAIN, DRAIN NO 13, DRAIN NO 55, SACRAMENTO RIVER, UNDR, WILLOW CREEK
A000640	304	7206	PROVIDENT IRRIGATION DISTRICT	2/27/2001	36,496.00	Glenn	COLUSA DRAIN, DRAIN NO 13, DRAIN NO 55, SACRAMENTO RIVER, UNDR, WILLOW CREEK
A000892	416	7207	PROVIDENT IRRIGATION DISTRICT	1/18/1918	40,146.00	Glenn	COLUSA DRAIN, DRAIN 13, DRAIN NO 55, SACRAMENTO RIVER, UNDR, WILLOW CREEK
A001422	847	1109	PROVIDENT IRRIGATION DISTRICT	9/2/1919	3,371.90	Glenn	COLUSA DRAIN
A030813	21133		PROVIDENT IRRIGATION DISTRICT	11/19/1998	26,747.00	Glenn	COLUSA BASIN DRAIN, DRAIN NO 13, DRAIN NO 55, SACRAMENTO RIVER, UNDR, WILLOW'S CREEK
A004226	2024	2790	PROVIDENT IRRIGATION DISTRICT Total PURHIRAN FARMS LLC PURHIRAN FARMS LLC Total	6/28/1945	194,760.90 525.40 525.40	Yolo	SACRAMENTO RIVER
A018062	14507	8795	QUAD H RANCHES, INC	1/2/1969	307.70	Sutter	SACRAMENTO RIVER
A004372	2017	1393	QUAD H RANCHES, INC Total R W ROSE	12/15/1924	307.70 80.70	Yolo	SACRAMENTO RIVER
A010408	6118	2966	R W ROSE Total RALPH BECKLEY	3/18/1942	80.70 549.30	Colusa	SACRAMENTO RIVER
A004355B	002881B		RALPH BECKLEY Total RAY E AND JANICE R ANDERSON FAMILY TRUST	6/9/2000	549.30 286.40	Sutter	SACRAMENTO RIVER
A015151	9392	5596	RAY E AND JANICE R ANDERSON FAMILY TRUST Total Rebekah Leiser	1/12/1953	286.40 36.70 36.70	Sutter	SACRAMENTO RIVER
A000027	31	3165	RECLAMATION DISTRICT #1004	4/2/1915	56,000.00	Colusa, Glenn	SACRAMENTO RIVER
A023201	16771		RECLAMATION DISTRICT #1004	12/26/1968	21,000.00	Colusa	SACRAMENTO RIVER

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RECLAMATION DISTRICT #1004 Total							
A000576	315	3065	RECLAMATION DISTRICT #108	1/25/1917	77,000.00	Colusa, Yolo	SACRAMENTO RIVER
A000763	388	3066	RECLAMATION DISTRICT #108	8/27/1917	270,747.80	Colusa, Yolo	SACRAMENTO RIVER
A001589	1885	3067	RECLAMATION DISTRICT #108	2/24/1950	77,968.40	Colusa, Yolo	SACRAMENTO RIVER
A011899	8251	7060	RECLAMATION DISTRICT #108	5/26/1947	27,371.90	Colusa	BACK LEVEE BORROW PIT OF RECLAMATION DISTRICT NO. 108 (COLUSA BASIN DRAIN) SACRAMENTO RIVER
A031436	21274		RECLAMATION DISTRICT #108 RECLAMATION DISTRICT #108 Total	10/18/2010	36,000.00 509,557.30	Colusa	ELK SLOUGH, MINER SLOUGH, SACRAMENTO RIVER, SACRAMENTO RIVER DEEP WATER SHIP CHANNEL, SUTTER SLOUGH
A001666	884	1301	RECLAMATION DISTRICT #999	2/11/1920	58,394.20	Solano, Yolo	SACRAMENTO RIVER DEEP WATER SHIP CHANNEL
A004099	1890	1302	RECLAMATION DISTRICT #999	4/1/1966	1,472.30	Yolo	SACRAMENTO RIVER DEEP WATER SHIP CHANNEL
A004100	1891	1303	RECLAMATION DISTRICT #999	4/1/1966	34,174.80	Solano, Yolo	ELK SLOUGH, MINER SLOUGH, SACRAMENTO RIVER, SACRAMENTO RIVER DEEP WATER SHIP CHANNEL, SUTTER SLOUGH
A004101	1892	1304	RECLAMATION DISTRICT #999	7/18/1924	3,909.90	Yolo	SACRAMENTO RIVER, SACRAMENTO RIVER DEEP WATER SHIP CHANNEL
RECLAMATION DISTRICT #999 Total							
A020087	13942	9643	RICHARD SWIERSTRA	4/17/1961	97,951.20	Tehama	SACRAMENTO RIVER
A018061	14506	8794	RICHARD & SANDRA GIUSTI FAMILY TRUST DATED 8/13/90 RICHARD & SANDRA GIUSTI FAMILY TRUST DATED 8/13/90 Total	1/2/1969	45.10 45.10 307.70	Sutter	SACRAMENTO RIVER
A000575	314	1718	RIVER GARDEN FARMS COMPANY	1/25/1917	15,550.60	Yolo	SACRAMENTO RIVER
A000577	316	3123	RIVER GARDEN FARMS COMPANY	1/25/1917	13,745.70	Yolo	SACRAMENTO RIVER
A011910	8258	4636	RIVER GARDEN FARMS COMPANY RIVER GARDEN FARMS COMPANY Total	5/29/1947	6,331.24 35,627.54	Yolo	KNIGHTS LANDING RIDGE CUT, SACRAMENTO RIVER
A013239	7849	5140	RIVER MAID LAND LTD	7/19/1949	63.40	Sacramento	SACRAMENTO RIVER
RIVER MAID LAND LTD Total							
A007641C	4215	006389C	RIVER RANCH PARTNERSHIP	8/4/1933	63.40	Sutter	SACRAMENTO RIVER
A002317C	1259	001130C	ROBERTA SCHREINER	2/4/1980	2,795.00	Sutter	SACRAMENTO RIVER
A003201	2172	1060	ROGER L MATTEOLI ROBERTA SCHREINER Total	12/27/1922	36.70 131.40	Yolo	SACRAMENTO RIVER

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A014836	9153	5437	ROGER L MATTEOLI Total SACRAMENTO & SAN JOAQUIN DRAINAGE DISTRICT	6/2/1952	131.40 277.70	Sutter	SACRAMENTO RIVER
A030454	21209		SACRAMENTO & SAN JOAQUIN DRAINAGE DISTRICT Total SACRAMENTO COUNTY WATER AGENCY	2/15/2008	71,000.00	Sacramento	SACRAMENTO RIVER
A003423	1646	9994	SACRAMENTO COUNTY WATER AGENCY Total SACRAMENTO RIVER RANCH II LLC	5/17/1923	71,000.00 2,646.00	Yolo	KNIGHTS LANDING RIDGE CUT, SACRAMENTO RIVER
A004901	2514	9995	SACRAMENTO RIVER RANCH II LLC	3/1/1973	9,338.30	Yolo	KNIGHTS LANDING RIDGE CUT, SACRAMENTO RIVER
A004902	2515	9996	SACRAMENTO RIVER RANCH II LLC	3/1/1973	3,446.70	Yolo	KNIGHTS LANDING RIDGE CUT, SACRAMENTO RIVER
A005359	2811	9997	SACRAMENTO RIVER RANCH II LLC	2/17/1927	1,808.20	Yolo	KNIGHTS LANDING RIDGE CUT, SACRAMENTO RIVER
A004351	2098	1200	SACRAMENTO RIVER RANCH II LLC Total SACRAMENTO RIVER RANCH LLC	12/4/1924	17,239.20 113.00	Sutter, Yolo	SACRAMENTO RIVER
A001060	512	1187	SACRAMENTO RIVER RANCH LLC Total SIDDIQI FAMILY PARTNERSHIP	8/28/1918	113.00 98.50	Sacramento	SACRAMENTO RIVER
A001094	518	570	SIDDIQI FAMILY PARTNERSHIP	9/26/1918	1,198.70	Sacramento	SACRAMENTO RIVER
A003200	2171	1653	SIDDIQI FAMILY PARTNERSHIP Total STOUX CREEK PROPERTY LLC	12/27/1922	1,297.20 351.30	Sutter	SACRAMENTO RIVER
A005696	2931	1157	STOUX CREEK PROPERTY LLC	9/16/1927	311.60	Sutter	SACRAMENTO RIVER
A022503	15151	9726	STOUX CREEK PROPERTY LLC Total SISKIYOU COUNTY F C & W C D	6/22/1966	662.90 26,000.00	Siskiyou	SACRAMENTO RIVER
A023016	15992		SISKIYOU COUNTY F C & W C D	4/3/1968	14.00	Siskiyou	SCOTT CAMP CREEK
A024354	18371	12062	SISKIYOU COUNTY F C & W C D	6/20/1986	25.00	Siskiyou	LITTLE CASTLE CREEK
A013658	8302	6169	SISKIYOU COUNTY F C & W C D Total SMITH RANCHES AND WOOD ORCHARD	3/29/1950	26,039.00 478.10	Tehama	SACRAMENTO RIVER
A006726	3621	4541	SMITH RANCHES AND WOOD ORCHARD	7/10/1930	478.10		SACRAMENTO RIVER
A011450	6726	4542	STEVE TARKE	6/27/1946	1,824.80	Sutter	SACRAMENTO RIVER
A000230A	204	001788A	STEVE TARKE Total STEVEN J RUDEK	1/10/1916	2,919.70	Sutter	SACRAMENTO RIVER
A014205	8767	4390	STEVEN J RUDEK	3/20/1951	4,744.50 484.00	Colusa	SACRAMENTO RIVER
A005160B	002649B	001183B	STEVEN J RUDEK Total SUTTER BASIN GROWERS COOPERATIVE	8/18/1926	1,277.40 1,761.40	Sutter	SACRAMENTO RIVER
A000581	287	2817	SUTTER BASIN GROWERS COOPERATIVE Total SUTTER MUTUAL WATER COMPANY	2/1/1917	182.50 182.50	Sutter	SACRAMENTO RIVER
A000878	419	2818	SUTTER MUTUAL WATER COMPANY	1/3/1918	21,868.10	Sutter	SACRAMENTO RIVER
A000879	420	2819	SUTTER MUTUAL WATER COMPANY	1/3/1918	56,721.00	Sutter	SACRAMENTO RIVER
A000880A	418	002820A	SUTTER MUTUAL WATER COMPANY	1/3/1918	12,270.40	Sutter	SACRAMENTO RIVER
A001160	569	2822	SUTTER MUTUAL WATER COMPANY	1/3/1918	196,725.30	Sutter	SACRAMENTO RIVER
A001758	1103	552	SUTTER MUTUAL WATER COMPANY	1/24/1919	19,681.30	Sutter	SACRAMENTO RIVER
				4/9/1920	636.70	Sutter	SACRAMENTO RIVER

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A001763	1108	1110	SUTTER MUTUAL WATER COMPANY	4/9/1920	916.40	Sutter	SACRAMENTO RIVER
A001769	1117	547	SUTTER MUTUAL WATER COMPANY	6/22/1926	3,255.10	Sutter	SACRAMENTO RIVER
A001772	1120	657	SUTTER MUTUAL WATER COMPANY	1/31/1928	94.70	Sutter	SACRAMENTO RIVER
A003195	2169	882	SUTTER MUTUAL WATER COMPANY	11/30/1929	585.80	Sutter	SACRAMENTO RIVER
A007886	4354	2240	SUTTER MUTUAL WATER COMPANY	3/29/1934	3,121.60	Sutter	SACRAMENTO RIVER
A009760	5510	2821	SUTTER MUTUAL WATER COMPANY	11/3/1939	180,994.40	Sutter	SACRAMENTO RIVER
A010658	6189	2823	SUTTER MUTUAL WATER COMPANY	6/16/1943	3,654.40	Sutter	SACRAMENTO RIVER
A011953	7194	4562	SUTTER MUTUAL WATER COMPANY	6/23/1947	2,737.20	Sutter	SACRAMENTO RIVER, WEST BORROW PIT SUTTER BYPASS
A012470A	007268A	008547A	SUTTER MUTUAL WATER COMPANY	4/13/1948	15,309.70	Sutter	SACRAMENTO RIVER
A016677	13867	8220	SUTTER MUTUAL WATER COMPANY	9/7/1967	2,038.10	Sutter	SACRAMENTO RIVER
A013667A	8303	11187	SUTTER MUTUAL WATER COMPANY Total SUZANNE GOELET	3/26/1982	520,610.20	Tehama	SACRAMENTO RIVER
A001659	1981	8129	Sycamore Mutual Water Company	2/9/1920	410.00	Colusa	SACRAMENTO RIVER
A012412	8277	4056	Sycamore Mutual Water Company	3/17/1948	42,521.20	Colusa	R D 2047 MAIN CANAL
A013000	8285	5796	Sycamore Mutual Water Company	3/25/1949	2,189.75	Colusa	R D 2047 MAIN CANAL
A013001	8285	7062	Sycamore Mutual Water Company	3/25/1949	1,824.79	Colusa	R D 2047 MAIN CANAL
A013002	8285	4057	Sycamore Mutual Water Company	3/25/1949	98.54	Colusa	R D 2047 MAIN CANAL
A018372	14514	9977	Sycamore Mutual Water Company	12/22/1972	364.96	Colusa	R D 2047 MAIN CANAL
A014789	9069	7219	Sycamore Mutual Water Company Total THOMAS L NELSON & HAZEL M NELSON TRUST	5/1/1952	1,013.00	Colusa	SACRAMENTO RIVER
A007641D3	006389D	3	THOMAS L NELSON & HAZEL M NELSON TRUST Total THOMAS S ATKINSON II	1/5/2001	656.70	Sutter	SACRAMENTO RIVER
A000742	382	1211	THOMAS S ATKINSON II Total TISDALE IRRIGATION & DRAINAGE CO	7/26/1917	761.00	Sutter	SACRAMENTO RIVER
A016985	13868	9335	TISDALE IRRIGATION & DRAINAGE CO	4/3/1956	12,473.70	Sutter	SACRAMENTO RIVER
A009169	5099	2695	TISDALE IRRIGATION & DRAINAGE CO Total TOWNE ENTERPRISES	11/3/1937	1,350.00	Sutter	SACRAMENTO RIVER
A016168	14505	10001	TOWNE ENTERPRISES Total TRILOGY HOMES INC	12/6/1954	13,823.70	Sacramento	SACRAMENTO RIVER
A005625	12720	U.S.	TRILOGY HOMES INC Total BUREAU OF RECLAMATION	7/30/1927	386.90	Sacramento	SACRAMENTO RIVER
A005626	12721	U.S.	BUREAU OF RECLAMATION CONTRA COSTA, GLEN, SACRAMENTO, SHASTA, TEHAMA	4/12/1961	1,450.00	Shasta	SACRAMENTO RIVER
					7,998,004.00	Glenn, Sacramento, Shasta, Tehama	OLD RIVER, SACRAMENTO RIVER

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A009363	12722		U.S. BUREAU OF RECLAMATION	4/12/1961	1,033,977.50	Contra Costa, Sacramento, San Joaquin, Shasta, Tehama	OLD RIVER, SACRAMENTO RIVER, Victoria Canal
A009364	12723		U.S. BUREAU OF RECLAMATION	8/2/1938	7,818,797.50	Contra Costa, Sacramento, San Joaquin, Shasta, Tehama	OLD RIVER, SACRAMENTO RIVER, Victoria Canal
A006527	3597	2145	U.S. BUREAU OF RECLAMATION Total VAN RUITEN BROS	1/8/1930	28,004,531.50 1,094.90	Sutter, Yolo	SACRAMENTO RIVER
A000771	389	4160	W.A. YERXA	9/5/1917	9,084.40	Colusa	SACRAMENTO RIVER
A015711	9751	5593	W.A. YERXA Total WALLACE L EDSON	2/2/1954	9,084.40 142.70	Sutter	OLD RIVER, SACRAMENTO RIVER
A002317B	1259	001130B	WAYMON LYNCH	2/4/1980	30.60	Sutter	SACRAMENTO RIVER
A004369	2014	1331	WAYMON LYNCH Total WILLIAM J CORREA	12/15/1924	44.00	Sacramento	SACRAMENTO RIVER
A002884	1347	968	WILLIAM P LOCKETT	6/17/1922	116.10	Sutter	SACRAMENTO RIVER
A005160A	2649	001183A	WILLIAM P LOCKETT	8/18/1926	365.00	Sutter	SACRAMENTO RIVER
A028238	20073	13351	WILLIAM P LOCKETT Total WILLOW CREEK MUTUAL WATER CO	9/7/1984	5,000.00	Glenn	SACRAMENTO RIVER
A008141	4459	2631	WILLOW CREEK MUTUAL WATER CO Total WILSON RANCH PARTNERSHIP	10/24/1934	5,000.00 2,717.40	Yolo	SACRAMENTO RIVER
A003247	1695	4255	WILSON RANCH PARTNERSHIP Total WINDSWEPT LAND AND CATTLE COMPANY	3/21/1956	2,717.40 3,209.00	Sutter, Yolo	SACRAMENTO RIVER
A004257	2066	1939	WINDSWEPT LAND AND CATTLE COMPANY Total Woodland Development Company, LLC	4/6/1939	666.50	Yolo	SACRAMENTO RIVER
A030358	20281		Woodland Development Company, LLC Total Woodland-Davis Clean Water Agency	4/14/2011	666.50 45,000.00	Yolo	SACRAMENTO RIVER
A013031	7461	4721	Woodland-Davis Clean Water Agency Total Yolo Land Trust	4/18/1949	45,000.00 1,011.60	Yolo	SACRAMENTO RIVER
A014619	8957	11038	Yolo Land Trust Total ZUMWALT MUTUAL WATER COMPANY	1/14/1952	63.00	Colusa	SACRAMENTO RIVER
			ZUMWALT MUTUAL WATER COMPANY Total Grand Total		63.00 33,492,590.01		

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A020496	13915	8274	ALEX NACCARATO	11/15/61	13.00			Tuolumne	OWL CREEK
A029917	20928		ALEX NACCARATO	3/14/91	20.00			Tuolumne	OWL CREEK
			ALEX NACCARATO Total		33.00				
A018809	12223	6502	ALMA A RYALS	6/18/59	1.10			Tuolumne	UNSP
			ALMA A RYALS Total		1.10				
A016295	10192	10158	BEAR VALLEY HOMEOWNERS ASSOCIATION	4/1/55	2.50			Alpine	UNSP
A022290	15190	10159	BEAR VALLEY HOMEOWNERS ASSOCIATION	9/17/65	1.30			Alpine	UNSP
A022291	15449	10160	BEAR VALLEY HOMEOWNERS ASSOCIATION	9/17/65	3.20			Alpine	UNSP
A029813	20542	13866	BEAR VALLEY HOMEOWNERS ASSOCIATION	8/20/12	7.80			Alpine	UNSP
			BEAR VALLEY HOMEOWNERS ASSOCIATION Total		14.80				
A018366	12170	7514	BERNICE JANE BOTTOMLEY	10/9/58	47.00			Calaveras	CARSON CREEK
			BERNICE JANE BOTTOMLEY Total		47.00				
A012550	7440	4929	BLUE LAKE SPRINGS HOMEOWNERS ASSOCIATION	6/16/48	45.00			Calaveras	MORAN CREEK
A014576	9049	4698	BLUE LAKE SPRINGS HOMEOWNERS ASSOCIATION	11/13/51	51.20			Calaveras	MORAN CREEK
			BLUE LAKE SPRINGS HOMEOWNERS ASSOCIATION Total		96.20				
A027131	18603	12280	BRETT D THOMSON	12/2/81	1.00			Calaveras	UNST
			BRETT D THOMSON Total		1.00				
A011792B	15013		CALAVERAS COUNTY WATER DISTRICT	3/24/47	78,500.00			Calaveras, Tuolumne	HIGHLAND CREEK, NORTH FORK STANISLAUS RIVER
A012911	15016		CALAVERAS COUNTY WATER DISTRICT	1/25/49	368,091.00			Calaveras, Tuolumne	HIGHLAND CREEK, NORTH FORK STANISLAUS RIVER
A012912	15017		CALAVERAS COUNTY WATER DISTRICT	1/25/49	3,373.90			Tuolumne	NORTH FORK STANISLAUS RIVER
A012912A	14769		CALAVERAS COUNTY WATER DISTRICT	1/25/49	1,446.00			Tuolumne	NORTH FORK STANISLAUS RIVER
A013091	15018		CALAVERAS COUNTY WATER DISTRICT	5/13/49	63,000.00			Tuolumne	HIGHLAND CREEK
A013092	15019		CALAVERAS COUNTY WATER DISTRICT	5/13/49	63,000.00			Tuolumne	HIGHLAND CREEK
A013093	15020		CALAVERAS COUNTY WATER DISTRICT	5/13/49	50,050.00			Alpine, Tuolumne	HIGHLAND CREEK, NORTH FORK STANISLAUS RIVER
A018727	15021		CALAVERAS COUNTY WATER DISTRICT	5/20/59	506,809.30			Tuolumne	SEASER CREEK, NORTH FORK STANISLAUS RIVER
A019148	15023		CALAVERAS COUNTY WATER DISTRICT	12/23/59	732,538.90			Alpine, Tuolumne	SEASER CREEK, HIGHLAND CREEK, NORTH FORK STANISLAUS RIVER
A019149	15024		CALAVERAS COUNTY WATER DISTRICT	12/23/59	50,050.00			Alpine, Tuolumne	HIGHLAND CREEK, NORTH FORK STANISLAUS RIVER
A018148	11642	6479	CALAVERAS COUNTY WATER DISTRICT	5/22/58	1,916,859.10			Calaveras	SAWMILL CREEK
A030100	20788		CASTLE & COOKE CALIFORNIA INC	4/8/92	98.00			Calaveras	SAW MILL CREEK
A014898	9610	4993	CEDAR RIDGE IMPROVEMENT ASSOCIATION	7/9/52	27.50			Tuolumne	FIVEMILE CREEK
A018514	12003	9773	CEDAR RIDGE IMPROVEMENT ASSOCIATION	1/30/59	15.00			Tuolumne	UNSP (3)
			CEDAR RIDGE IMPROVEMENT ASSOCIATION Total		42.50				
A004895	2599	1308	CLIFFORD D CHENEY	1/26/26	3.40			Tuolumne	UNSP
A021647	14633	9120	COLD SPRINGS WATER COMPANY INC	2/20/64	106.00			Tuolumne	UNST
A019732	13038	8088	DANA KAUFFMANN	9/8/60	29.00			Tuolumne	KNIGHT CREEK
A018808	12222	6501	DAVE D FICKEL	6/18/59	29.00			Tuolumne	UNSP
A020819	13802	10299	DAVIES PROPERTIES	6/14/62	6.40			Calaveras	LOVE CREEK
A016982	10614	5887	Donald Paul Deshon	4/2/56	6.00			Tuolumne	UNST
A019168	12437	7468	EARL D GARRISON	1/4/60	6.00			Calaveras	UNST
A012659	7486	4989	ESTATE OF E ALFORD	8/19/48	24.00			Calaveras	LOVE CREEK
A021338	14498	10248	Eureka Valley LLC	5/9/74	15.00			Tuolumne	UNST
A025335	17026	11288	GEORGE A ATHONTON	4/21/77	32.00			Tuolumne	SOUTH FORK WILDCAT CREEK

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A017554	11689	8666	GEORGE A ATHERTON Total		32.00				
			GERALD B ENGLER	4/18/57	25.00			Tuolumne	MORMON CREEK
A015583	9715	6899	GERALD B ENGLER Total		25.00				
			GREENHORN CREEK ASSOCIATES L P	10/23/53	45.00			Calaveras	UNXX
A029013	21114		GREENHORN CREEK ASSOCIATES L P Total		45.00				
			GUADALUPE RAMIREZ	4/23/87	18.00			Calaveras	LOVE CREEK
A009620	5396	5298	GUADALUPE RAMIREZ Total		18.00				
			IRVING M TERZICH	6/19/39	426.50			Tuolumne	EAGLE CREEK
A022343	15266	9934	IRVING M TERZICH Total		7.00				
			JANICE M ZUKAL	11/24/65	7.00			Tuolumne	MINE TUNNEL
A019307	12552	7663	JANICE M ZUKAL Total		14.10				
			JEFF R WILSON	3/14/60	14.10			Tuolumne	UNST
A021779	15162	10782	JEFF R WILSON Total		14.10				
			JEROME P SOLARI	5/19/64	22.50			Tuolumne	DEADMAN GULCH
A018573	11984	6635	JEROME P SOLARI Total		22.50				
			JOANNA VIDITO	3/9/59	4.00			Tuolumne	UNST
A025626	17480	11277	JOANNA VIDITO Total		4.00				
			JOHN WILLIAMS RANCH INC	12/30/77	11.00			Stanislaus	UNST
A020041	13786	9752	JOHN WILLIAMS RANCH INC Total		11.00				
			JON H JANOFISKI	3/17/61	20.00			Calaveras	PENNY CREEK
A013517	8095	4279	JON H JANOFISKI Total		20.00				
			JON V FELLIS	12/27/49	33.00			Calaveras	UNST
A019469	16009	10448	JON V FELLIS Total		33.00				
			JOSEPH W MARTIN JR	6/2/60	9.60			Tuolumne	ANDREWS CREEK
A018574	11985	7360	JOSEPH W MARTIN JR Total		8.60				
			KAREN REESE	3/9/59	48.00			Tuolumne	GREEN SPRING RUN
A021149	14736	8849	KAREN REESE Total		48.00				
			KATHARINE K STEVENS	2/4/63	2.00			Tuolumne	UNSP
A011661	6863	4230	KATHARINE K STEVENS Total		2.00				
			KATHERINE R REID	12/16/46	36.90			Tuolumne	EAGLE CREEK
A020312	13903	10840	KATHERINE R REID Total		36.90				
			LAKE ALPINE WATER COMPANY	7/21/61	42.00			Alpine	UNSP
A021485	14541	11007	LAKE ALPINE WATER COMPANY		1079/63			Alpine	BEAR CREEK
A005648G	21237		LAKE ALPINE WATER COMPANY		395.00			Alpine	BEAR CREEK
A020450	13818	12186	LAKE ALPINE WATER COMPANY Total		698.00				
			LELAND MEADOW WATER DISTRICT	10/24/61	2.30			Tuolumne	UNSP
A023195	16065	11345	LELAND MEADOW WATER DISTRICT		68.00				
A026373	18277	12187	LELAND MEADOW WATER DISTRICT		2.70			Tuolumne	LELAND CREEK
			LELAND MEADOW WATER DISTRICT Total		73.00				
A008919	4961	2482	LENORA HOLMES		0.20			Alpine	UNSP
A009217	5129	2483	LENORA HOLMES		0.20			Alpine	UNSP
A009851	5546	3153	LENORA HOLMES		0.70			Alpine	UNSP
A003602	1849	895	LENORA HOLMES Total		1.10				
			MATTHEW T BLOOM	4/17/03	0.30			Tuolumne	UNST
A015841	10169	6882	MATTHEW T BLOOM Total		0.30				
			MICHAEL P TRACY	4/23/07	18.00			Tuolumne	MORMON CREEK
A026084	18024	12790	MICHAEL P TRACY Total		18.00				
			MIKEL C WILLIAMS	9/6/79	0.50			Tuolumne	MORMON CREEK, UNST
A000077A	1303	9966	MIKEL C WILLIAMS Total		0.50				
			Northern California Power Agency		4,062.00			Tuolumne	HIGHLAND CREEK
A001081	2104	2012	Northern California Power Agency Total		4,062.00				
			OAKDALE IRRIGATION DISTRICT	9/20/18	96,195.00			Calaveras	STANISLAUS RIVER
A003091	1206	12385	OAKDALE IRRIGATION DISTRICT		7/30/27			Calaveras	MIDDLE FORK STANISLAUS RIVER
A005648A	13692	7856	OAKDALE IRRIGATION DISTRICT		80,000.00			Tuolumne	STANISLAUS RIVER
A010872	9360	3986	OAKDALE IRRIGATION DISTRICT		25,000.00			Calaveras	STANISLAUS RIVER
A010978	6448	7857	OAKDALE IRRIGATION DISTRICT		98,000.00			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A011105	9361	10166	OAKDALE IRRIGATION DISTRICT		64,500.00			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A012490	9362	10167	OAKDALE IRRIGATION DISTRICT		496,187.60			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A012614	9363	10167	OAKDALE IRRIGATION DISTRICT		354,091.00			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A012873	9364	7859	OAKDALE IRRIGATION DISTRICT		144,795.50			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A013309	9365	7860	OAKDALE IRRIGATION DISTRICT		1,165,966.30			Tuolumne	STANISLAUS RIVER
A013310	9366		OAKDALE IRRIGATION DISTRICT		1,303,159.50			Calaveras	STANISLAUS RIVER
A026791	19046		OAKDALE IRRIGATION DISTRICT						

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A031502	21188		OAKDALE IRRIGATION DISTRICT	8/30/07	50,000.00			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A031770	21299		OAKDALE IRRIGATION DISTRICT	4/25/12	506,000.00			Tuolumne	
			OAKDALE IRRIGATION DISTRICT Total		4,454,648.90				
A001339	668	1391	PACIFIC GAS AND ELECTRIC COMPANY	1/3/34	40,904.70			Tuolumne	SOUTH FORK STANISLAUS RIVER
A006129	3507	1541	PACIFIC GAS AND ELECTRIC COMPANY	12/4/28	3,919.00			Tuolumne	SOUTH FORK STANISLAUS RIVER
A006130	3508	1542	PACIFIC GAS AND ELECTRIC COMPANY	12/4/28	5,360.00			Tuolumne	SOUTH FORK STANISLAUS RIVER
A010122	6107	2862	PACIFIC GAS AND ELECTRIC COMPANY	2/19/41	115,836.40			Tuolumne	MIDDLE FORK STANISLAUS RIVER
A031405	21170		PACIFIC GAS AND ELECTRIC COMPANY	4/5/05	4,706.00			Tuolumne	SOUTH FORK STANISLAUS RIVER
			PACIFIC GAS AND ELECTRIC COMPANY Total		170,726.10				
A022245	15262	9709	PATRICIA D DAVEY	3/31/71	12.00			Tuolumne	UNST
A023320	16216	12444	PETER G VON DER LINDE	7/29/69	11.10			Tuolumne	UNNAMED MINE TUNNEL
A025177	17033	13451	RICHARD M GONZALES	10/20/76	10.00			Calaveras	YORK CREEK
A020416	13653	8499	RNE INVESTMENTS LLC	10/2/61	46.00			Calaveras	SAWMILL CREEK
A024335	16788	11194	ROSS A CARKEET JR	4/3/73	46.00			Tuolumne	UNSP
A013353	8073	10902	ROSS A CARKEET JR Total	9/14/49	1.50			Calaveras	UNSP
A024930	17704	11731	SHERMAN ACRES MUTUAL WATER ASSN	11/17/75	108.00			Calaveras	ANGELS CREEK
A012739	7567	5256	Sierra Golf Management, Inc.	10/8/48	108.00			Tuolumne	UNSP
A005648X01			SIERRA PACIFIC INDUSTRIES	8.10	8.10			Calaveras	SIX MILE CREEK
A031182			SIX MILE LAND COMPANY	5/9/01	81.00			Calaveras	SIX MILE CREEK
A002524	1147	604	SIX MILE LAND COMPANY Total	5/9/01	4.00			Calaveras	SIX MILE CREEK
			SIX MILE LAND COMPANY Total		122.00				
			SOUTH SAN JOAQUIN IRRIGATION DISTRICT		36,000.00				
			Total		36,000.00				
A030603A			STOCKTON EAST WATER DISTRICT	9/10/04	111,900.00			Calaveras	STANISLAUS RIVER
A030603B			STOCKTON EAST WATER DISTRICT	9/10/04	407,000.00			Calaveras, Tuolumne	STANISLAUS RIVER
			STOCKTON EAST WATER DISTRICT Total		518,900.00				
A010168	5974	3560	TAMARACK CABIN OWNERS ASSN	3/29/41	7.30			Calaveras	UNSP
A016563	10518		TAMARACK SPRINGS MUTUAL WATER CO	8/31/55	4.60			Calaveras	UNSP (2), UNXX
			Total		4.60				
A019990	13140	8194	The Donald A. Bottomley 1992 Trust	2/16/61	4.00			Calaveras	UNST
A018815	12329	7401	THOMAS P KLEIN	6/22/59	2.20			Tuolumne	UNST
A005648X02			THOMSON FAMILY TRUST	10/26/00	28.10			Calaveras	SIXMILE CREEK, UNST
A031364			THOMSON FAMILY TRUST	10/2/02	28.10			Calaveras	SIXMILE CREEK, UNST
			THOMSON FAMILY TRUST Total		56.20				
A003912	1781	1182	U S STANISLAUS NATL FOREST	4/18/32	32.80			Tuolumne	GOOSEBERRY SPRING
A010384	5982	3941	U S STANISLAUS NATL FOREST	2/6/42	6.60			Tuolumne	COW CREEK
A010386	5983	3917	U S STANISLAUS NATL FOREST	2/6/42	4.50			Tuolumne	LELAND CREEK
A010421	5986	3561	U S STANISLAUS NATL FOREST	4/1/42	1.10			Calaveras	BIG MEADOW CREEK
A010437	5987	3931	U S STANISLAUS NATL FOREST	4/25/42	0.70			Alpine	BEE CREEK
A010490	6038	3282	U S STANISLAUS NATL FOREST	7/8/42	1.10			Tuolumne	UNSP
A010491	6039	3012	U S STANISLAUS NATL FOREST	7/8/42	1.00			Tuolumne	UNST
A010492	6040	3013	U S STANISLAUS NATL FOREST	7/9/42	0.90			Tuolumne	UNST
A010495	6041	2977	U S STANISLAUS NATL FOREST	7/15/42	3.10			Tuolumne	UNST
A010556	6104	5015	U S STANISLAUS NATL FOREST	11/12/42	3.00			Tuolumne	BUNBLEBEE CREEK
A010557	6105	2974	U S STANISLAUS NATL FOREST	11/12/42	1.60			Tuolumne	CASCADE CREEK
A010575	6159	2975	U S STANISLAUS NATL FOREST	12/28/42	0.80			Tuolumne	UNST
A010576	6160	3903	U S STANISLAUS NATL FOREST	12/28/42	0.90			Tuolumne	UNST
A010584	6161	3283	U S STANISLAUS NATL FOREST	1/2/43	2.10			Tuolumne	UNST
A013833	8360	3860	U S STANISLAUS NATL FOREST	7/5/50	3.10			Tuolumne	UNST
A014167	8618	4660	U S STANISLAUS NATL FOREST	2/20/51	1.90			Tuolumne	UNST
A016980	10760	7337	U S STANISLAUS NATL FOREST	3/30/56	0.70			Tuolumne	UNST

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Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	Season	Purpose of Use	County	Source
A017484	11017	7115	U S STANISLAUS NATL FOREST	2/27/57	11.40			Alpine	UNST
A018680	12115	7497	U S STANISLAUS NATL FOREST	4/30/59	0.90			Alpine	INSPIRATION SPRING
A018882	12197	7863	U S STANISLAUS NATL FOREST	8/3/59	1.20			Tuolumne	GRANDALL SPRING
A018883	12198	7255	U S STANISLAUS NATL FOREST	8/3/59	1.20			Tuolumne	SCHAFFER SPRING
A018893	12199	7260	U S STANISLAUS NATL FOREST	8/3/59	1.20			Tuolumne	FRASER SPRING
A019702	13033	8003	U S STANISLAUS NATL FOREST	8/22/60	2.30			Tuolumne	UNST
A019703	13034	7977	U S STANISLAUS NATL FOREST	8/22/60	0.70			Tuolumne	UNST
A019704	13035	8232	U S STANISLAUS NATL FOREST	8/22/60	1.90			Alpine	UNST
A019706	13037	8142	U S STANISLAUS NATL FOREST	8/22/60	1.40			Tuolumne	UNST
A020426	13565	8080	U S STANISLAUS NATL FOREST	10/5/61	0.90			Calaveras	UNSP
A021918	14918	9098	U S STANISLAUS NATL FOREST	9/29/64	0.50			Tuolumne	UNSP
A022030	14969	9097	U S STANISLAUS NATL FOREST	1/18/65	0.20			Tuolumne	UNSP
A014858A	16597		U S STANISLAUS NATL FOREST Total		89.70				
A014858B	20245		U.S. BUREAU OF RECLAMATION	4/4/73	980,000.00			Calaveras	STANISLAUS RIVER
A014859	16598		U.S. BUREAU OF RECLAMATION	7/19/88	1,000,000.00			Calaveras, San Joaquin	STANISLAUS RIVER
A019303	16599		U.S. BUREAU OF RECLAMATION	6/16/52	5,323,865.00			Calaveras	STANISLAUS RIVER
A019304	16600		U.S. BUREAU OF RECLAMATION	7/19/73	1,420,000.00			Calaveras	STANISLAUS RIVER
A027319	20246		U.S. BUREAU OF RECLAMATION	3/17/60	1,420,000.00			Calaveras, Contra Costa	STANISLAUS RIVER
A028182	20144		U.S. BUREAU OF RECLAMATION Total		13,039,775.00				
A023369	17409		VENTURE 4 MINING, A PARTNERSHIP	7/3/84	2.50			Tuolumne	UNST (AKA GREENHORN GULCH)
A023370	17410	11514	WILLIAM MICHAEL ROBISON	5/27/77	28.00			Tuolumne	OWL CREEK, UNST
A023371	17411	13009	WILLIAM MICHAEL ROBISON	5/27/77	48.00			Tuolumne	OWL CREEK
A023386	17412	11515	WILLIAM MICHAEL ROBISON	6/9/77	20.90			Tuolumne	NORTH FORK WILDCAT CREEK
A028278	19471	12939	WILLIAM MICHAEL ROBISON Total		96.70				
			YOUNG BERTRAND TRUSTEE ETAL	10/2/84	0.10			Calaveras	LOVE CREEK
			YOUNG BERTRAND TRUSTEE ETAL Total		0.10				
			Grand Total		20,143,681.00				

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Application ID	Permit ID	License ID	Water Right Type	Status	Holder Name	Date	Face Amt	County	Source
A014162	9583	5049	Appropriative	Licensed	Aaron Lentz	2/15/51	3.7	Tuolumne	CURTIS CREEK
A022486	15299	9177	Appropriative	Licensed	Lentz Total		3.7		
A022487	15300	9161	Appropriative	Licensed	BANK OF AMERICA NT & SA	6/8/66	15	Tuolumne	UNST
A018644	12028	7382	Appropriative	Licensed	BANK OF AMERICA NT & SA Total	6/8/66	35	Stanislaus	UNST
A020279	13976	10278	Appropriative	Licensed	BARBARA THORNTON	4/14/59	9	Tuolumne	GARROTE CREEK
A020324	13395	8154	Appropriative	Licensed	BARBARA THORNTON Total	4/14/59	9		
A0187388	12118	0081648	Appropriative	Licensed	BERNHARD KISSINGER	6/26/61	1.5	Tuolumne	UNST
A012961	7549	4032	Appropriative	Licensed	BERNHARD KISSINGER Total	6/26/61	1.5		
A016137	10124	6866	Appropriative	Licensed	BIG CREEK ASSOCIATES	7/25/61	24.5	Tuolumne	BIG CREEK DRAINAGE, UNST
A012962	7550	4033	Appropriative	Licensed	BIG CREEK ASSOCIATES Total	7/25/61	24.5		
A019217	12502	7478	Appropriative	Licensed	BOBBY E MADEWELL	5/25/59	1	Tuolumne	UNST
A021372	14286	9116	Appropriative	Licensed	BOBBY E MADEWELL Total	5/25/59	1		
A010902	6346	3579	Appropriative	Licensed	BOY SCOUT MEMORIAL FOUNDATION	3/4/49	6	Tuolumne	UNST
A013101	7796	5279	Appropriative	Licensed	BOY SCOUT MEMORIAL FOUNDATION Total	3/4/49	6		
A023560	16134	10546	Appropriative	Licensed	BOY SCOUT OF AMERICA MEMORIAL FOUNDATION	11/15/54	7.9	Tuolumne	UNST
A016104	10108	9181	Appropriative	Licensed	BOY SCOUT OF AMERICA MEMORIAL FOUNDATION Total	11/15/54	13.9		
A020574	13616	8190	Appropriative	Licensed	BRENT LOOP	3/4/49	2.7	Tuolumne	NORTH FORK TUOLUMNE RIVER
A020617	13658	8259	Appropriative	Licensed	BRENT LOOP Total	3/4/49	2.7		
A028689	20146	13073	Appropriative	Licensed	BRENTWOOD LAKE CLUB INC	2/4/60	3.6	Tuolumne	UNST
A018604	12335	7329	Appropriative	Licensed	BRENTWOOD LAKE CLUB INC Total	2/4/60	3.6		
A000862	516	283	Appropriative	Licensed	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP	6/28/63	100	Tuolumne	UNST
A021329	14878	10317	Appropriative	Licensed	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP Total	6/28/63	100		
A021227	14243	9178	Appropriative	Licensed	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP	10/16/44	21.7	Tuolumne	MIDDLE FORK TUOLUMNE RIVER
A020883	13885	8492	Appropriative	Licensed	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP Total	10/16/44	21.7		
A019299	12441	7485	Appropriative	Licensed	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP	7/1/45	11	Tuolumne	UNST
A020381	13434	7885	Appropriative	Licensed	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP Total	7/1/45	11		
A027785	19155		Appropriative	Permitted	CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP	9/27/45	21.3	Tuolumne	UNST
					CAMP TAWONGA-TAWONGA JEWISH COMMUNITY CORP Total	9/27/45	21.3		
					CAROLE CANEPA	11/6/52	66.7		
					CAROLE CANEPA Total	11/6/52	66.7		
					CAROLYN SUE MOSLEY	7/28/61	22	Tuolumne	UNST
					CAROLYN SUE MOSLEY Total	7/28/61	22		
					CHARLES G YONEDA	7/3/62	0.3	Tuolumne	CURTIS CREEK
					CHARLES G YONEDA Total	7/3/62	0.3		
					CHARLES J HURST	10/28/88	0.7	Tuolumne	UNST
					CHARLES J HURST Total	10/28/88	0.7		
					CHRISTOPHER R ROSS	5/19/49	4	Tuolumne	WOODS CREEK
					CHRISTOPHER R ROSS Total	5/19/49	4		
					CLIFTON E J HODGE	7/1/70	8	Tuolumne	UNST
					CLIFTON E J HODGE Total	7/1/70	8		
					COUNTY OF TUOLUMNE	2/6/03	8	Tuolumne	UNST (AKA LITTLE SUGAR PINE CREEK)
					COUNTY OF TUOLUMNE Total	2/6/03	8		
					CRAIG AND PATRICIA DAMBACHER 1993 FAMILY TRUST	1/29/62	6	Tuolumne	UNST
					CRAIG AND PATRICIA DAMBACHER 1993 FAMILY TRUST Total	1/29/62	6		
					CROOK REVOCABLE 1992 TRUST	2/15/62	10	Tuolumne	UNST
					CROOK REVOCABLE 1992 TRUST Total	2/15/62	10		
					DANIEL A SCHULTZ	1/3/86	2	Tuolumne	UNST
					DANIEL A SCHULTZ Total	1/3/86	2		
					DAVID C HARDEN	3/20/59	16	Tuolumne	UNST (2)
					DAVID C HARDEN Total	3/20/59	16		
					DAVID ERNEST HERBERT	12/15/17	196.4	Tuolumne	JAWBONE CREEK
					DAVID ERNEST HERBERT Total	12/15/17	196.4		
					DENNIS S DAoust	6/10/63	28	Tuolumne	UNST
					DENNIS S DAoust Total	6/10/63	28		
					DONALD F MC CLURE	224.4	224.4	Tuolumne	UNST
					DONALD F MC CLURE Total	224.4	224.4		
					DAVID C HARDEN	4/9/63	8	Tuolumne	UNST
					DAVID C HARDEN Total	4/9/63	8		
					DAVID ERNEST HERBERT	8/1/62	8.4	Tuolumne	UNST
					DAVID ERNEST HERBERT Total	8/1/62	8.4		
					DENNIS S DAoust	3/9/60	1.5	Tuolumne	UNST
					DENNIS S DAoust Total	3/9/60	1.5		
					DONALD F MC CLURE	9/6/61	1	Tuolumne	UNST
					DONALD F MC CLURE Total	9/6/61	1		
					DONALD F MC CLURE	6/30/83	8.1	Tuolumne	MOSS SPRING
					DONALD F MC CLURE Total	6/30/83	8.1		

Tuolumne River Watershed - Post-1914 Appropriative Water Rights

Tuolumne River Watershed - Post-1914 Appropriative Water Rights									
Account ID	Water Right Description	Priority	Quantity	Point of Diversion	Beneficial Use	License Status	Effective Date	Expiration Date	Agency/Status
A020497	EDWARD J FILIBERTI	8293	13654			Licensed	11/15/61		UNST
A020784	EDWARD J FILIBERTI Total		13654			Licensed	11/15/61		UNST
A020575	Eric J Coffill	8593	13766			Licensed	5/21/62		UNST
A020587	Eric J Coffill Total		13766			Licensed	5/21/62		UNST
A022468	ESTATE OF LAVERNE LITTERAL	9158	13569			Licensed	1/29/62		UNST
A029977	ESTATE OF LAVERNE LITTERAL	10008	13696			Licensed	2/5/62		BLUE GULCH
A031491	ESTATE OF LAVERNE LITTERAL Total		109			Licensed	5/11/73		UNSP
A019214	ESTATES OF ELDON E & ANNA V AMOS	10097	15546			Licensed	3/6/02		DEADWOOD SPRING, UNSP (AKA SUGAR PINE SPRING)
A018757C	ESTATES OF ELDON E & ANNA V AMOS Total		4			Permitted	8/11/11		UNSP
A019253	G SCOTT FAHEY	7555	20784			Permitted	5/9/90		UNST
A019192	G SCOTT FAHEY Total		109.3			Licensed	2/3/60		UNST
A013343	GRAY A CLOSSMAN	006636A03	12099	006636A03	Appropriative	Licensed	10/28/88		UNST
A016932	Gregory C. Henley	7555	12433			Licensed	2/26/60		UNST
A016935	Gregory C. Henley Total		1			Licensed	1/26/60		RATTLESNAKE CREEK
A019043	GREGORY L CARR	006636C	12099	006636C	Appropriative	Licensed	8/9/54		SONORA CREEK
A025898	GREGORY L CARR Total		0.7			Licensed	8/9/54		DUCKWALL CREEK
A020272	HELGA ANKER TRUST	7705	12662			Licensed	9/8/49		UNST
A022472	HELGA ANKER TRUST Total		8.6			Licensed	3/13/56		UNST
A020943	HOLLY HAYDEN-FITZSIMMONS	7502	12410			Licensed	3/13/56		UNST
A0204598	HOLLY HAYDEN-FITZSIMMONS Total		1.1			Licensed	10/21/59		UNST
A020286	INGALLS FAMILY TRUST	5215	10073			Licensed	1/5/79		UNST
A020843	INGALLS FAMILY TRUST Total		213.2			Licensed	6/20/61		UNST
A020785	JACK G WILES	5344	7890			Licensed	5/19/66		UNSP
A018947	JACK G WILES Total		6.8			Licensed	9/13/62		UNST
A020598	JACK J GARDIELLA JR	5891	10632			Licensed	7/8/85		UNST
A021190	JACK J GARDIELLA JR	5894	10635			Licensed	7/3/61		UNST
A025898	JACK J GARDIELLA JR	6846	12594			Licensed	7/5/62		CURTIS CREEK
A020272	JACK J GARDIELLA JR	11845	18041			Licensed	5/21/62		CURTIS CREEK
A020272	JACK J GARDIELLA JR Total		183.7			Licensed	8/27/59		UNST
A020247	JAMES CURTONI	8125	13381			Licensed	2/7/62		QUIGLEY CREEK, UNST
A020943	JAMES CURTONI Total		48			Licensed	2/27/70		NORTH FORK DRY CREEK, UNST
A0204598	JAY HALE	9170	14166			Licensed	8/17/92		UNST
A020286	JAY HALE Total		4			Licensed	10/28/76		UNST
A0204598	JELITO LIVING TRUST DATED 7/29/89	008111B	13513	008111B	Appropriative	Licensed	7/8/85		UNST
A020843	JIM LUPO	8562	13436			Licensed	7/3/61		UNST
A020785	JIM LUPO Total		11			Licensed	7/5/62		UNST
A018947	JOANE SANTOS TRUST	8594	13767			Licensed	5/21/62		UNST
A020598	JOANE SANTOS TRUST Total		3.6			Licensed	8/27/59		UNST
A021190	JOHN B GROHL SR FAMILY RESIDUAL TRUST	6838	12204			Licensed	2/7/62		QUIGLEY CREEK, UNST
A020785	JOHN B GROHL SR FAMILY RESIDUAL TRUST	8746	13699			Licensed	2/27/70		NORTH FORK DRY CREEK, UNST
A018757A01A	JOHN B GROHL SR FAMILY RESIDUAL TRUST Total		14209			Licensed	8/17/92		UNST
A025191	JOHN C BRUNK	006636A01A	17000	006636A01A	Appropriative	Licensed	8/17/92		UNST
A027519	JOHN C BRUNK Total		1.4			Licensed	10/28/76		UNST
A029743	JOHN ROSS BAKER	11404	17000			Licensed	9/15/82		UNST
A025627	JOHN ROSS BAKER	12548	18792			Licensed	5/14/90		TURNBACK CREEK, UNST
A019662	JOHN ROSS BAKER Total		20879			Permitted	12/30/77		UNST
A020407	JOHN WILLMS RANCH INC	11284	17481			Licensed	8/16/60		UNST
A018575	JOHN WILLMS RANCH INC Total		6.1			Licensed	9/26/61		UNST
A018602	JOSEPH M MURRAY JR	7789	12846			Licensed	3/9/59		SULLIVAN CREEK
	JOSEPH M MURRAY JR Total		19			Licensed	3/20/59		
	JUSTUS W HOUCK	8086	13406			Licensed			
	JUSTUS W HOUCK Total		1.2			Licensed			
	KAREN REESE	6776	11986			Licensed			
	KAREN REESE Total		18			Licensed			
	LAKEWOOD PARK ASSOCIATION	8018	13128			Licensed			

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Tuolumne River Watershed - Post-1914 Appropriative Water Rights									
Account Number	Priority	Volume (cfs)	Point of Diversion	Water Right Description	Priority	Volume (cfs)	Point of Diversion	Water Right Description	Notes
A018911	12332	7420	Appropriative	Licensed					
A014262	8759	5372	Appropriative	Licensed			8/12/59	UNSP (2)	
A017718	11083	5971	Appropriative	Licensed			4/20/51	UNSP	
A017719	11084	5972	Appropriative	Licensed			7/15/57	UNSP	
A017720	11085	6098	Appropriative	Licensed			7/15/57	UNSP	
A017721	11086	5974	Appropriative	Licensed			7/15/57	UNSP	
A025569	17507	11687	Appropriative	Licensed			11/15/77	UNSP	
A020355	13179	9207	Appropriative	Licensed			8/16/61	ROUGH & READY CREEK	
A021289	14265	9146	Appropriative	Licensed			5/27/63	UNSP	
A020488	13752	9943	Appropriative	Licensed			11/10/61	CURTIS CREEK	
A005726	2973	1132	Appropriative	Licensed			10/18/27	UNSP (2)	
A022326	15125	10764	Appropriative	Licensed			10/29/65	ROUGH & READY CREEK	
A026084	18024	12790	Appropriative	Licensed			9/16/79	MORMON CREEK, UNST	
A020590	13722	9244	Appropriative	Licensed			2/15/62	FLORAL CREEK, UNST, Unnamed Stream	
A031384			Appropriative	Pending			1/21/03	SULLIVAN CREEK, UNST, UNST (AKA FLORES CREEK)	
A018554	13137	8109	Appropriative	Licensed			2/26/59	SULLIVAN CREEK	
A016170	10369	6249	Appropriative	Licensed			12/7/54	SUGARPINE CREEK	
A016172	10370	9772	Appropriative	Licensed			12/7/54	UNSP	
A018547	13125	8112	Appropriative	Licensed			2/20/59	UNSP	
A019946	13110	8032	Appropriative	Licensed			1/31/61	UNST	
A020885C	14018	9963	Appropriative	Licensed			8/2/62	UNST	
A022980	15823	10634	Appropriative	Licensed			2/7/68	BIG CREEK	
A030367	21220		Appropriative	Permitted			8/27/08	UNST	
A030699	21221		Appropriative	Permitted			8/29/08	UNST	
A023262	15978	10774	Appropriative	Licensed			4/16/69	UNST	
A025092	17006	11369	Appropriative	Licensed			7/16/76	UNST	
A021028	14037	9698	Appropriative	Licensed			11/23/62	UNST	
A021183	14150	8329	Appropriative	Licensed			3/8/63	KANAKA CREEK	
A018614	12019	6496	Appropriative	Licensed			3/31/59	UNST	
A015254	9645	6368	Appropriative	Licensed			3/26/53	WOODS CREEK	
A019388	12687	7837	Appropriative	Licensed			8/4/66	UNST	
A020328	13410	7838	Appropriative	Licensed			7/26/61	UNST	
A012858	7618	4990	Appropriative	Licensed			3/24/58	UNXX	
A018738A	12118	008164A	Appropriative	Licensed			5/25/59	UNST	
LAKWOOD PARK ASSOCIATION Total 7 Tuolumne 0.4 Tuolumne 0.4 Tuolumne 89 Tuolumne 6 Tuolumne 40 Tuolumne 26 Tuolumne 2.3 Stanislaus 74.3 Tuolumne 16 Tuolumne 1.1 Tuolumne 1.1 Tuolumne 6.7 Tuolumne 51 Tuolumne 51 Tuolumne 10.1 Tuolumne 9.6 Tuolumne 9.6 Tuolumne 0.5 Tuolumne 0.5 Tuolumne 133 Tuolumne 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
Mountain Springs Community LP Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
MOUNTAIN SPRINGS GOLF LLC Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
O J SPARROW Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
PLGC Partners Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
RACHEL M VUYOVICH Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
RICHARD J NORTON Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
Robert E Thomason Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
RON GROHL Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
RONALD E CARTER Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
ROYCE WHITNEY Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
SCOT PATTERSON Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									
SIERRA PACIFIC HOLDING COMPANY Total 133 99 Tuolumne 10 Tuolumne 10 Tuolumne 17.8 Tuolumne 15 Tuolumne 32.8 Tuolumne 12 Tuolumne 12 Tuolumne 30.2 Tuolumne 30.2 Tuolumne 14 Tuolumne 7,650.00 Tuolumne 7,664.00 Tuolumne 36.8 Tuolumne 28 Tuolumne 64.8 21 Tuolumne 10 Tuolumne 31 8.5 Tuolumne 30 Tuolumne 30 Tuolumne 3 Tuolumne 51.1 Tuolumne 160.6 Tuolumne 31 Tuolumne 191.6 5 Tuolumne 2.5 Tuolumne 2.5									

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A014947	9197	5270	Appropriative	Licensed	SONORA RIDGE LLC	8/1/52	47.7	Tuolumne	SULLIVAN CREEK			
A022146	15250	9454	Appropriative	Licensed	SONORA RIDGE LLC Total	5/10/65	47.7	Tuolumne	UNST			
A019188	12426	7472	Appropriative	Licensed	SOREN E JENSEN JR RANCH TRUST	1/21/60	0.4	Tuolumne	UNST			
A020459A	13513	008111A	Appropriative	Licensed	SOREN E JENSEN JR RANCH TRUST Total	7/8/85	0.4	Tuolumne	UNST			
A020092	13193	9201	Appropriative	Licensed	STEPHEN A FINN	4/19/61	1.5	Tuolumne	UNST			
A008758	4830	2252	Appropriative	Licensed	STEPHEN A FINN Total	8/12/36	1	Tuolumne	UNST			
					SUSAN A MACDONALD							
					SUSAN A MACDONALD Total							
					TUOLUMNE BAND ME-WUK INDIANS							
					TUOLUMNE BAND ME-WUK INDIANS Total							
					TUOLUMNE PARK AND RECREATION DISTRICT							
					TUOLUMNE PARK AND RECREATION DISTRICT Total							
A016173	10371	10899	Appropriative	Licensed	TUOLUMNE UTILITIES DISTRICT	12/7/54	9.1	Tuolumne	UNST			
A018549	13127	7936	Appropriative	Licensed	TUOLUMNE UTILITIES DISTRICT	2/24/59	2	Tuolumne	UNST			
A020565	13606	9740	Appropriative	Licensed	TUOLUMNE UTILITIES DISTRICT	1/19/62	28	Tuolumne	UNST			
A023813	16949	11576	Appropriative	Licensed	TUOLUMNE UTILITIES DISTRICT	6/22/71	3.9	Tuolumne	UNST			
A001232	1164	5420	Appropriative	Licensed	TUOLUMNE UTILITIES DISTRICT Total	4/8/19	325,000.00	Tuolumne	TUOLUMNE RIVER			
A001233	1165	5417	Appropriative	Licensed	TURLOCK I D & MODESTO I D	4/8/19	325,000.00	Stanislaus, Tuolumne	TUOLUMNE RIVER			
A001532	1166	5421	Appropriative	Licensed	TURLOCK I D & MODESTO I D	11/21/19	1,851,934.50	Tuolumne	TUOLUMNE RIVER			
A003648	3026	2424	Appropriative	Licensed	TURLOCK I D & MODESTO I D	9/24/23	48,595.80	Stanislaus	TUOLUMNE RIVER			
A006711	4271	2425	Appropriative	Licensed	TURLOCK I D & MODESTO I D	6/25/30	480,800.40	Stanislaus	TUOLUMNE RIVER			
A009996	5909	5418	Appropriative	Licensed	TURLOCK I D & MODESTO I D	9/6/40	868,773.00	Stanislaus, Tuolumne	TUOLUMNE RIVER			
A009997	5910	5419	Appropriative	Licensed	TURLOCK I D & MODESTO I D	9/6/40	721,200.60	Stanislaus, Tuolumne	TUOLUMNE RIVER			
A014126	9319	11057	Appropriative	Licensed	TURLOCK I D & MODESTO I D	1/16/51	1,046,800.00	Tuolumne	TUOLUMNE RIVER			
A014127	9320	11058	Appropriative	Licensed	TURLOCK I D & MODESTO I D	1/16/51	1,046,800.00	Tuolumne	TUOLUMNE RIVER			
A003139	1699	2580	Appropriative	Licensed	TURLOCK I D & MODESTO I D Total	4/2/43	6,747,558.30	Stanislaus	TUOLUMNE RIVER			
A004946	2575	1086	Appropriative	Licensed	TURLOCK IRRIGATION DISTRICT	6/29/31	436,558.40	Stanislaus	TUOLUMNE RIVER			
A007058	3825	2727	Appropriative	Licensed	TWIN HARTE LAKE ASSOCIATION	8/24/31	181	Tuolumne	CALDER CREEK			
A009759	5475	2728	Appropriative	Licensed	U S STANISLAUS NATL FOREST	10/31/39	25.5	Tuolumne	NORTH FORK TUOLUMNE RIVER			
A010355	5937	2962	Appropriative	Licensed	U S STANISLAUS NATL FOREST	1/5/42	25.5	Tuolumne	SHEERING CREEK			
A010420	5985	2952	Appropriative	Licensed	U S STANISLAUS NATL FOREST	4/1/42	1.7	Tuolumne	UNST			
A010487	6035	3189	Appropriative	Licensed	U S STANISLAUS NATL FOREST	7/3/42	22.4	Tuolumne	GRANITE SPRING			
A010489	6037	2946	Appropriative	Licensed	U S STANISLAUS NATL FOREST	7/3/42	1	Tuolumne	UNCR			
A010587	6163	4444	Appropriative	Licensed	U S STANISLAUS NATL FOREST	7/3/42	2.2	Tuolumne	UNCR			
A015485	9781	5681	Appropriative	Licensed	U S STANISLAUS NATL FOREST	1/4/43	2.6	Tuolumne	UNCR			
A015828	10132	6319	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/27/53	2.6	Tuolumne	UNSP			
A016052	10113	5923	Appropriative	Licensed	U S STANISLAUS NATL FOREST	4/9/54	3.3	Tuolumne	MIDDLE FORK TUOLUMNE RIVER			
A016979	10759	5510	Appropriative	Licensed	U S STANISLAUS NATL FOREST	9/16/54	3.7	Tuolumne	UNSP (2)			
A018678	12082	7385	Appropriative	Licensed	U S STANISLAUS NATL FOREST	3/30/56	13.4	Tuolumne	UNSP			
A018885	12443	7256	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/28/56	46.2	Tuolumne	JORDAN CREEK			
A018886	12444	7256	Appropriative	Licensed	U S STANISLAUS NATL FOREST	4/30/59	0.7	Tuolumne	UNSP			
A018887	12445	7548	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/3/59	1.2	Tuolumne	UNSP			
A018888	12446	7530	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/3/59	1.2	Tuolumne	UNSP			
A018889	12447	7257	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/3/59	1.2	Tuolumne	UNSP			
A018891	12449	7258	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/3/59	1.2	Tuolumne	UNSP			
A018892	12450	7259	Appropriative	Licensed	U S STANISLAUS NATL FOREST	8/3/59	1.2	Tuolumne	UNSP			
A016931	10631	5990	Appropriative	Licensed	V A RODDEN INC	3/13/56	163.3	Tuolumne	MARBLE SPRING			
A016933	10633	5992	Appropriative	Licensed	V A RODDEN INC	3/13/56	12.8	Tuolumne	UNST			
A016937	10637	5996	Appropriative	Licensed	V A RODDEN INC	3/13/56	11.9	Stanislaus	UNST			
A016938	10638	5997	Appropriative	Licensed	V A RODDEN INC	3/13/56	19.6	Stanislaus	JOHNSON CREEK			
A020693	13917	8364	Appropriative	Licensed	V A RODDEN INC Total	4/2/62	50.3	Tuolumne	GOODWIN CREEK			
					VERNAN P HATLER		19.2	Tuolumne	UNCR			
					VERNAN P HATLER Total							

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Account ID	Right ID	Right Type	Right Holder	Right Date	Volume (cfs)	Priority	Right Type	Right Holder	Right Date
A017054	10961	7338 Appropriative	VIRGINIA S SATTLER	4/27/56	4.5		Tuolumne	BIG CREEK	
A020636	13832	9176 Appropriative	W D FAHEY TRUST	3/2/62	4.5		Tuolumne	UNSP	
A01875A01B	14018	006636A01B Appropriative	W D FAHEY TRUST Total		0.3		Tuolumne		
A020885A	14018	9861 Appropriative	Wagner Family Trust	8/17/92	1.5		Tuolumne	UNST	
A020885B	14018	9862 Appropriative	Wagner Family Trust	8/2/62	15		Tuolumne	BIG HUMBUG CREEK	
A031545	21252	9862 Appropriative	Wagner Family Trust	8/2/62	12		Tuolumne	BIG HUMBUG CREEK	
			Wagner Family Trust	4/14/10	47.6		Tuolumne	Big Humbug Creek	
A019663	12847	7779 Appropriative	Wagner Family Trust Total		76.1		Tuolumne	UNST, WEST FORK BIG CREEK	
A017965	11426	7771 Appropriative	WILLIAM C RITTS	8/16/60	51.5		Tuolumne	UNST	
			WILLIAM L GOOKIN JR	1/29/58	9		Tuolumne		
			WILLIAM L GOOKIN JR Total		9		Tuolumne		
			Grand Total		7162449.4				

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Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A022506	15290	9699	AMANDA VANCE	6/23/66	8.40	Mariposa	UNSP
			AMANDA VANCE Total		8.40		
A017202	10895	8196	BRIAN T SCHUTT	7/27/56	22.40	Mariposa	DUTCH CREEK
A017822	12142	8197	BRIAN T SCHUTT	9/13/57	12.00	Mariposa	DUTCH CREEK
			BRIAN T SCHUTT Total		34.40		
A015747	9795	5714	CALIF DEPT OF FORESTRY & FIRE PROTECTION	5/1/59	33.30	Mariposa	UNSP
			CALIF DEPT OF FORESTRY & FIRE PROTECTION Total		33.30		
A016484	10389	6889	Carol M Menzel	7/25/55	520.00	Mariposa	MAXWELL CREEK
			Carol M Menzel Total		520.00		
A020033	13202	10081	CEDAR LODGE LLC	3/14/61	4.50	Mariposa	UNSP
A018358	11785	7994	CHRISTINA CRAIG	10/3/58	5.40	Mariposa	UNST
			CHRISTINA CRAIG Total		5.40		
A017147	10855	6585	COASTAL DEVELOPMENT COMPANY LLC, INDIAN FLAT	6/22/56	3.60	Mariposa	MERCED RIVER UNDERFLOW
A028726	19939	13089	COASTAL DEVELOPMENT COMPANY LLC, INDIAN FLAT	1/14/86	0.50	Mariposa	UNSP
			COASTAL DEVELOPMENT COMPANY LLC, INDIAN FLAT Total		4.10		
A020935	14124	10181	CRANBERRY GULCH WATER SUPPLY LTD	9/11/62	3.00	Mariposa	CRANBERRY SPRING
A017008	10768	6549	CRANBERRY GULCH WATER SUPPLY LTD Total	4/16/56	3.00		
A018267	11688	9205	DALE HURLEY	8/14/58	10.50	Mariposa	UNST
			DALE HURLEY Total		14.50		
A028991	20429	13735	DAVID RICHARD WILKEY	8/23/07	25.00	Mariposa	UNST
			DAVID RICHARD WILKEY Total		1.80		
A026054	18134	12034	DREAM RANCH WEST LLC	7/25/79	23.00	Mariposa	UNST
A028861	20148	13046	DREAM RANCH WEST LLC	6/19/86	10.00	Mariposa	UNST
			DREAM RANCH WEST LLC Total		33.00		
A010696	6196	6528	Estate of Herbert F. Frey	4/16/62	4.30	Mariposa	BEAN CREEK
			Estate of Herbert F. Frey Total		4.30		
A006762	3650	1847	FISKE TRUST	8/8/30	4.80	Mariposa	UNSP
			FISKE TRUST Total		4.80		
A018695	12514	8655	FRANK R DOMINGUES III	5/7/59	1.50	Mariposa	CRANBERRY SPRING
			FRANK R DOMINGUES III Total		1.50		
A027985	19338		GERALD P HARRISON	3/2/84	21.00	Mariposa	SMITH CREEK
			GERALD P HARRISON Total		21.00		
A014982	9338	6134	GLEN PICKREN	8/20/52	35.00	Mariposa	PLUMBAR CREEK
			GLEN PICKREN Total		35.00		
A017647	11272	6825	HORACE MEYER ESTATE	6/11/57	1.00	Mariposa	UNXX
A017648	11457	6826	HORACE MEYER ESTATE	6/11/57	16.00	Mariposa	UNXX
			HORACE MEYER ESTATE Total		17.00		
A021014	14083	8491	JAMES DICKEY	11/13/62	16.00	Mariposa	DUTCH CREEK
			JAMES DICKEY Total		16.00		
A016639	10434	5721	JAMES D LAW	9/29/55	4.50	Mariposa	UNSP
			JAMES D LAW Total		4.50		
A022268	15006	10524	JAMES E EWERT	8/20/65	18.00	Mariposa	UNST
			JAMES E EWERT Total		18.00		
A027761	19391	12814	JERRY INMAN	5/26/83	1.20	Mariposa	UNST
			JERRY INMAN Total		1.20		
A019463	12765	8917	JOHN REYNOLDS	5/31/60	2.70	Mariposa	CRANBERRY SPRING
			JOHN REYNOLDS Total		2.70		

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Application ID	Permit ID	License ID	Holder Name	Date	Face Amt	County	Source
A023205	15972	10272	John C. Fox Revocable Trust	1/7/69	4.30	Mariposa	UNST
			John C. Fox Revocable Trust Total		4.30		
A017496	11036	7522	JOHN H WELCH	3/5/57	25.70	Mariposa	UNSP, UNST
			JOHN H WELCH Total		25.70		
A022076	14930	9082	JOSEPH C LODGE	3/18/65	19.00	Mariposa	LONG CANYON CREEK
			JOSEPH C LODGE Total		19.00		
A017011	10888	7626	KAO CHAO	4/17/56	1.60	Mariposa	UNST
			KAO CHAO Total		1.60		
A011814	7943	3955	Kelsey Ranch LP	4/4/47	1,002.80	Mariposa, Merced	SOUTH FORK DRY CREEK, UNST
			Kelsey Ranch LP Total		1,002.80		
A016348	10503	7813	KENNETH J PULVINO	4/27/55	50.00	Mariposa	BEAN CREEK
			KENNETH J PULVINO Total		50.00		
A016969	10678	5509	LAUREL L ANDERSON	3/26/56	2.70	Mariposa	CRANBERRY SPRING
			LAUREL L ANDERSON Total		2.70		
A013954	8963	4323	LAUREL MUNSON BOYERS	9/20/50	0.20	Mariposa	CRANE CREEK
			LAUREL MUNSON BOYERS Total		0.20		
A018444	12134	7529	LEONARD SYNKOWICZ	12/24/58	1.20	Mariposa	UNST
			LEONARD SYNKOWICZ Total		1.20		
A021760	14875	9687	LLOYD MYERS	5/1/64	16.00	Mariposa	SAXON CREEK
			LLOYD MYERS Total		16.00		
A016736	11046	9275	LYLE TURPIN	11/16/55	55.60	Mariposa	UNST, WILLOW CREEK
			LYLE TURPIN Total		55.60		
A023731	16551	10498	MARGERY M DE LA MARE	3/22/71	1.00	Mariposa	UNSP
			MARGERY M DE LA MARE Total		1.00		
A020422	13988	8553	MARK HAYNES	3/18/68	16.70	Mariposa	EAST FORK PINEY CREEK
			MARK HAYNES Total		16.70		
A024212	16807	11733	MELBA WRIGHT	10/18/72	22.00	Mariposa	UNST
			MELBA WRIGHT Total		22.00		
A027198	19304	12739	MELBA WRIGHT	2/2/82	8.20	Mariposa	UNST
			MELBA WRIGHT Total		8.20		
A020524	13735	8385	MERCED COMMUNITY COLLEGE DISTRICT	12/13/61	3.40	Mariposa	UNSP
			MERCED COMMUNITY COLLEGE DISTRICT Total		3.40		
A001221	912	990	MERCED IRRIGATION DISTRICT	3/26/19	868,773.00	Mariposa	MERCED RIVER
			MERCED IRRIGATION DISTRICT Total		868,773.00		
A001222	913	2684	MERCED IRRIGATION DISTRICT	3/26/19	491,080.20	Mariposa	MERCED RIVER
			MERCED IRRIGATION DISTRICT Total		491,080.20		
A001224	914	2685	MERCED IRRIGATION DISTRICT	6/20/03	345,440.00	Mariposa, Merced	MERCED RIVER
			MERCED IRRIGATION DISTRICT Total		345,440.00		
A016186	12825	11395	MERCED IRRIGATION DISTRICT	6/20/03	605,000.00	Mariposa	MERCED RIVER
			MERCED IRRIGATION DISTRICT Total		605,000.00		
A016187	12826	11396	MERCED IRRIGATION DISTRICT	12/23/54	1,861,824.90	Mariposa	MERCED RIVER
			MERCED IRRIGATION DISTRICT Total		1,861,824.90		
A019859	13044	8192	MIGUEL FLORES JR	11/28/60	4,172,118.10	Mariposa	UNXX
			MIGUEL FLORES JR Total		4,172,118.10		
A017204	10846	5919	MJ OAKS LLC	7/31/56	2.50	Mariposa	UNST
			MJ OAKS LLC Total		2.50		
A016463	10443	7282	OLIVER HAYCRAFT	7/13/55	0.80	Mariposa	UNST
			OLIVER HAYCRAFT Total		0.80		
A025842	17639	11876	P ORD HATTON	10/5/78	18.00	Mariposa	UNST
			P ORD HATTON Total		18.00		
A009056	5056	2555	PacificUS Real Estate Group	7/29/37	34.00	Mariposa	UNSP
			PacificUS Real Estate Group Total		34.00		
A016646	10487	10522	PacificUS Real Estate Group	10/4/55	21.00	Mariposa	UNSP
			PacificUS Real Estate Group Total		21.00		
			PacificUS Real Estate Group Total		68.10		

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A016994	10556	6534	PHILIP M HOULIHAN	4/9/56	48.00	Mariposa	DUTCH CREEK
A017786	11217	6535	PHILIP M HOULIHAN	8/19/57	27.00	Mariposa	DUTCH CREEK
			PHILIP M HOULIHAN Total		75.00		
A016559	10845	7366	RICHARD FERRY	8/30/55	72.40	Mariposa	PORATH GULCH
A020476	13787	8658	ROBERT W KINGMAN	11/6/61	16.00	Mariposa	DUTCH CREEK
A016431	10264	6363	ROBERT W KINGMAN Total	6/21/55	16.00		
A012986	7809	3778	ROBERTA G FLANAGAN	3/17/49	2.50	Mariposa	UNXX
A016653	10486	6321	ROD KENNEC	10/10/55	17.90	Mariposa	LITTLE BEAR CREEK
A028536	19785	6321	RODNEY A BAKER	9/5/08	17.10	Mariposa	SMITH CREEK
A020969	14119	8707	RONALD B LUFFY	3/22/57	4.30	Mariposa	UNST
A017012	10889	7627	ROSEMARY M GAMBLIN	10/5/62	4.30	Mariposa	UNST
A017523	11236	7138	RUSSELL BOCKHOP	4/17/56	31.50	Mariposa	DUTCH CREEK, UNST
A020765	13763	8358	RUSSELL BOCKHOP Total	3/22/57	8.00		
A019306	12551	6891	THE BARRIER	5/3/62	9.30	Mariposa	UNST
A018430	11877	9147	THE BARRIER Total	3/14/60	10.00	Mariposa	UNST
A014979	9336	6392	The Estate of William Rottenkolber	12/9/58	0.60	Mariposa	UNXX
A031125	21122	6891	HERAN L BALMAIN	8/19/52	46.00	Mariposa	BEAN CREEK
A018097	11726	7117	HERAN L BALMAIN Total	1/10/01	180.00	Mariposa	SMITH CREEK
A029559	20689	13768	Tidall Virginia	4/21/58	240.00	Mariposa	MILLER GULCH
A006729	3549	6112	Transition Mountain Properties	6/19/08	4.20	Mariposa	UNSP
A010488	6036	2973	U S BUREAU OF LAND MANAGEMENT	7/11/30	2.40	Madera	UNSP (2)
A019116	12387	11233	U S BUREAU OF LAND MANAGEMENT Total	7/3/42	7.30	Mariposa	CRANE CREEK
A019671	12991	8390	U S NATIONAL PARK SERVICE	12/2/59	76.50	Mariposa	MOSS CREEK
A027715	19740	13206	U S NATIONAL PARK SERVICE	8/18/60	254.40	Madera	UNSP
A027717	19741	13207	U S NATIONAL PARK SERVICE	4/12/83	0.10	Mariposa	UNST
A027718	19742	13155	U S NATIONAL PARK SERVICE	4/12/83	0.10	Mariposa	UNST
A011772	6842	3408	U S SIERRA NATL FOREST	3/12/47	0.60	Mariposa	UNSP
A017904	11347	6441	U S SIERRA NATL FOREST	12/4/57	1.00	Mariposa	PROUTY SPRING
A022229	15102	10349	U S SIERRA NATL FOREST	7/19/65	3.30	Mariposa	JORDAN CREEK
A028321	19652	13486	U S SIERRA NATL FOREST Total	11/9/84	5.20		
A028322	19653	13486	US BUREAU OF LAND MANAGEMENT	11/9/84	0.40	Mariposa	UNST
			US BUREAU OF LAND MANAGEMENT Total		0.10	Mariposa	UNSP
			US BUREAU OF LAND MANAGEMENT Total		0.50		

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A023074	15746	10295	VERE GEARY	6/26/68	22.00	Mariposa	UNST
			VERE GEARY Total		22.00		
A014721	9768	6166	W B STURTEVANT	3/20/52	80.00	Mariposa	EAST FORK PINEY CREEK
			W B STURTEVANT Total		80.00		
A029615	20574		WALTER K BUNT & DOROTHY L BUNT TRUST ETAL	11/15/89	8.00	Mariposa	UNST
			WALTER K BUNT & DOROTHY L BUNT TRUST ETAL Total		8.00		
A029012	20543	13561	Wendy L Garrish	9/10/03	0.70	Mariposa	PINEY CREEK
			Wendy L Garrish Total		0.70		
A018244	11854	7131	YOSEMITE-MARIPOSA KOA	7/30/58	4.50	Mariposa	UNST
			YOSEMITE-MARIPOSA KOA Total		4.50		
			Grand Total		4,175,203.90		

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A015789	9819	5684	ALLISON S FAHEY	3/22/54	597	Stanislaus	DRY CREEK
			ALLISON S FAHEY Total		597		
A028622	20118	13057	ANITA SERRANO	11/19/85	200	Merced	DUTCHMAN CREEK
			ANITA SERRANO Total		200		
A017775	11410	7344	ANTHONY VALLELUNGA	8/16/57	44	Merced	DEADMAN CREEK
			ANTHONY VALLELUNGA Total		44		
A013018	7777	6132	ANTHONY J DUTRA	4/5/49	361.1	Stanislaus	STANISLAUS RIVER
			ANTHONY J DUTRA Total		361.1		
A028539	19943	13034	ARMELIM DE SOUSA	8/19/85	293	Stanislaus	UNST (AKA VIVIAN SLOUGH)
			ARMELIM DE SOUSA Total		293		
A013679	8224	4313	ARTHUR BRIGHT	4/7/50	1,592.80	Merced	DEADMAN CREEK
			ARTHUR BRIGHT Total		1,592.80		
A023257	16003	10359	AUGUST KNITTEL	4/10/69	4.00	Fresno	UNST
A023258	16002	10358	AUGUST KNITTEL	4/10/69	18.10	Fresno	UNST
A023313	16004	10360	AUGUST KNITTEL	7/15/69	1.70	Fresno	UNST
			AUGUST KNITTEL Total		23.80		
A024900	17060	13099	BASS LAKE SCHOOL DISTRICT	10/14/75	2.70	Madera	UNSP
			BASS LAKE SCHOOL DISTRICT Total		2.70		
A003736	1887	3927	BASS LAKE WATER COMPANY	5/20/54	217.20	Madera	North Fork Willow Creek
A011270	6514	3928	BASS LAKE WATER COMPANY	1/30/46	36.20	Madera	North Fork Willow Creek
A015566	11072	9993	BASS LAKE WATER COMPANY	10/5/53	355.00	Madera	North Fork Willow Creek
			BASS LAKE WATER COMPANY Total		608.40		
A020649	13814	8403	BIG CREEK COMMUNITY SERVICE DISTRICT	3/9/62	57.90	Fresno	BIG CREEK
			BIG CREEK COMMUNITY SERVICE DISTRICT Total		57.90		
A009573	5463	2847	BILL J LYONS JR	5/11/39	4,781.80	Stanislaus	TUOLUMNE RIVER
			BILL J LYONS JR Total		4,781.80		
A012634	8701	5875	BILLY D GRISSOM	8/6/48	1,467.80	Merced	DUCK SLOUGH
			BILLY D GRISSOM Total		1,467.80		
A001730	863	1661	BORBA FAMILY HOME & STEVINSON RANCH LP	3/22/20	955.1	Merced	MERCED RIVER
			BORBA FAMILY HOME & STEVINSON RANCH LP Total		955.1		
A015835	9925	7298	BRENDA KNUTSON	4/14/54	11.8	Stanislaus	DRY CREEK
			BRENDA KNUTSON Total		11.8		
A013697	8179	4470	BRICHETTO TRUST	4/19/50	1,463.80	Stanislaus	UNCR
			BRICHETTO TRUST Total		1,463.80		
A021823	14922	9360	BRIGHT'S NURSERY INCORPORATED	5/8/70	685	Merced	DEADMAN CREEK
			BRIGHT'S NURSERY INCORPORATED Total		685		
A006963	3885	5495	BROCCHINI FARMS INC	5/19/31	4,096.90	Stanislaus	STANISLAUS RIVER
			BROCCHINI FARMS INC Total		4,096.90		
A018526	14677	8400	BRUCE AVERY	2/10/59	333.8	San Joaquin	STANISLAUS RIVER
			BRUCE AVERY Total		333.8		
A011741	6924	4420	CALIF DEPARTMENT OF TRANSPORTATION	2/21/47	204.7	Stanislaus	STANISLAUS RIVER
			CALIF DEPARTMENT OF TRANSPORTATION Total		204.7		
A001935	848	349	Camp Sierra Improvement Association	3/31/24	29.40	Fresno	ALDER CREEK
			Camp Sierra Improvement Association Total		29.40		
A011047	7583	8706	CHOWCHILLA WATER DISTRICT	5/9/45	6,195.70	Madera	ASH CREEK, BERENDA SLOUGH
A013175	9136	8577	CHOWCHILLA WATER DISTRICT	6/27/49	77,312.80	Madera	CHOWCHILLA RIVER
			CHOWCHILLA WATER DISTRICT Total		83,508.50		
A018718	12939	8257	CHRISTOPHER H GALFO	11/30/67	47.00	Fresno	LITTLE SANDY CREEK
A019193	12940	7818	CHRISTOPHER H GALFO	1/26/60	28.00	Fresno	UNST
			CHRISTOPHER H GALFO Total		75.00		

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A004102	1816	2883	City of Modesto WQC Primary	10/22/47	1,219.90	Stanislaus	SAN JOAQUIN RIVER
City of Modesto WQC Primary Total							
A013541	9076	4689	COSTA VIEW FARMS #2, A CA GEN PARTNERSHIP	9/20/57	21,689.60	Madera	FRESNO RIVER
A013541	9076	4689	COSTA VIEW FARMS #2, A CA GEN PARTNERSHIP	9/20/57	21,689.60	Madera	FRESNO RIVER
COSTA VIEW FARMS #2, A CA GEN PARTNERSHIP Total							
A023231	16200	10592	COTTONWOOD CREEK VINEYARDS PARTNERSHIP	2/6/69	43,379.20	Madera	COTTONWOOD CREEK
A012674	7675	7556	Couchman Brothers	9/2/48	920	Madera	COTTONWOOD CREEK
COTTONWOOD CREEK VINEYARDS PARTNERSHIP Total							
A024298	16638	11097	Couchman Brothers Total	9/2/48	1,622.70	Stanislaus	TUOLUMNE RIVER
A027544	18910	12372	CYNTHIA A. DOWNING	2/2/73	1,622.70	Merced	UNST
A028192	19732	12955	D & D LAND & WATER INC	9/30/82	0.30	Fresno	UNSP
A029966	20860	10375	D.M. BRYANT FARMS INC	7/16/84	907	Merced	SAN JOAQUIN RIVER
A023214	15869	10375	DAMAN PITTS	6/17/91	21.50	Madera	UNST
A014104	8683	4081	DEER CREEK WATER ASSOCIATION	1/28/69	33.00	Fresno	UNST
A026121	19395	DIRK J VLOT	DEER CREEK WATER ASSOCIATION Total	12/14/50	33.00	Fresno	DEER CREEK
A027241	19140	12867	DM BRYANT FARMS INC	10/22/79	2,534.00	Madera	EASTSIDE BYPASS
A027242	19141	12868	DM BRYANT FARMS INC	3/9/82	2,534.00	Madera	UNST
A027243	19142	12869	DM BRYANT FARMS INC	3/9/82	30.00	Madera	UNST
A027244	19143	12870	DM BRYANT FARMS INC	3/9/82	6.00	Madera	UNST
A027245	19144	12871	DM BRYANT FARMS INC	3/9/82	13.00	Madera	UNST
A016465	10407	5578	DONALD HARCKSEN	3/9/82	4.00	Madera	LITTLE FINE GOLD CREEK
A014455	9568	4428	DONALD L SMITH	7/14/55	83.00	Merced	MERCED RIVER
A013071	8703	4456	DONALD L. Smith, Trustee	8/30/51	19.6	Madera	UNST
A006467	3448	1295	DONALD M HEINY	5/3/49	171.10	Merced	DUCK SLOUGH
A024520	19878	12836	DOROTHY R AYERS FAMILY TRUST	10/26/29	301.5	Stanislaus	SAN JOAQUIN RIVER
A025872	17656	11870	Double A Ranches	1/7/74	190.2	Madera	ARNOLD CREEK
A012396	7348	4949	EAST STANISLAUS RESOURCES CONSERVATION DISTRICT	11/16/78	19.50	Stanislaus	UNST
A019738	12923	7494	EDWIN DANIELS	3/11/48	20	Stanislaus	TUOLUMNE RIVER
A017633	11484	6138	EL CAJON RETIREMENT RESIDENCE LP	9/14/60	487.9	Madera	UNSP
A017812	11485	6139	EL CAJON RETIREMENT RESIDENCE LP	5/31/57	1.30	Merced	UNST
A017813	11486	6140	EL CAJON RETIREMENT RESIDENCE LP	9/4/57	77.4	Merced	CANAL CREEK, UNST
				9/4/57	8.7	Merced	UNST
					33.1	Merced	UNST

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A018329	11781	6141	EL CAJON RETIREMENT RESIDENCE LP	9/23/58	1.3	Merced	UNST
A018330	11782	6142	EL CAJON RETIREMENT RESIDENCE LP	9/23/58	2.2	Merced	UNST
A024071	16613	10681	EL CAJON RETIREMENT RESIDENCE LP	5/22/72	7	Merced	UNST
A018993	12472	9790	EL CAJON RETIREMENT RESIDENCE LP Total		129.7		
A020244	13495	7998	ELSTIE KING	9/18/59	590	Stanislaus	VIVIAN SLOUGH
A016317	10209	7574	ELSTIE KING Total		590		
A019577	12771	7631	EST OF D E JACKSON & DIXIE R JACKSON	6/2/61	4.50	Madera	UNSP
A019578	12772	7632	FORD RANCH INC	4/19/55	50.00	Fresno	UNST
A019581	12773	7635	FORD RANCH INC	7/26/60	26.00	Fresno	UNST
A011555	6742	3459	FORD RANCH INC Total		19.50		
			FRANK J GOMES DAIRY	7/26/60	13.10	Fresno	UNST
			FRANK J GOMES DAIRY Total		108.60		
A016329	11460	10393	GALLO CATTLE COMPANY, A PARTNERSHIP	9/17/46	941.2	Merced	MERCED RIVER
A016604	11121	7220	GALLO CATTLE COMPANY, A PARTNERSHIP	4/21/55	9,020.00	Merced	LIVINGSTON DRAIN
A012715	8354	4948	GALLO CATTLE COMPANY, A PARTNERSHIP Total		7,239.80		
A012987	7734	10045	GALLO VINEYARDS, INC. (LIVINGSTON RANCH)	9/15/55	16,259.80	Merced	UNSL
A013099	7768	9123	GARY M BARTON	9/27/48	493.7	Merced	MERCED RIVER
A013100	7769	6130	GARY M BARTON	3/18/49	1,506.00	San Joaquin	STANISLAUS RIVER, UNSL
A018715	12116	9960	GARY M BARTON Total		83		
A010255	5965	6445	GEORGE C JONES III	5/17/49	170.6	Stanislaus	STANISLAUS RIVER
A015680	9749	5653	GERTRUDE PELUCCA	5/18/59	66	Stanislaus	STANISLAUS RIVER
A020975	14129	9545	GERTRUDE PELUCCA Total		1,825.6		
A010466	6064	3429	GIRARDI FARMS	8/21/41	1,423.40	Merced	DRY CREEK
A014716	9011	4539	GIRARDI FARMS	1/11/54	273.7	Stanislaus	STANISLAUS RIVER
A023031	16060	6985	GIRARDI FARMS Total		273.7		
A003664	2360	1307	GRAVELLY FORD WATER DISTRICT	10/9/62	2.20	Fresno	UNSP
A006603	3581	2429	GRAVELSTONE RANCH LP	5/25/42	1,279.40	San Joaquin	STANISLAUS RIVER
A012262	7309	6985	GRAVELLY FORD WATER DISTRICT Total		474.5		
A017208	12313	10673	GRAVELSTONE RANCH LP	3/17/52	1,753.9	San Joaquin	STANISLAUS RIVER
A016662	10345	9816	GRAVELSTONE RANCH LP Total		5,000.00		
A005702	3001	1880	HOOGENDAM FAMILY LIMITED PARTNERSHIP	4/18/68	5,000.00	Madera	COTTONWOOD CREEK
			Gregory B. Reed	10/5/23	365	Merced	MERCED RIVER
			Gregory B. Reed Total		660.6		
			HARRY H BAKER JR	3/17/30	1025.6	Merced	MERCED RIVER
			HARRY H BAKER JR Total		2,171.90		
			HARRY H BAKER JR TRUST	1/26/48	2,171.90	Stanislaus	TUOLUMNE RIVER
			HARRY H BAKER JR TRUST Total		2,171.90		
			HOOGENDAM FAMILY LIMITED PARTNERSHIP	8/3/56	580	Madera	FRESNO RIVER
			HOOGENDAM FAMILY LIMITED PARTNERSHIP Total		230		
				10/10/55	230	Stanislaus	SAN JOAQUIN RIVER
				9/29/27	426.5	Merced	NORTH SLOUGH MARIPOSA CREEK

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A005703	3002	1881	HOOGENDAM FAMILY LIMITED PARTNERSHIP	9/29/27	1,279,400	Merced	NORTH SLOUGH MARIPOSA CREEK
HOOGENDAM FAMILY LIMITED PARTNERSHIP Total							
A016934	10634	5993	JACK J GARDELLA JR	3/13/56	1,705.90		
A019042	12593	6945	JACK J GARDELLA JR	10/21/59		Tuolumne	UNST
A020976	14123	8248	JACK J GARDELLA JR	10/9/62	19	Tuolumne	UNST
JACK J GARDELLA JR Total							
A020271	13380	8124	JAMES CURTONI	6/20/61	9	Stanislaus	UNST
JAMES CURTONI Total							
A020364B	13428	008351B	JAMES R CHANCE	3/18/88	8	Merced	UNST
A022977B	15637	009776A	JAMES R CHANCE	3/18/88	50.5	Merced	UNST
JAMES R CHANCE Total							
A009301	5192	4576	JAMES R DEMARTINI	5/20/38	58.5		
JAMES R DEMARTINI Total							
A001195	588	4934	JAMES S CODDINGTON	2/26/19	1,066.10	Stanislaus	TUOLUMNE RIVER
JAMES S CODDINGTON Total							
A027546	19615		JEFF A LION	8/5/96	15,897.80	Stanislaus	SAN JOAQUIN RIVER
JEFF A LION Total							
A026829	18359	12028	Jerry Hollingshead	5/21/81	15,700.00	Madera	EASTSIDE BYPASS (AKA CHOWCHILLA CANAL)
Jerry Hollingshead Total							
A028679	20259	13270	JIMMY W LIPE	12/23/85	0.20	Fresno	UNSP
A028908	20258	13271	JIMMY W LIPE	9/25/86	2.40	Fresno	UNST
JIMMY W LIPE Total							
A020364C	13428	008351C	JOHN SMALLEY	3/18/88	6.00	Merced	UNST
A022977C	15637	009776A	JOHN SMALLEY	3/18/88	11.3	Merced	UNST
JOHN SMALLEY Total							
A006748	3880	2549	JOHN VANDERSCHAAP JR	7/24/30	12.3	San Joaquin	LONE TREE CREEK
JOHN VANDERSCHAAP JR Total							
A011003A	007582A	9073	JOHN HANCOCK LIFE INS. CO.	3/9/45	729.9		FRESNO RIVER
JOHN HANCOCK LIFE INS. CO. Total							
A001442F	940	000388F	JOHN J SHAW	9/10/19	5,727.40	Merced	MERCED RIVER
JOHN J SHAW Total							
A025373	17078	11286	JOHN M LASGOITY	5/31/77	40.6	Madera	UNST
JOHN M LASGOITY Total							
A006539	3403	2044	JOSE DA SILVA	1/20/30	27.1	San Joaquin	UNDR
JOSE DA SILVA Total							
A001322	890	311	JOSEPH E GALLO	6/11/19	182.5	Merced	MERCED RIVER
A016895	10696	6421	JOSEPH E GALLO	2/15/56	182.5	Merced	MERCED RIVER
JOSEPH E GALLO Total							
A013414	7929	5274	Karlene H Bert	10/24/49	45.8	Stanislaus	STANISLAUS RIVER
Karlene H Bert Total							
A011814	7943	3955	Kelsey Ranch LP	4/4/47	799.3	Stanislaus	
A018344	11787	6738	Kelsey Ranch LP	9/29/58	1,002.80	Mariposa, Merced	SOUTH FORK DRY CREEK, UNST
A018345	11788	6480	Kelsey Ranch LP	9/29/58	8.8	Merced	UNCR
A018346	11789	6481	Kelsey Ranch LP	9/29/58	5.6	Merced	UNCR
A018347	11790	6482	Kelsey Ranch LP	9/29/58	4.2	Merced	UNCR
A018348	11791	6739	Kelsey Ranch LP	9/29/58	8.1	Merced	UNCR
Kelsey Ranch LP Total							
A022294	15550	10429	L EUGENE MONDO	9/24/65	1038.5	Merced	UNCR
L EUGENE MONDO Total							
Stanislaus River							

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A026088	18077	12047	L EUGENE MONDO Total		26		
			LEWIS MATHIS	9/13/79	188	Merced	UNST
A027759	19031	12557	LEWIS MATHIS Total		188		
			LINDA OUIMETTE	5/26/83	0.10	Madera	UNSP
A019746	12982	8031	LINDA OUIMETTE Total		0.10		
			LIVE OAK TRUST	9/20/60	17.00	Fresno	UNST
A018540	12215	8522	LIVE OAK TRUST Total		17.00		
			LURINE S TOPHAM	2/19/59	37.50	Fresno	UNST
A019005	12999	8523	LURINE S TOPHAM	9/28/59	45.00	Fresno	UNST
A020869	13897	8524	LURINE S TOPHAM	7/25/62	20.00	Fresno	UNST
A021951	15093	8525	LURINE S TOPHAM	11/4/64	10.00	Fresno	UNST
A022269	15094	9153	LURINE S TOPHAM	8/20/65	20.00	Fresno	UNST
A027159	19743	13028	LURINE S TOPHAM	12/23/81	3.10	Fresno	UNST
A027160	19744	13029	LURINE S TOPHAM	12/23/81	3.20	Fresno	UNST
A010710	6241	5077	LURINE S TOPHAM Total		138.80		
			M & R ZOLEZZI A PARTNERSHIP	9/11/43	273.7	San Joaquin	STANISLAUS RIVER
A017311	11172	9229	M & R ZOLEZZI A PARTNERSHIP Total		273.7		
			MADERA IRRIGATION DISTRICT	10/4/56	4,700.00	Madera	FRESNO RIVER
A013344	8355	6418	MADERA IRRIGATION DISTRICT Total		4,700.00		
			MAGNESON REVOCABLE TRUST	9/8/49	1,122.30	Merced	MERCED RIVER
A005316	2937	4912	MAGNESON REVOCABLE TRUST Total		1,122.30		
A017966	14674	10403	MC MULLIN RECL DISTRICT #2075	12/24/26	35,293.90	San Joaquin	STANISLAUS RIVER
A016136	10115	7561	MC MULLIN RECL DISTRICT #2075 Total		490	San Joaquin	STANISLAUS RIVER
A026875	19669	13106	MC MULLIN RECL DISTRICT #2075	1/29/58	35783.9		
			MENEFEE RIVER RANCH COMPANY	11/15/54	856.9	Merced	FRESNO RIVER
A028626	20066	13378	MENEFEE RIVER RANCH COMPANY Total		4,470.00	Merced	SAN JOAQUIN RIVER
			MENEFEE RIVER RANCH COMPANY	6/16/81	5,326.90		
A001224	914	2685	MENEFEE RIVER RANCH COMPANY Total		0.4	Merced	MERCED RIVER
A006807	5732	5227	MERCED COUNTY FIRE DEPARTMENT	6/20/03	345,440.00	Mariposa, Merced	MERCED RIVER
A008238	4893	6032	MERCED COUNTY FIRE DEPARTMENT Total		1,251.20	Merced	DEADMAN CREEK
A010572	6808	6047	MERCED IRRIGATION DISTRICT	2/11/35	5,066.00	Merced	DUCK SLOUGH
A018774	13088	9429	MERCED IRRIGATION DISTRICT	6/20/03	63,719.90	Merced	MERCED RIVER
A005269	2727	1173	MERCED IRRIGATION DISTRICT Total		5,000.00	Merced	DUCK SLOUGH
			MICHAEL PASSALAQUA	11/15/26	420,477.10		
A004233	2261	1616	MICHAEL PASSALAQUA Total		635.4	Stanislaus	TUOLUMNE RIVER
A004233	2261	1616	MICHAEL J KNAPP	2/28/36	255.5	Madera	CHOWCHILLA RIVER
A025113	17303	11417	MICHAEL J KNAPP Total		255.5		
			MICHELLE MIDBOE	7/27/76	511	Fresno	UNSP
A006393	3386	3044	MICHELLE MIDBOE Total		0.30		
A017729	11214	6782	MOONSHINE DAIRY	8/3/29	868.8	Stanislaus	SAN JOAQUIN RIVER
A013218	8130	5170	MOONSHINE DAIRY Total		868.8		
			MUIR TRAIL RANCH, INC	7/19/57	271.70	Fresno	SENGER CREEK
A011048	7584	5753	MUIR TRAIL RANCH, INC Total		1,630.40	Merced	SNAKE SLOUGH
			Myers Ranch, LLC	7/8/49	1,630.40		
			Myers Ranch, LLC Total		3,979.70	Madera	FRESNO RIVER
			N & W Land Co. LLC	6/30/59	3,979.70		
			N & W Land Co. LLC Total		3,979.70		

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A020148	13372	7960	NANCY GASSETT	5/25/61	5.90	Fresno	UNST
A010957	6373	3036	NANCY GASSETT Total		5.90		
A008892	4924	2634	NORTH FORK COMMUNITY DEVELOPMENT COUNCIL	1/15/45	44.20	Madera	SOUTH FORK WILLOW CREEK
A009666	5421	2706	NORTH FORK COMMUNITY DEVELOPMENT COUNCIL Total		44.20		
A025688	17834	11824	OAKDALE IRRIGATION DISTRICT	2/3/37	1,665.90	Stanislaus	STANISLAUS RIVER
A0111324	6615	3051	OAKDALE IRRIGATION DISTRICT	7/17/39	616.5	Stanislaus	STANISLAUS RIVER
A027777	19139	19591	OAKDALE IRRIGATION DISTRICT Total		2282.4		
A027880	19139	19591	PATRICIA J MANNING	3/3/78	1,471.00	Madera	SAN JOAQUIN RIVER
A001633	784	2072	PATRICIA J MANNING Total		1,471.00		
A004607	2357	2071	PATRICK DAVID MARTIN	3/25/46	4.50	Fresno	UNSP
A023561	16184	10646	PHIL MUELLER	6/23/83	85	Merced	DUTCHMAN CREEK
A014484	9229	5249	PHIL MUELLER	9/16/83	85	Merced	DUTCHMAN CREEK
A015919	10316	8498	PHIL MUELLER Total		170		
A004945	2593	1336	PHILIP DICKERSON	1/20/20	1,518.30	Stanislaus	TUOLUMNE RIVER
A010365	5942	3035	PHILIP DICKERSON	5/26/25	356.6	Stanislaus	TUOLUMNE RIVER
A001442C	940	000388C	PHILIP DICKERSON Total		1,874.9		
A026674	18416	12251	PREMIERE AGRICULTURAL PROPERTIES LLC	7/20/70	720	Madera	COTTONWOOD CREEK
A029133	20326	13324	PREMIERE AGRICULTURAL PROPERTIES LLC Total		720		
A011390	6631	7451	RANCHERIA WATER & IMPROVEMENT ASSN	9/14/51	3.90	Fresno	POTTER CREEK
A004460	2277	8697	RANCHERIA WATER & IMPROVEMENT ASSN Total		3.90		
A009834	5533	2827	RAY GENE VELDHIJS	6/18/54	815.2	Merced	JONES DRAIN
A013628	8140	4918	RAY GENE VELDHIJS Total		815.2		
A025168	17424	11416	RECLAMATION DISTRICT #2039	3/5/26	56,904.60	San Joaquin	MIDDLE RIVER, TRAPPER SLOUGH
A020364A	13428	008351A	RECLAMATION DISTRICT #2039 Total		56,904.60		
A022976	15636	9777	REDEVELOPMENT AGENCY OF THE COUNTY OF MADERA	1/19/42	36.20	Fresno	SOUTH FORK WILLOW CREEK
A022977A	15637	009776A	REDEVELOPMENT AGENCY OF THE COUNTY OF MADERA Total		36.20		
A001628	692	289	RICCI THORESON	9/10/19	123.7	Merced	MERCED RIVER
A003516	1620	2009	RICCI THORESON Total		123.7		
A020135	13652	8479	RICHARD LIAL	12/23/80	10.3	Stanislaus	UNST
			RICHARD LIAL	11/9/87	6	Stanislaus	UNST
			RICHARD LIAL Total		16.3		
			RICHARD MARCHY	5/4/46	818.2	Stanislaus	TUOLUMNE RIVER
			RICHARD MARCHY Total		818.2		
			RIVER JUNCTION RECL DIST NO 2064	2/14/25	30,828.30	San Joaquin	SAN JOAQUIN RIVER, STANISLAUS RIVER
			RIVER JUNCTION RECL DIST NO 2064 Total		30,828.30		
			Robert Albert Brocchini Trust	2/21/40	2,129.60	San Joaquin	STANISLAUS RIVER
			Robert Albert Brocchini Trust	3/10/50	366	Stanislaus	STANISLAUS RIVER
			Robert Albert Brocchini Trust Total		2,495.6		
			ROBERT B FITZGERALD	10/5/76	0.40	Fresno	UNSP
			ROBERT B FITZGERALD Total		0.40		
			ROBINSON CATTLE COMPANY	3/18/88	16	Merced	UNST
			ROBINSON CATTLE COMPANY	1/31/68	37	Merced	UNST
			ROBINSON CATTLE COMPANY Total		54.9		
			Roger K Beeman	1/15/20	251.8	Stanislaus	STANISLAUS RIVER
			Roger K Beeman Total		251.8		
			ROY H RICHARDS	4/1/40	901.5	Stanislaus	STANISLAUS RIVER
			ROY H RICHARDS Total		1,153.3		
				5/17/61	48.9	Merced	UNST

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ROY H RICHARDS Total							
A017362	10979	6834	ROY N TALLMAN	11/19/56	48.9	Fresno	UNXX
A017363	10980	6835	ROY N TALLMAN	11/19/56	48.00	Fresno	UNXX
A017364	10981	6836	ROY N TALLMAN	11/19/56	8.00	Fresno	UNXX
ROY N TALLMAN Total							
A004061	1901	937	Sharon D. Naraghi	3/9/42	182	Stanislaus	DRY CREEK
A009225	5127	2374	Sharon D. Naraghi	1/12/38	477.6	Stanislaus	DRY CREEK
Sharon D. Naraghi Total							
A004709	2381	2131	SHEILA KLIOWER	7/21/25	659.6	Madera	UNSP
SHEILA KLIOWER Total							
A015924	10002	5636	SHIRLEY M WELDON	6/21/54	48.00	Fresno	LITTLE DRY CREEK, UNST
A015925	10003	5637	SHIRLEY M WELDON	6/21/54	48.00	Fresno	LITTLE DRY CREEK, UNST
SHIRLEY M WELDON Total							
A020138	13359	9235	SIERRA LINDA MUTUAL WATER COMPANY INC	5/19/61	16.80	Madera	UNSP
SIERRA LINDA MUTUAL WATER COMPANY INC Total							
A005271	2761	741	SIERRA PINES YOUTH CAMP, INC	11/16/26	16.80	Madera	UNSP (2)
SIERRA PINES YOUTH CAMP, INC Total							
A017751	11504	6280	SPRING CREEK IMPROVEMENT ASSN	8/1/57	14.50	Fresno	SPRING CREEK
SPRING CREEK IMPROVEMENT ASSN Total							
A018950			STATE WATER RESOURCES CONTROL BOARD	8/28/59	2.80	Madera	FRESNO RIVER
STATE WATER RESOURCES CONTROL BOARD Total							
A028166	19456	12734	STEVE FIELDS	6/21/84	0	Madera	UNST
STEVE FIELDS Total							
A001885	893	5397	STEVINSON WATER DISTRICT	1/14/59	10	Stanislaus	MERCED RIVER
A005724	5726	5940	STEVINSON WATER DISTRICT	10/17/27	16,716.90	Merced	BEAR CREEK, OWENS CREEK
A006111	5729	5941	STEVINSON WATER DISTRICT	11/5/28	79,534.40	Merced	ARENA SPILLWAY, BEAR CREEK, MCCOY SPILLWAY, OWENS CREEK
A007012	5733	6222	STEVINSON WATER DISTRICT	7/20/31	58,552.90	Merced	ARENA SPILLWAY, BEAR CREEK
A0273268			STEVINSON WATER DISTRICT	4/26/91	35,619.70	Merced	ARENA SPILLWAY, BEAR CREEK
A027469			SUSIE MOODY	7/20/31	190,423.90	Merced	UNST
A020049	19303	12759	SUSIE MOODY	4/26/91	0.70	Fresno	UNST
A001925	13203	12763	SUSIE MOODY	8/10/82	29.00	Fresno	UNST
A029279	838	8939	TAMAR V ARMSTRONG	3/24/61	29.70	Madera	UNSP
TAMAR V ARMSTRONG Total							
A029279	20627	366	The Irrevocable Flying M Ranch Trust	7/15/24	10.60	Merced	BURNS CREEK
The Irrevocable Flying M Ranch Trust Total							
A010797	6505	5402	THE PROTESTANT EPISCOPAL BISHOP OF S J	6/24/88	424.5	Madera	LEWIS FORK FRESNO RIVER, UNST
A024973	17419	11605	THE VANDER WOUDE FAMILY REVOCABLE TRUST OF NOV 25 2003	4/11/44	11	Merced	NORTH SLOUGH MARIPOSA CREEK
THE VANDER WOUDE FAMILY REVOCABLE TRUST OF NOV 25 2003 Total							
A015628	11092	12268	U S FISH & WILDLIFE SERVICE	12/2/53	617.1	Merced	BRAVEL SLOUGH, DEEP SLOUGH
A020246	14323	10139	U S FISH & WILDLIFE SERVICE	8/5/61	360	Merced	DUCK SLOUGH
A027586	19473	5342	U S FISH & WILDLIFE SERVICE	11/17/82	3,000.00	Merced	DEADMAN CREEK
U S FISH & WILDLIFE SERVICE Total							
A012416	7363	5342	U S SIERRA NATL FOREST	3/18/48	2.40	Fresno	BEAR CREEK, MONO CREEK
A013904	8656	4608	U S SIERRA NATL FOREST	8/18/50	96.00	Madera	MCCLOURE LAKE CREEK
A013907	8659	4609	U S SIERRA NATL FOREST	8/18/50	155.00	Madera	LILLIAN LAKE CREEK
A014150	8681	4064	U S SIERRA NATL FOREST	2/6/51	0.30	Fresno	RANCHERIA CREEK

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A016424	10496	8203	U S SIERRA NATL FOREST	6/20/55	9.20	Madera	UNSP
A016426	10270	6263	U S SIERRA NATL FOREST	6/20/55	5.20	Fresno	COON CREEK
A017209	10992	6266	U S SIERRA NATL FOREST	8/3/56	100.00	Madera	RUTHERFORD LAKE CREEK
A017439	11009	7270	U S SIERRA NATL FOREST	1/28/57	29.00	Madera	UNSP
A017594	11166	7587	U S SIERRA NATL FOREST	5/10/57	0.50	Madera	UNSP
A017595	11167	7588	U S SIERRA NATL FOREST	5/10/57	0.20	Madera	UNSP
A018245	12266	7274	U S SIERRA NATL FOREST	7/30/58	8.00	Fresno	BEAR CREEK
A018318	12267	8388	U S SIERRA NATL FOREST	9/15/58	16.10	Fresno	BIG CREEK
A019420	12420	7325	U S SIERRA NATL FOREST	5/6/60	103.00	Madera	MCCLURE LAKE
A019634	12729	7589	U S SIERRA NATL FOREST	8/1/60	0.10	Fresno	UNSP
A019635	12730	7590	U S SIERRA NATL FOREST	8/1/60	0.10	Fresno	UNSP
A019636	12731	6696	U S SIERRA NATL FOREST	8/1/60	0.40	Fresno	UNSP
A019637	12732	6697	U S SIERRA NATL FOREST	8/1/60	0.40	Fresno	UNSP
A019638	12733	6698	U S SIERRA NATL FOREST	8/1/60	0.10	Fresno	UNSP
A019639	12734	6699	U S SIERRA NATL FOREST	8/1/60	0.10	Fresno	UNSP
A019640	12735	6700	U S SIERRA NATL FOREST	8/1/60	0.40	Fresno	UNSP
A019641	12736	6914	U S SIERRA NATL FOREST	8/1/60	0.10	Fresno	UNSP
A019676	12738	7781	U S SIERRA NATL FOREST	8/18/60	0.40	Madera	UNSP
A019839	13175	8145	U S SIERRA NATL FOREST	11/3/60	8.80	Fresno	LINE CREEK
A019930	13146	9121	U S SIERRA NATL FOREST	1/24/61	11.20	Madera	UNSP
A021107	14247	9089	U S SIERRA NATL FOREST	1/2/63	0.70	Madera	MOUSE TRAP SPRING
A023979	16611	10878	U S SIERRA NATL FOREST	2/10/72	0.20	Fresno	UNSP
A027719	19882	13043	U S SIERRA NATL FOREST	4/12/83	0.20	Fresno	UNSP
A000023	273	1986	U.S. BUREAU OF RECLAMATION	3/27/15	548.10		
A000234	11885	1986	U.S. BUREAU OF RECLAMATION	6/29/59	44,340.00	Madera	SAN JOAQUIN RIVER
A001465	11886	1986	U.S. BUREAU OF RECLAMATION	6/29/59	2,124,486.50	Madera	SAN JOAQUIN RIVER
A005638	11887	1986	U.S. BUREAU OF RECLAMATION	6/29/59	2,124,486.50	Madera	SAN JOAQUIN RIVER
A0148588	20245	1986	U.S. BUREAU OF RECLAMATION	7/18/88	3,917,477.50	Madera	SAN JOAQUIN RIVER
A018714	16301	13836	U.S. BUREAU OF RECLAMATION	5/15/59	1,000,000.00	Calaveras, San Joaquin	STANISLAUS RIVER
A018733	16584	13836	U.S. BUREAU OF RECLAMATION	8/25/11	143,000.00	Madera	CHOWCHILLA RIVER
A013345	8356	6419	UHRHAMMER PROPERTIES	9/8/49	71,600.00	Madera	FRESNO RIVER
A011438	6672	3314	V A RODDEN INC	6/17/46	9,425,390.50		MERCED RIVER
A030613	21156	3314	V A RODDEN INC	7/10/03	405		UNION SLOUGH
A006160	5731	4638	VANDER WOUDE FARMS	1/14/29	1,273.40	Stanislaus	UNION SLOUGH
A005386	2847	1518	VANDER-WOUDE DAIRY	3/21/27	3,769.50	Stanislaus	NORTH SLOUGH MARIPOSA CREEK
A013496	8037	4747	VERNA M MURRAY	12/2/49	5,042.90		DUCK SLOUGH
A006479	3582	1443	VISTA LIVESTOCK COMPANY	11/6/29	138.7		TUOLUMNE RIVER
A006114	5730	2911	W P RODUNER CATTLE & FARMING COMPANY	11/9/28	83.9	Stanislaus	DRY CREEK
A011653	7585	4910	W P RODUNER CATTLE & FARMING COMPANY	12/10/46	36.6		DUCK CREEK
A012635	8702	4909	W P RODUNER CATTLE & FARMING COMPANY	8/6/48	2,945.50	Merced	ASH CREEK
			W P RODUNER CATTLE & FARMING COMPANY Total		14,519.20	Madera	OWENS CREEK
			W P RODUNER CATTLE & FARMING COMPANY Total		12,810.20	Merced	
			W P RODUNER CATTLE & FARMING COMPANY Total		30,274.90		

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A020268	13377	7963	WALTER D HARRIS TRUSTEE OF THE WALTER D HARRIS TRUST DATED SEPTEMBER 29 2005	6/20/61	23.80	Fresno	UNST
A020269	13378	7964	WALTER D HARRIS TRUSTEE OF THE WALTER D HARRIS TRUST DATED SEPTEMBER 29 2005	6/20/61	28.00	Fresno	UNST
A020270	13379	7965	WALTER D HARRIS TRUSTEE OF THE WALTER D HARRIS TRUST DATED SEPTEMBER 29 2005	6/20/61	45.00	Fresno	UNST
A016936	10636	5995	WALTER D HARRIS TRUSTEE OF THE WALTER D HARRIS TRUST DATED SEPTEMBER 29 2005 Total		96.80		
A019044	12595	6947	WILLIAM J FOGARTY	3/13/56	22.7	Stanislaus	UNST
A020928	14122	8247	WILLIAM J FOGARTY	10/21/59	30	Stanislaus	UNST
A015371	9578	5478	WILLIAM J FOGARTY Total	9/5/62	72.7		
A023861	16610	10928	WILLIAM J HALL	6/8/53	91.2	Stanislaus	TUOLUMNE RIVER
A019227	12707	7805	WILLIAM J HALL Total	9/3/71	91.2		
A022724	15563	9796	WILLIAM J JAWIEN	2/9/60	0.70	Fresno	UNSP
A022727	15566	9848	WILLIAM J JAWIEN Total	5/26/71	61.50	Madera	UNST
A001442B	940 000388B	940 000388B	William O Jamison	3/13/67	20.3	Madera	UNST
A026152	18151	12012	William O Jamison Total	9/10/19	11.60	Madera	UNST
			WILMA R THOMPSON	12/26/79	93.40		MERCED RIVER
			WILMA R THOMPSON Total		119.1		UNSP
			WILSHIRE ALEC		0.40		
			WILSHIRE ALEC Total		0.40		
			Grand Total		10,484,617.10		

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Appendix D

**Section D.7
Priority Rankings for Sacramento River Water Rights Claimants**

Sacramento + Trinity + East and West Creeks Above Feather River Confluence by Priority - Post-1914 Appropriative Water Rights

Post-1914 Water Right Holder Name	Priority Date	Face Amount
Reclamation District 1004	4/2/1915	56.0
Reclamation District 108	1/25/1917	97.5
River Garden Farms Company	1/25/1917	29.3
Sutter Mutual Water Company	2/1/1917	21.9
Tisdale Irrigation & Drainage Co	7/26/1917	12.5
Reclamation District 108	8/27/1917	270.7
Oji Brothers	1/3/1918	1.9
Sutter Mutual Water Company	1/3/1918	265.7
Provident Irrigation District	1/18/1918	40.1
Stanford Vina Ranch Irrigation Co	8/5/1918	4.6
Natomas Central Mutual Water Co	8/22/1918	16.2
Lomo Cold Storage	9/10/1918	2.0
Meridian Farms Water Company	9/10/1918	67.3
Sutter Mutual Water Company	1/24/1919	19.7
Conaway Preservation Group LLC	3/1/1919	43.6
Natomas Central Mutual Water Co	3/5/1919	58.4
Natomas Central Mutual Water Co	8/27/1919	36.7
Provident Irrigation District	9/2/1919	3.4
Glenn-Colusa Irrigation District	12/3/1919	28.1
Glenn-Colusa Irrigation District	1/14/1920	10.8
Rancho Esquon, Inc	2/5/1920	3.7
Sycamore Mutual Water Company	2/9/1920	42.5
Reclamation District 999	2/11/1920	58.4
Sutter Mutual Water Company	4/9/1920	1.5
US Bureau of Reclamation	2/17/1921	50.2
Butte Valley Irrigation District	2/28/1921	17.2
Rancho Esquon, Inc	10/9/1921	1.8
Rancho Esquon, Inc	3/4/1922	3.8
Gorrill Land Company	3/6/1922	4.6
Rancho Esquon, Inc	6/27/1922	3.0
Hot Springs Valley Irrigation District	4/12/1923	48.4
Sacramento River Ranch II	5/17/1923	2.6
Reclamation District 999	7/18/1924	3.9
Gorrill Land Company	6/30/1925	4.5
Rancho Esquon, Inc	6/30/1925	4.6
Sutter Mutual Water Company	6/22/1926	3.3
M & T Incorporated	7/17/1926	5.1
Parrott Investment Company	7/17/1926	5.1
Sacramento River Ranch II	2/17/1927	1.8
Subtotal Before Initial State Filings in 1927		1,352.4
US Bureau of Reclamation	7/30/1927	11,153.8
US Bureau of Reclamation	7/30/1927	3,349.9
Sutter Mutual Water Company	1/31/1928	0.1
Lomo Cold Storage	11/14/1929	20.3
Conaway Preservation Group LLC	4/18/1930	5.4
Natomas Central Mutual Water Co	5/28/1931	15.4
County of Sacramento	6/6/1931	2.7
Lomo Cold Storage	3/21/1932	0.7
South Fork Irrigation District	3/5/1934	17.0
Reclamation District 883	5/1/1934	2.2
M & T Incorporated	12/1/1934	5.1
Parrott Investment Company	12/1/1934	5.1
M & T Incorporated	2/27/1936	3.1
Parrott Investment Company	2/27/1936	3.1
Maxwell Irrigation District	4/8/1936	29.0
Glenn-Colusa Irrigation District	5/28/1936	0.7
Subtotal Before Second State Filings in 1938		14,613.5
US Bureau of Reclamation	8/2/1938	7,818.8

Sacramento + Trinity + East and West Creeks Above Feather River Confluence by Priority - Post-1914 Appropriative Water Rights

Post-1914 Water Right Holder Name	Priority Date	Face Amount
Calif Dept of Fish & Game	6/19/1939	5.5
M & T Incorporated	9/22/1939	13.6
Parrott Investment Company	9/22/1939	13.6
Sutter Mutual Water Company	11/3/1939	0.6
Gorrill Land Company	3/13/1942	3.9
Sutter Mutual Water Company	6/16/1943	3.7
Oji Brothers	1/11/1945	2.9
Oji Brothers	3/6/1946	0.6
Reclamation District 108	5/26/1947	27.4
River Garden Farms Company	5/29/1947	6.3
Sutter Mutual Water Company	6/23/1947	2.7
Conaway Preservation Group LLC	9/8/1947	70.1
Glenn-Colusa Irrigation District	10/8/1947	3.4
Sycamore Mutual Water Company	3/17/1948	2.2
Pelger Mutual Water Company	4/13/1948	22.8
Sutter Mutual Water Company	4/13/1948	15.3
Sycamore Mutual Water Company	3/25/1949	2.3
US Fish & Wildlife Service	1/12/1950	44.2
Oji Brothers	2/20/1950	1.0
Reclamation District 108	2/24/1950	78.0
Maxwell Irrigation District	8/25/1950	4.9
Maxwell Irrigation District	6/28/1951	1.6
Subtotal Before Feather River Project Rights Filed in 1951		8,145.4
CA DWR	8/25/1951	1,575.2
Natomas Central Mutual Water Co	10/8/1953	11.8
M & T Incorporated	5/10/1954	0.5
Parrott Investment Company	5/10/1954	0.5
Lomo Cold Storage	11/28/1955	0.2
Tisdale Irrigation & Drainage Co	4/3/1956	1.4
Princeton-Codora-Glenn Irrig Dist	5/2/1956	15.1
US Bureau of Reclamation	11/28/1956	1,335.4
US Bureau of Reclamation	11/28/1956	1,230.8
CA DWR	3/15/1957	1,100.0
Maxwell Irrigation District	6/24/1957	34.6
Calif Dept of Fish & Game	10/24/1957	5.3
US Fish & Wildlife Service	10/25/1957	8.0
US Bureau of Reclamation	4/30/1958	160.0
US Bureau of Reclamation	9/16/1959	3,030.8
South Fork Irrigation District	3/14/1960	2.2
US Bureau of Reclamation	7/28/1960	1,335.4
US Bureau of Reclamation	4/12/1961	9,032.0
US Fish & Wildlife Service	7/3/1961	21.7
Subtotal of Most Feather River and CVP Filings 1951-1961		18,901.0
Rancho Esquon, Inc	2/5/1965	5.5
US Fish & Wildlife Service	7/19/1965	14.5
Gorrill Land Company	10/25/1965	2.5
Hot Springs Valley Irrigation District	3/17/1966	20.0
Reclamation District 999	4/1/1966	35.6
Sutter Mutual Water Company	9/7/1967	2.0
Butte Valley Irrigation District	4/10/1968	10.0
Calif Dept of Fish & Game	7/24/1968	5.2
Reclamation District 1004	12/26/1968	21.0
Pelger Mutual Water Company	3/13/1972	1.7
Calif Dept of Fish & Game	12/21/1972	5.5
Sycamore Mutual Water Company	12/22/1972	1.0
Sacramento River Ranch II	3/1/1973	12.7
Calif Dept of Fish & Game	4/10/1974	7.4
Gorrill Land Company	4/12/1978	4.4

Sacramento + Trinity + East and West Creeks Above Feather River Confluence by Priority - Post-1914 Appropriative Water Rights

Post-1914 Water Right Holder Name	Priority Date	Face Amount
Reclamation District 1004	12/1/1978	36.0
County of Sacramento	8/19/1982	0.5
Pelger Mutual Water Company	9/16/1994	5.0
Maxwell Irrigation District	2/17/1995	13.6
Princeton-Codora-Glenn Irrig Dist	11/19/1998	24.4
Provident Irrigation District	11/19/1998	26.7
Glenn-Colusa Irrigation District	2/18/1999	182.9
City of Sacramento	10/30/2000	81.8
Provident Irrigation District	2/27/2001	124.5
Princeton-Codora-Glenn Irrig Dist	12/17/2001	71.8
US Bureau of Reclamation	7/29/2002	2,203.1
Glenn-Colusa Irrigation District	5/3/2006	53.7
Sacramento County Water Agency	2/15/2008	71.0
Reclamation District 108	10/18/2010	36.0
Woodland-Davis Clean Water Agency	4/14/2011	45.0
Subtotal Since 1963		3,125.0
Total		46,137.3

Source: State Water Resources Control Board; California Water Impact Network.

Appendix E

Appendix E Water Availability Analysis Model Assumptions and Methodology

Analysis of water supply availability must account for water rights claims in addition to the variability contained within watershed hydrology. C-WIN's method of water supply availability has three components: watershed hydrology, known water rights claims, and yield estimation from the interaction of hydrology and water claims. All analytic methods contain assumptions.

Hydrology and Instream Flow Assumptions:

- The State Water Resources Control Board adopts a Delta inflow criterion for the major tributaries of the San Joaquin River Basin of 60 percent of unimpaired flow. This implies a diversion cap not to exceed 40 percent of unimpaired flow in the San Joaquin River Basin.
- The State Water Resources Control Board adopts a Delta inflow criterion for the major tributaries of the Sacramento River Basin of 75 percent of unimpaired flow. This implies a diversion cap not to exceed 25 percent of unimpaired flow in the San Joaquin River Basin. As with the San Joaquin, C-WIN is well aware that this is an assumption, not a foregone conclusion.
- C-WIN's water supply availability analysis relies on the 82-year unimpaired flow hydrology prepared for water years 1922 through 2003 by the California Department of Water Resources (2007). These data are arrayed by major watershed of the Central Valley and Delta. C-WIN calculated monthly decile, quartile and median flows by month and year, and then calculated the subtotals for key regulation periods: November through June for the Sacramento River Basin, and February through June for the San Joaquin River Basin. The percent of regulated period to total flows in the unimpaired hydrology was also calculated for each year, from which deciles, quartiles, medians, averages, and minima and maxima were calculated.
- The annual total and regulated period subtotals were then employed in the water rights yield analysis component. Remaining flows in the non-regulation season (July to October in the Sacramento Basin, July to January in the San Joaquin Basin) are estimated by simply subtracting regulation season flows from annual totals.
- All non-regulated flows are assumed to be fully available for diversion by water right holders; no instream flow requirements are assumed for the unregulated flow period. This assumption inflates the amount of water that junior water right holders would be allocated during this period of the year, and may ignore temperature restrictions for fish protection.
- No monthly breakdown of flows and diversion allocations is attempted.
- Use of an 82-year unimpaired flow hydrology accounts for inter-annual flow variations in assessing the potential for paper water.

Water Rights Claims Assumptions:

- C-WIN sought to gather water rights information from a variety of sources. Using the Public Records Act, C-WIN requested from nearly 100 different public water districts and agencies information concerning any and all pre-1914 water rights they may have. Many had no pre-1914 water rights. Others provided copies of pre-1914 notices, copies of adjudication decrees, operation agreements, diagrams, statements of diversion and use, and other

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information that described their early water rights claims. C-WIN wishes to express our gratitude for their helpful responses, which are too numerous to mention here.

- C-WIN also gathered from the State Water Resources Control Board's web site copies of adjudication decrees from the Pit River watershed, the Stanislaus River, Butte Creek, and the Indian Creek and Middle Fork Feather River watersheds.
- State law requires that pre-1914 and riparian water right holders file Statements of diversion and use with the State Water Resources Control Board annually. The Board has made most, but not yet all SDUs available online. The Board's eWRIMS database search engine itemizes each SDU but does not provide usage quantities when query answers are returned in the vast majority of cases. Consequently, C-WIN staff downloaded as many as possible to study and record the highest usage claims, as well as year of first usage. C-WIN includes only SDUs with cumulative usage claims by the same claimant that exceed 1,000 acre-feet. This kept the research scope manageable, while also capturing statistically significant cumulations of water usage.
- C-WIN's reliance on SDUs assumes that each usage report they contain is accurately measured. The highest amount claimed is employed to represent the maximum claim that might be exerted by the water right holder on behalf the right under which the reported diversion was made. This is assumed to be the case regardless of whether the type or right claimed is riparian or pre-1914.
- Many SDUs do not provide adequate usage information, however, and were ignored. Therefore, it is quite possible that C-WIN's use of SDU data in this analysis understates the magnitude and location of riparian and pre-1914 water rights claims throughout the Sacramento and San Joaquin river basins.

Yield Analysis Assumptions:

- The water rights priority system would operate subordinate to the application of water quality instream flow objectives.
- The obverse of the Board's instream flow objectives is referred to in our method as a "diversion cap." a 75 percent of unimpaired flow criterion thus is converted to a 25 percent of unimpaired flow diversion cap for Sacramento River Basin rivers in this analysis. In other words, if 75 percent of unimpaired flow is available for fish and aquatic beneficial uses, the 25 percent of unimpaired flow is available for diversion to consumptive uses. For the San Joaquin River Basin, a 60 percent of unimpaired flow objective is reflected in the analysis as a 40 percent of unimpaired flow diversion cap.
- Under the diversion cap, paramount riparian water rights are given first diversion rights, followed by senior pre-1914 water right holders, based on highest usage claimed, the cumulative face amount of water rights claim notices, adjudications, or other water rights claim source. For some river models, riparian and pre-1914 water rights claims are bundled together to simplify the analysis when the pre-1914 rights are senior to all other succeeding rights. Only after major pre-1914 water rights claims are any post-1914 appropriative water rights granted by the State of California provided with any remaining flows. Post-1914 water rights that are not shown in a specific river model's results are left off because no flows are left for these rights to divert given the model's operation.
- SDU highest use claims, adjudication allocations, and pre-1914 water right notice claims by the same entities are summed. While this appears to be double-counting, we believe it is important to cumulate them on the assumption that when the Board or a court undertakes

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to adjust water rights, the Board or court must be aware of all claims (both in notices as well as in uses) made in order to remove clouds from their titles.

- As noted above, the unimpaired flow hydrology data is analyzed to determine an average percent of regulated period to total flow for each river. This average indicates that share of the hydrograph's overall flows that occur during the regulated period. We assume that water right claimants claim their supplies under the diversion in a manner that is directly proportional to the regulated period's share of the overall total flow for that river. (This is a water diverter's way of "mimicking the natural hydrograph.") For all riparian and many pre-1914 water right holders, this seemed a reasonable assumption; for post-1914 water right holders whose rights may have limited seasons of diversion or contributions to storage, this assumption may break down. However, but this assumption might only come into play during the wettest portions of each river's overall unimpaired flow hydrology, if at all. The factors used for each river system is shown in Table E-1:

Sacramento River Basin		San Joaquin River Basin	
River	Regulated Period as Percent of Total Unimpaired Flow	River	Regulated Period as Percent of Total Unimpaired Flow
Trinity	94%	Stanislaus	85%
Sacramento River at Feather River Confluence	87%	Tuolumne	76%
Feather	90%	Merced	81%
Yuba	94%	San Joaquin	77%
Bear	97%		
American	95%		

Sources: California Department of Water Resources 2007; California Water Impact Network.

- Default calculation method for pre-1914 water rights notices are often expressed in cubic feet per second (cfs) without seasonal limitation are to multiply the cfs by 3600 (seconds per hour), then by 24 (hours in a day), then by 365.25 days per year. The result is then divided by 43,560 square feet to the acre to obtain the face amount expressed in acre-feet.
- Default calculation method for pre-1914 water rights notices expressed in miners inches is to divide the miners inches by 50 to convert the claim to cubic feet per second, then follow the calculation for converting cfs claims to acre-feet of face amount. We see this as a conservative conversion assumption. Some pre-1914 water right holders may have legal documents that suggest that the conversion should be 40 miners inches to 1 cubic feet per second. This would increase the face value of such pre-1914 water rights by 20 percent.

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- Default calculation method for water rights claims (particularly in SDUs) expressed in gallons per day was to divide the gallons by 325,851 gallons per acre-foot, then multiply by the number of days in the usage season disclosed in the SDU.
- These calculation methods are employed for estimating the quantity of rights administered under adjudication decrees as well. Diversion seasons mandated under the decrees were used as well.

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Appendix F

**Appendix F
California Water Code Article 1.3
Declaration of Fully Appropriated Streams**

1205. (a) Following notice and hearing, the board may adopt a declaration that a stream system is fully appropriated. As used in this article, "stream system" includes stream, lake, or other body of **water**, and tributaries and contributory sources, but does not include an underground **water** supply other than a subterranean stream following through known and definite channels.

(b) A declaration that a stream system is fully appropriated shall contain a finding that the supply of **water** in the stream system is being fully applied to beneficial uses where the board finds that previous **water** rights decisions have determined that no **water** remains available for appropriation.

(c) Upon its own motion or upon petition of any interested person, and following notice and hearing, the board may revoke or revise a declaration that a stream system is fully appropriated.

1206. (a) From and after the date of adoption of a declaration that a stream system is fully appropriated, and subject to subdivision (b), the board shall not accept for filing any application for a permit to appropriate **water** from the stream system described in that declaration, and the board may cancel any application pending on that date.

(b) Notwithstanding subdivision (a), the board may provide, in any declaration that a stream system is fully appropriated, for acceptance for filing of applications to appropriate **water** under specified conditions. Any provision to that effect shall specify the conditions and may contain application limitations, including, but not limited to, limitations on the purpose of use, on the instantaneous rate of diversion, on the season of diversion, and on the amount of **water** which may be diverted annually. The board may make those limitations applicable to individual applications to appropriate **water**, or to the aggregate of the applications, or to both.

(c) Subdivision (a) shall not apply to applications for temporary permits made pursuant to Chapter 6.5 (commencing with Section 1425) or to any provision of this **code** respecting change in point of diversion, place of use, or purpose of use.

1207. Notice of hearing pursuant to this article shall be given as follows:

(a) The notice shall be published at least once a week for four consecutive weeks in one or more newspapers of general circulation published in each county in which any part of the stream system is situated, and publication shall be complete at least 60 days prior to the date of hearing.

(b) At least 60 days prior to the date of the hearing, the notice shall be mailed to all persons known to the board who own land that appears to be riparian to the stream system, who divert **water** from the stream system, or who have made written request to the board for special notice of hearing pursuant to this article.

Appendix G
Selected Fully-Appropriated Rivers and Creeks
of the Bay-Delta Estuary's Central Valley Watershed

River	Fully-Appropriated Season	Critical Reach
Trinity	1/1 to 12/31	North Fork from Salmon-Trinity Primitive Area to Helena at river mouth (W&S)
	1/1 to 12/31	South Fork Trinity from State Route 36 to river mouth at Salver (W&S)
	1/1 to 12/31	Main stem from 100 yards below Lewiston Dam to river mouth at Weitchpec (W&S)
Pit River	4/1 to 11/30	North and South Forks, Franklin Creek, and Pit River in Big Valley adjudications
	3/15 to 10/31	Ash Creek from confluence with Pit River upstream (adjudication)
McCloud	1/1 to 12/31	Mainstem from Algoma to Lake McCloud, mainstem from McCloud Dam to Shasta Lake (W&S)
Squaw Creek	1/1 to 12/31	Squaw Valley Creek from Section 14, T38N, R3W to confluence with McCloud River
Feather	1/1 to 12/31	Middle Fork from confluence of its tributary streams 1 KM south of Beckwourth, CA. (W&S)
	5/15 to 9/30	Middle Fork at Beckwourth, CA upstream (D-831)
	4/1 to 11/30	Indian Creek from North Fork Feather upstream (adjudication)
	3/1 to 10/31	South Fork Feather from confluence of Oroville Dam and Middle and South Forks of Feather River upstream (D-25)
	7/1 to 9/30	From confluence of Feather with Sacramento River upstream (D-1275)
	4/15 to 9/30	Sierra Valley channels from the confluence of Middle Fork Feather River at Beckwourth upstream (D-1391)
	7/1 to 11/30	West Branch of Feather River from upper Miocene Canal Head Dam located in Section 30, T23N R4E, upstream (D-844)
Yuba	8/1 to 10/31	From Englebright Dam upstream (D-934)
	4/1 to 11/30	From Shady Creek within Section 17, T17N R7E and upstream of South Fork Yuba River (adjudication)
Bear	5/1 to 11/30	From Camp Far West Reservoir upstream (D-1091)
	4/15 to 11/30	From Wolf Creek upstream (above Bear River, D-1059, D-1091)
American	1/1 to 12/31	North Fork of American River from source to Iowa Hill Bridge (W&S)
	1/1 to 12/31	North Fork of American River from point 0.3 miles above Heath Springs to 1,000 feet upstream of Colfax-Iowa Hill Bridge, including Gold Run Addition area. (W&S)
	7/1 to 10/31	From the Sacramento River upstream (D-1108)

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Appendix G
Selected Fully-Appropriated Rivers and Creeks
of the Bay-Delta Estuary's Central Valley Watershed

River	Fully-Appropriated Season	Critical Reach
	5/1 to 10/31	White Rock Creek from the confluence with South Fork American upstream (D-1522, D-1211)
	7/1 to 12/31	Silver Creek from confluence with South Fork American upstream (D-163, D-1211)
	6/15 to 10/31	Sugar Loaf Creek from confluence with South Fork American upstream (D-776)
Butte Creek	4/1 to 11/30	Butte Creek from confluence with Butte Sink in T17N R1E (adjudication)
	6/1 to 9/30	Butte Creek from confluence of Butte Slough upstream (D-1329)
Stony Creek	4/1 to 11/30	Stony Creek from confluence with Sacramento River upstream (adjudication)
Cache Creek	4/15 to 10/31	Cache Creek from confluence with Yolo Bypass upstream (D-1506)
Putah Creek	1/1 to 12/31	Putah Creek from Monticello Dam upstream (D-869, WR Order 96-002)
Stanislaus River	4/1 to 11/30	From confluence with San Joaquin River upstream (adjudication)
	7/1 to 10/31	From confluence with San Joaquin River upstream (D-1422)
Tuolumne	1/1 to 12/31	From source on Mount Lyell and Mount Dana to Don Pedro Reservoir (W&S)
	7/1 to 12/31	From Don Pedro Reservoir upstream (D-995)
Merced	1/1 to 12/31	From south side of Mount Lyell in Yosemite National Park to 300 feet upstream of confluence with Bear Creek (W&S)
	1/1 to 12/31	South Fork Merced River from Triple Divide Peak to confluence with mainstem of Merced River (W&S)
Chowchilla	1/1 to 12/31	From confluence of Chowchilla River with San Joaquin River upstream (D-1365)
Fresno River	5/1 to 11/30	From Hidden Dam and Fresno River upstream (D-1407)
San Joaquin	1/1 to 12/31	From confluence with Mendota Pool upstream (D-935)
Fresno Slough	1/1 to 12/31	From confluence with San Joaquin River upstream to Kings River and including upstream watershed of Kings River (D-1290)
Sacramento-San Joaquin Delta	6/15 to 8/31	From the Delta upstream - allowing no diversions from the Delta less than 1 cubic foot per second or less than 100 acre-feet in storage. (D-1594)
Source: State Water Resources Control Board, 1998. Key: W&S = Wild & Scenic Designation; adjudication = decree issued adjudicating water rights in that critical reach; D-"[Some number]" refers to a Board Water Rights Decision.		

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Appendix E

100 Years of California's Water Rights System: Patterns, Trends and Uncertainty
UC Davis Report on the Quantification of the Consumptive Water Available in California



OPEN ACCESS

IOP Publishing

Environmental Research Letters

Environ. Res. Lett. 9 (2014) 084012 (10pp)

doi:10.1088/1748-9326/9/8/084012

100 years of California's water rights system: patterns, trends and uncertainty

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Received 26 February 2014, revised 19 June 2014

Accepted for publication 18 July 2014

Published 19 August 2014

Abstract

For 100 years, California's State Water Resources Control Board and its predecessors have been responsible for allocating available water supplies to beneficial uses, but inaccurate and incomplete accounting of water rights has made the state ill-equipped to satisfy growing societal demands for water supply reliability and healthy ecosystems. Here, we present the first comprehensive evaluation of appropriative water rights to identify where, and to what extent, water has been dedicated to human uses relative to natural supplies. The results show that water right allocations total 400 billion cubic meters, approximately five times the state's mean annual runoff. In the state's major river basins, water rights account for up to 1000% of natural surface water supplies, with the greatest degree of appropriation observed in tributaries to the Sacramento and San Joaquin Rivers and in coastal streams in southern California. Comparisons with water supplies and estimates of actual use indicate substantial uncertainty in how water rights are exercised. In arid regions such as California, over-allocation of surface water coupled with trends of decreasing supply suggest that new water demands will be met by re-allocation from existing uses. Without improvements to the water rights system, growing human and environmental demands portend an intensification of regional water scarcity and social conflict. California's legal framework for managing its water resources is largely compatible with needed reforms, but additional public investment is required to enhance the capacity of the state's water management institutions to effectively track and regulate water rights.

 Online supplementary data available from stacks.iop.org/ERL/9/084012/mmedia

Keywords: water rights, water resources management, surface water, rivers

1. Introduction

Recent droughts and increasing hydroclimatic volatility in western USA are testing the ability of water managers to meet diverse and growing demands for supply reliability, improved water quality, and healthy ecosystems (Gleick and Chalecki 1999, Christensen *et al* 2004, Wilhite *et al* 2007). Despite evidence that human water demands have begun to stabilize, decreasing surface water availability has caused high levels of water stress throughout much of the western

USA (Averyt *et al* 2013). Climate models predict that much of arid and semi-arid western North America is likely to become warmer and perhaps drier in the future (Stewart *et al* 2005, Westerling *et al* 2006, Barnett *et al* 2008), suggesting that major changes in water use and allocation patterns will be required. In California, for example, projections of decreasing snowpack and population growth will make it difficult to meet growing urban demands while maintaining agricultural deliveries and needed water for the environment (Hayhoe *et al* 2004, Tanaka *et al* 2006, Medellín-Azuara *et al* 2008). These trends are commensurate with global projections for other regions with semi-arid or Mediterranean-type climates (Klausmeyer and Shaw 2009), which are characterized by extremes in seasonal and interannual variability in precipitation, large scale development of irrigated



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1748-9326/14/084012+10\$33.00

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agriculture, and higher human population density (Grantham *et al* 2013).

Emerging water management challenges in semi-arid regions of the world are typified by California—the world's tenth largest economy—which must satisfy water demands for 38 million people, a US\$40 billion agricultural economy, and freshwater ecosystems (DWR 2009). Recent studies indicate that the state is ill-prepared to adopt measures required for the sustainable management of water resources (Hanak *et al* 2011, California Natural Resources Agency 2014). For example, California's water rights system is the primary regulatory framework under which surface water is allocated yet the amount of water actually used by water rights holders is poorly tracked and highly uncertain (Little Hoover Commission 2010). The lack of accurate accounting thus represents a critical challenge to the allocation of water among competing users in a cost-efficient and sustainable manner.

California's water rights administration system was legislatively established in 1914 with the creation of a Water Commission, which later would become the State Water Resources Control Board (Water Board) (Littleworth and Garner 2007). The Water Board administers the water rights system and is responsible for allocating available water supplies for beneficial uses in an orderly manner (Water Board 2014b). However, since its establishment a century ago, the Water Board has issued water rights that amount to over five times the state's average annual supply (Little Hoover Commission 2010). Today, over-allocation of available supplies, coupled with uncertain water use by individual water right holders, has become a significant handicap for water policy and management reform (Hanak *et al* 2011). As regional drought and growth reduce available supplies, inaccurate water use accounting has also intensified conflicts over water (Wines 2014, Dearen and Burke 2014) and made it difficult to secure adequate water allocations for freshwater ecosystems (Gillilan and Brown 1997, Water Board 2014c). Consequently, the water rights system has been identified by water managers as one of the state's most important long-term water problems (Null *et al* 2012).

Accurate quantification of water supply and use is an essential first step towards sustainable water management. Yet, a comprehensive assessment of surface water allocations of the state's rivers and streams has not been conducted. Furthermore, the extent to which water right allocations approach, or exceed, natural surface-water supplies has not been systematically evaluated in rivers throughout the state. Here, we analyze the state's water rights database to estimate the degree of water appropriation in approximately 4000 catchments in California by comparing water rights allocation volumes with modeled predictions of unimpaired, surface water availability. The water right holder, intended uses, and dates of water rights records are also examined to compare allocations among ownership and use-classes and to examine trends in water allocation volumes from 1914 to 2013. Finally, we analyze county-level water use data to quantify the disparity between water rights allocations and estimated surface water withdrawals. These analyses highlight

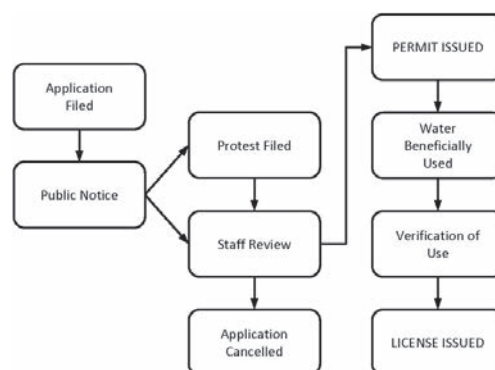


Figure 1. Simplified diagram of appropriative water rights review process by the State Water Board, modified from permitting and licensing flow charts (Water Board 2014b).

deficiencies in the water rights system that should be addressed as part of state water management reforms (e.g., California Natural Resources Agency 2014) and can be used to identify river basins where inaccuracies in water rights records may impede local efforts to efficiently and sustainably manage water resources.

2. Background and methods

2.1. California's water rights system

California water management is a highly complex amalgamation of laws, policies and institutions derived from Roman, Spanish, English and indigenous governance systems, which has been described in detail by others (e.g., Hundley 2001, Hanak *et al* 2011). Here, we provide a brief overview of the state water rights system, summarized from Littleworth and Garner (2007) and Water Board documents (2014b). California's modern water rights system began to take form in the mid 19th century and early 20th century with the influx of settlers from the eastern USA. Initially, competing claims for water in the water scarce state were settled through litigation and court decisions. But as the number of claims and scale of water projects grew, a more comprehensive system for regulating water rights was required. In 1914, the state legislature established a Water Commission, which would later become the Water Board. Because of political pressures, several types of water rights including groundwater, riparian and pre-1914 appropriations were excluded from the Water Board's authority. However, the Water Board was given primary responsibility for administering post 1914 appropriative water rights, which were required for the state's major agricultural and water supply systems developed in the 20th century. In addition, the Water Board retains broad authority in enforcing the state's reasonable use and public trust doctrines (Littleworth and Garner 2007).

Any person or entity wishing to appropriate surface water must file an application with the Water Board, which initiates a permit review process (Water Board 2014b) (figure 1). Decisions to issue a water right permit are based on availability of water, satisfaction of reasonable use requirements, and preservation of environmental uses (e.g., fish and wildlife resources). Once an application is approved, the right must be exercised according to permit terms and conditions, which may include a maximum seasonal or annual allocation volume, limits on timing and rates of diversion, specifications on where the water can be used, and other measures to minimize environmental impacts. The 'face value' amount of water granted by a permit is an estimate of the maximum possible volume required by the applicant; actual amounts used vary by year but may be significantly less than the face value (Littleworth and Garner 2007).

Following a monitoring period, typically ten or more years, the Water Board confirms terms and conditions of the permitted water use, and may issue a license to the appropriator (figure 1). The Water Board has limited authority over non-appropriative water rights (Littleworth and Garner 2007). However, in 2009, the Board implemented new reporting requirements for groundwater, riparian and pre-1914 surface water rights, with penalties for failing to file statements of use (California Water Code section 5101). This has led to an increase in water use reporting, although reports are not systematically audited for accuracy and have been filed only for a small fraction of non-appropriative water users (personal correspondence with Phil Crader, Division of Water Rights, 28 June 2013).

2.2. Analysis of water rights database

The Water Board maintains a public water rights database, the electronic Water Rights Management System (eWRIMS), to track and share water rights information (Water Board 2014a). The database contains information on water rights and statements of use and is the basis for our assessment, focusing on all active, appropriative water rights records. These are the most common types of surface water right in the database and account for the greatest allocation volumes. The records used in our analysis consisted of pending, permitted and licensed water rights filed since 1914, and included information on face-value allocations, year of filing, right holder, use types, and geographic location. We did not consider statements of use, which have been filed for some riparian and pre-1914 water rights claims because the data are incomplete and of uncertain quality.

Based on the water rights records, appropriative water rights holders were classified into private and public entities. For privately held rights, individuals were distinguished from corporate entities (e.g., corporations, associations, private power utilities, and partnerships). Public water rights holders included federal, state, and municipal agencies and irrigation and reclamation districts. Purpose of use was also evaluated, based on use-designations for individual water rights (e.g., hydropower, agriculture, domestic, industrial, recreation, and environmental).

2.3. Assessment of spatial allocation patterns

Locations of surface water diversions have been mapped in a Geographic Information System (GIS) by the Water Board. Water rights may have multiple points of diversion (PODs), which collectively divert an annual volume up to the face value of the permit or license. Because diversion volumes are not reported for individual PODs, we selected a single POD for each water right and attributed the entire face value to that location. Next, total face-value allocations were calculated at the 12-digit Hydrologic Unit (HUC12) scale (USGS 2012) for 4108 catchments in California. Finally, water allocations were accumulated downstream to determine the cumulative annual water allocation for each catchment. To visualize the HUC12 drainage network, line segments were created between HUC12 centroids to represent directional flow paths to receiving catchments. Because most of the Colorado River basin occurs outside of California, we did not evaluate allocation volumes for the Colorado River.

To evaluate water right allocation volumes in relation to water availability, we used an empirical modeling approach to predict mean annual flows for California's HUC12 catchments. Models were developed using Random Forests (RF) (Breiman 2001), a statistical approach used for prediction and classification. Following methods described in Carlisle *et al* (2010), a RF model to predict expected (E), annual natural flow was trained with data from 180 USGS reference gages (e.g., those minimally affected by land- and water-management activities) and catchment predictor variables (e.g., climate, topography, soils and geology) in the Gages-II database (Falcone 2011). The RF model was implemented in *R* with the randomForest package (Liaw and Wiener 2002).

Model performance was assessed by comparing predictions with randomized subsets of observed data (O) withheld during RF model development. Several performance metrics were calculated (Moriassi *et al* 2007), including coefficient of determination (r^2), Nash-Sutcliffe coefficient, and percent bias. In addition, predictive performance was assessed in a jack-knife technique by sequentially excluding individual reference gages and re-running the model to evaluate observed against predicted (O/E) values at the omitted site. To predict monthly flows at unengaged HUC12 catchments, the same set of catchment predictor variables used in model training was calculated for each HUC12 catchment including the upstream drainage area. The trained RF model was then used to predict expected mean annual flows in each catchment from 1950 to 2010, from which a long-term average was calculated and compared with water rights allocation volumes.

2.4. Comparison of water rights allocations with surface water withdrawals

To compare water rights allocations with actual water use, total face value water right volumes were calculated at the county level and compared with estimates of actual surface water withdrawals. Water rights used exclusively for hydro-power generation were excluded from the face-value

Table 1. Summary of active surface water right records in State Water Rights Database (Water Board 2014a).

Water Rights type	Count	Face-value total (10 ⁶ m ³)
Appropriative		
Licensed	10 810	123 517
Permitted	1 466	263 647
Pending	345	11 038
Subtotal	12 621	398 202
Statements of Diversion and Use	10 885	40 571
State & Federal Filings	2152	15 986
Stockpond	5613	7
Small Domestic	611	3
Adjudicated (pre-1914 and Riparian)	8	0.3
Total	31 890	454 770

calculations. Gross water use estimates were obtained from US Geological Survey Water Use Data for California, 1985–2005 (USGS 2014). Average, county-level use was calculated by the sum of reported self-supplied, surface water withdrawals for public supply, domestic, industrial, livestock, and irrigation purposes.

3. Results

3.1. Appropriative water right allocations

We obtained 31 890 active, surface water rights records from the eWRIMS database (Water Board 2014a), representing approximately 450 000 million cubic meters (Mm³) (table 1). Records included 12 621 active appropriative water rights, accounting for 398 202 Mm³ of water. Most (85%) appropriative water rights are licensed, although permitted water rights account for two-thirds of the volume allocated. In addition, most water is granted to a relatively small number of appropriative water rights (figure 2(a)). For example, of the top 1% water rights by count account for over 80% of the total water volume allocated.

Based on the water rights records analyzed in this study, the volume of water allocated per right has declined since the early 20th century (figure 2(b)). Ten-year average volumetric water allocations peaked in the early 1930s (>120 Mm³ per right), but has fluctuated between 5 and 40 Mm³ per right since the 1950s. However, the number of water rights filed has steadily increased over time (figure 3(a)). Following a period of relatively slow growth in the early 1900s, the number of rights filed accelerated in the late 1940s. The rate of water rights filings slowed in the 1990s, but has remained stable at approximately 60 water rights filed per year. Since the 1970s, most new water rights have been issued to individuals and private entities, while holdings by federal, state and other public agencies has not appreciably changed (figure 3(a)).

Although private entities hold the vast majority (78%) of water rights filed, most water by volume is allocated to public

entities (figure 3(b)). Notable increases in water allocation volumes occurred in 1927, when the appropriative water rights were filed for major federal dam projects on the Sacramento River (Shasta Dam) and Trinity River (Trinity Dam), and in 1933, when water rights were filed by the Imperial Irrigation District to divert water from the Colorado River. Currently, over 80% of the water rights issued by volume are held by federal (32%), state (10%), municipal (15%) and other public entities (24%). Private corporations hold approximately 18% of all water allocated, while individuals hold rights to less than 1% of water by volume.

Of 12 621 appropriative water rights in the eWRIMS database, nearly 70% have PODs with agricultural use designations (figure 4). Other common designations were domestic (35%) and recreation (27%) uses. Approximately 3% of applications are designated for hydropower, although they account for 68% of total water right allocations by volume. Other uses associated with high water allocation volumes are domestic (42%), agricultural (34%), and recreation (26%).

3.2. Spatial distribution of water rights

To quantify the spatial distribution of water right allocations, local and cumulative face value totals were calculated at the HUC12 watershed scale. Trends in the extent and intensity of water allocations were also evaluated by mapping water allocations to catchments since 1914 (figure S1). Currently, face value allocation volumes are greatest for the Sacramento and San Joaquin Rivers and their major tributaries (figure 5(a)). When water rights used exclusively for hydropower generation are excluded (because hydropower is a non-consumptive use), allocation volumes significantly decrease (figure 5(b)). Excluding hydropower water allocations, the total volume allocated to appropriative water rights in the Sacramento-San Joaquin Delta is 109 000 Mm³, approximately three times the average unimpaired outflow of the system (35 000 Mm³) (DWR 2007).

Cumulative water allocation volumes were evaluated relative to predicted, unimpaired surface water availability for all HUC12 catchments (figure S2). The model performed well in predicting mean annual flow based on several performance metrics ($r^2=0.95$, NSE=0.94, PBIAS=1.2). Assessment of predictive performance using jack-knife removal of individual reference gages yielded a mean *O/E* ratio of 0.94, suggesting high accuracy in predicting unimpaired annual flow (a value of 1.0 indicates perfect model performance).

Water right allocations exceed average local surface water supplies in much of the drainage network (figure S3 and figure 6) and allocation percentages increase with river size. Among catchments with annual runoff of less than 100 Mm³ ($n=685$), mean allocation is 1% and nearly three-quarters of the small catchments have allocations levels below 10%. In contrast, catchments with runoff greater than 1000 Mm³ and 5000 Mm³ are predominately allocated at levels above 100%. Excluding water allocations for hydropower (figure 6), catchments with annual runoff of 500–1000 Mm³, 1000–5000 Mm³ and greater than 5000 Mm³ have mean allocation values of 41%, 107%, and 158%, respectively.

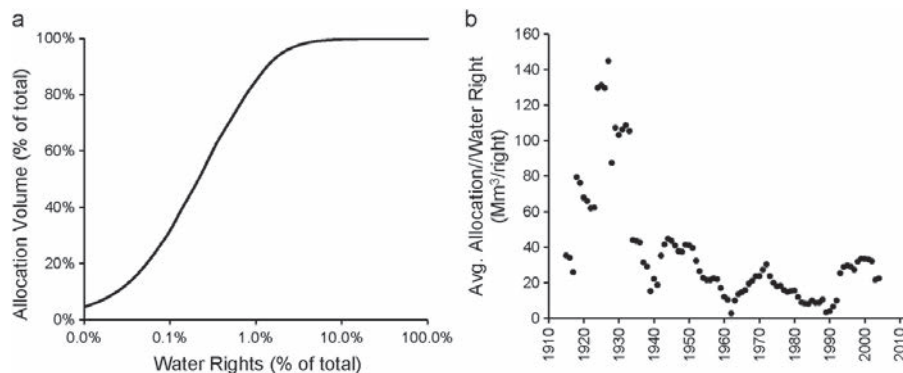


Figure 2. Water allocation volumes (a) by water right count and (b) over time (10-year rolling average), based on appropriative water rights records (Water Board 2014a).

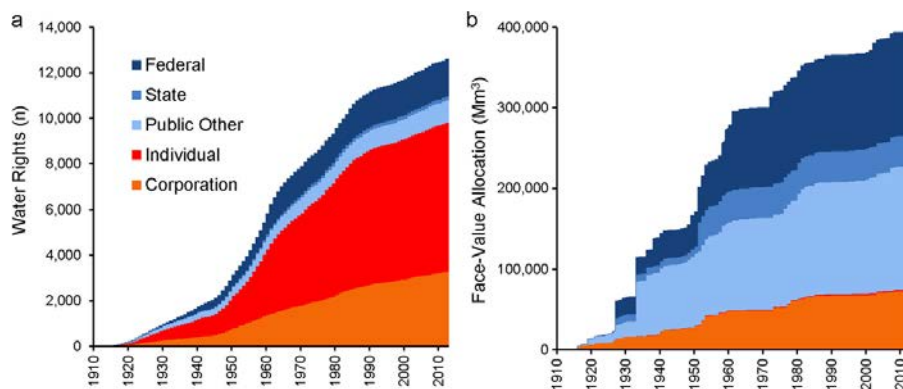


Figure 3. (a) Water rights and (b) face value allocation volumes issued to public and private entities since 1915, based on appropriative water rights records (Water Board 2014a). Note, volumetric allocations to water rights held by individuals (in (b)) is negligible.

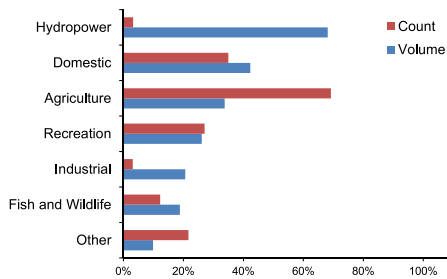


Figure 4. Water rights use designations, expressed as percentage of total water right count and volumetric water allocation.

Excluding hydropower water rights, catchments with the highest water allocation levels are the San Joaquin River (861%), Salton Sea basin (705%), Putah Creek (673%), Kern River (631%) and Stanislaus River (391%). Large river basins with relatively low allocation levels are the Smith River (<1%) and Cottonwood Creek (2%). The Owens River basin, which is a primary water supply source for the City of Los Angeles, has a low water allocation percentage (4%). However, when water rights associated with hydropower use are included, allocation percentage increases to 224%, indicating that water rights designated for hydropower are used for water supply. Public entities hold nearly all of the water allocated by appropriative water rights in California’s major river basins (table 2).

3.3. Comparison of water rights allocations with surface water use

Face value allocations (excluding hydropower use) were compared with estimates of annual surface water withdrawals

Most of California’s major river basins have water rights allocations that exceed their natural, unimpaired annual supply (table 2; figure S4). Among 27 major rivers, 16 had allocation levels greater than 100% of natural supplies.

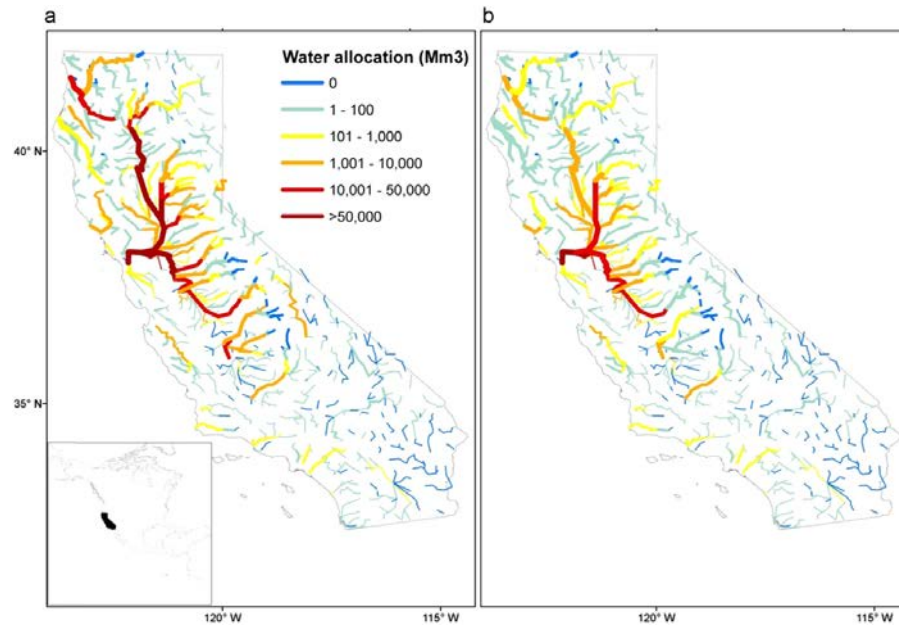


Figure 5. Cumulative water allocation volumes (a) for all water rights and (b) excluding water rights used exclusively for hydropower generation.

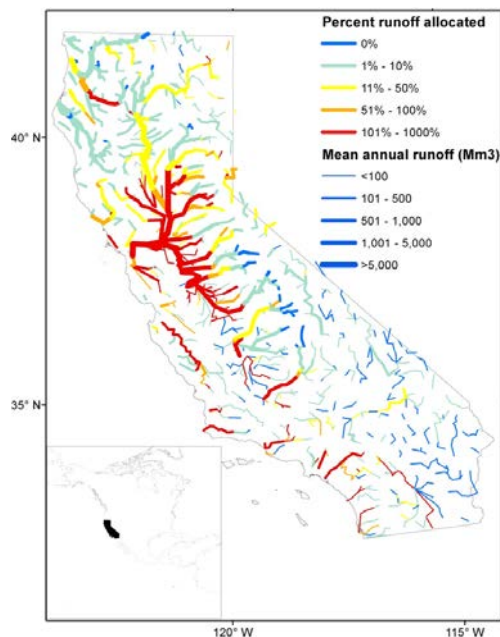


Figure 6. Cumulative water right allocations relative to mean annual runoff, excluding water rights for hydropower generation.

at the state and county scale (USGS 2014). Statewide, appropriative water rights filed for consumptive uses (totaling 149 400 Mm³) are approximately five times greater than estimated annual surface water withdrawals (30 350 Mm³). At the county scale, volumetric allocations of water rights are poorly correlated with ($r=0.16$) and generally over-predict surface water withdrawals (figure 7). This, in part, is explained by differences in water diversion locations and place of use. For example, major intake facilities for the State Water Project and Central Valley Project are located Contra Costa County and are associated with water rights exceeding 40 000 Mm³. Nearly all of the water diverted at this location is delivered south of Contra Costa County. The discrepancy between local water rights allocations and use is compounded by the fact that the water projects are known to deliver a small fraction of their entitlements (Littleworth and Garner 2007). Although water rights allocations generally exceed estimated annual surface water use, there are several counties that use more water than their local water right entitlement. These include counties in southern California that import significant volumes of water for agricultural production (e.g., Tulare and Fresno) and urban water supply (e.g., San Diego and Los Angeles) (figure 7; figure S5).

4. Discussion

This assessment indicates that water allocated through the state appropriate water rights system exceeds overall mean

Table 2. Water allocation volumes for California's major rivers. See figure S4 for river locations.

River	Drainage area (km ²)	Annual natural runoff (Mm ³) ^a	Water rights allocation ^b (Mm ³)	Percent runoff allocated	Percent allocated to public ^c
Smith River	1864	3659	8	0.2% (0.2%)	82%
Klamath River	31 402	18 213	5833 ^d	32% (100%) ^d	99%
Trinity River	7692	6006	5635	94% (250%)	100%
Eel River	9536	8330	42	1% (2.6%)	31%
Russian River	3846	2194	1141	52% (113%)	89%
Salinas River	11 082	431	1032	239% (343%)	99%
Sacramento River	67 830	23 282	35 336	152% (655%)	92%
Pit River	14 220	3454	217	6% (500%)	62%
Cottonwood Creek	2444	702	11	2% (2%)	57%
Stony Creek	2012	494	268	54% (484%)	98%
Feather River	15 350	9027	16 934	188% (633%)	98%
Yuba River	3483	2966	3613	122% (431%)	97%
Cache Creek	2971	714	1149	161% (213%)	98%
Putah Creek	1694	471	3171	673% (886%)	98%
San Joaquin River	45 877	7949	68 473	861% (1585%)	97%
Mokelumne River	5157	1646	2335	142% (436%)	96%
Consumnes River	2460	576	304	53% (53%)	88%
Stanislaus River	3100	1342	5246	391% (1787%)	99%
Tuolumne River	4851	2022	3273	162% (438%)	99%
Merced River	3288	1170	1285	110% (583%)	99%
Kings River	5046	1799	1412	78% (520%)	0%
Kern River	6322	801	5057	631% (1185%)	100%
Owens River	9004	539	19	4% (224%)	34%
Salton Sea	15 219	227	1601	705% (710%)	96%
Santa Ynez	2322	249	831	334% (334%)	99%
Santa Clara River	4165	264	417	158% (196%)	99%
Santa Ana River	6370	306	559	183% (183%)	85%

^a Mean annual runoff at outlet, predicted from statistical model (1951–2010 average).

^b Water right allocations percentages, excluding water rights for hydropower. Allocations levels including hydropower shown in parentheses.

^c Proportion of cumulative water right allocation (excluding hydropower), that are held by public entities including federal, state, and municipal agencies.

^d Klamath River water rights calculations do not account for water allocations in upper river basin located in the State of Oregon.

water supplies by approximately five times. Our findings also highlight river basins where significant over-allocation of surface water supplies is likely to lead to conflicts among water users, particularly during periods of water scarcity when insufficient water is available to satisfy all face-value water right demands. For example, the results underscore the challenge of balancing human and ecosystem water needs in the Sacramento-San Joaquin Delta, the hub of California's water management system and source of its greatest vulnerability (Hanak *et al* 2011), where cumulative rights allocations are approximately three times greater than average natural supplies. Allocation levels tend to increase with river size, although many small rivers, particularly on the south coast, are also subject to high water demands. In recent years, new water rights applications have been concentrated in small river basins (figure S1), suggesting that appropriation levels will continue to intensify throughout the river network.

The face values of appropriative water rights reflect the degree to which surface water supplies have been allocated, but must be interpreted with caution. For example, the appropriative water rights system incentivizes permit holders to over-report water use to protect the face-value amount of their water right and therefore represents a generous estimate of actual water use. In addition, return flow (e.g., from irrigation runoff or canal leakage) can be re-used by downstream appropriators, allowing for 'double-counting' of the same volume of water. Nevertheless, the large magnitude of water right allocation volumes relative to natural supplies and poor correlation between county-level allocations and estimates of actual use provide strong evidence that the state has over-allocated water in many, if not most, river basins. Furthermore, allocation volumes only account for post-1914 appropriative water rights; other types of water rights (e.g., riparian claims) make the total amount of surface water allocated significantly higher than estimates provided here.

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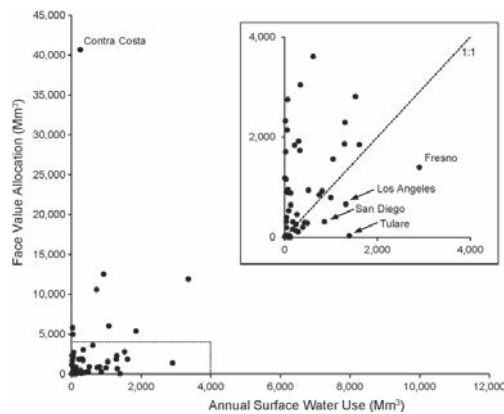


Figure 7. Total face-value allocations for California counties ($n = 58$) compared with mean annual surface-water withdrawals (USGS 2014).

In a well-functioning appropriative water rights system in which allocation volumes are accurately tracked and verified, over-allocation of water supplies is not necessarily a problem. During periods of water scarcity, junior appropriators have to forego their entitlement, but when water is abundant, most water rights holders should be able to exercise their claims. However, inaccurate accounting threatens the value and security of water right entitlements, particularly when curtailments are required during times of scarcity. For example, the current drought in California has led the Water Board to issue emergency curtailments of all water users in specific watersheds to protect fishery resources (Water Board 2014c). Such blanket curtailments would not be necessary if the Water Board had accurate water-use information, which could potentially be used to target specific water users and develop cooperative strategies to reduce water diversion impacts on environmental flows.

In over-allocated systems, water to satisfy new demands will likely require re-allocation of existing water rights. While modification of water rights represents a potential threat to right holders, the disproportionate control of the state's water supply by state and federal agencies indicates that impacts to private water rights will be limited. This is because improvements in water rights accounting will have a much greater effect on large, publically held entitlements (that are probably over-prescribed) than on relatively small entitlements held by individuals. Furthermore, most dedicated water by volume is held as water rights permits (not licenses) by state and federal agencies, and thus could be curtailed to better reflect actual use through the licensing process. Therefore, there is significant flexibility in the current water rights system to support re-allocation of water to uses that support the public interest.

California water law also authorizes the re-allocation of water rights to address evolving societal needs and changing environmental conditions (Shupe *et al* 1989, Littleworth and

Garner 2007). For example, the public trust doctrine establishes that the government has an ongoing duty to safeguard the long-term preservation of natural resources (Frank 2012). In California, Fish and Game Code 5937 is an expression of the public trust doctrine, which requires that flows be provided below dams to maintain fish in good condition, and has been used to limit water rights in order to preserve environmental resources (Börk *et al* 2012). In addition, the state's reasonable use doctrine requires that all water rights be exercised in a reasonable manner, which is determined in the context of broader public interest in water supply reliability, ecosystem health, and other public trust values (Littleworth and Garner 2007).

Improving the scope and implementation of the state's water rights system is one of many challenges that California must overcome to adapt its water management system to 21st century conditions (Hanak *et al* 2011). Foremost, efforts to reform surface water rights administration must be coupled with improved monitoring and quantification of riparian and pre-1914 appropriative rights. In addition, the archaic separation of surface and groundwater rights and absence of state-level groundwater regulation prevents the development of conjunctive-use schemes (e.g., groundwater banking and water marketing), while contributing to overdraft of the state's major groundwater basins (Faunt 2009). Dysfunctional groundwater management also threatens surface water supplies and freshwater ecosystems in many of the state's rivers (Zektser *et al* 2005, Howard and Merrifield 2010).

Chronic under-funding of state regulatory agencies is a critical constraint to modernizing the state water rights system. Water rights administration has long suffered from low levels of staffing, contributing to decades-long backlogs in processing water rights applications (Little Hoover Commission 2010). Underfunding, in part, reflects political opposition to action by those who benefit from lax enforcement. However, population growth, hydroclimatic volatility, and changing societal values are expected to disrupt state water management and to be potential catalysts for policy innovation, as has occurred in other Mediterranean-climate regions of the world. In Australia, for example, an unprecedented 13-year dry period led government to undertake major water reforms in the 1990s, which included restructuring the national water rights system. Under the new policy, water rights were separated from land title, quantified, and restricted to 'environmentally sustainable levels of extraction' (2004 National Water Initiative). A similar overhaul of the water rights system occurred in South Africa in the 1990s (Backeberg 2005). In California, the legal framework for managing water resources is largely compatible with needed reforms, as described above, and significant legislative actions is probably not necessary. Rather, political will and sufficient funding are the essential elements for improving the state's capacity to perform its water rights administrative, monitoring and enforcement functions.

After 100 years since its establishment, California's water rights system is struggling to adapt to 21st century realities of increasing water stress, changing climate, and societal demands for water supply security and a healthy

environment. Innovative solutions have been proposed to address these challenges, including market schemes, institutional reforms, and new approaches to ecosystem management (Renwick and Green 2000, Gleick 2003, Hanak *et al* 2011). However, the effectiveness of these strategies fundamentally relies on our ability to accurately measure and track water availability, movement, and uses. Recognizing that addressing deficiencies in the water right system will not alone be sufficient for ensuring reform, without improved quantification and regulation of water rights, such reform will be impossible. To date, the state simply does not have accurate knowledge of how much water is being used by most water rights holders. As such, it is nearly impossible to curtail or re-allocate water in an equitable manner among water users and to effectively manage for environmental water needs. Quantifying spatial patterns and uncertainty in the water rights allocations is an important first step for developing strategies to reconcile and sustainably manage competing water demands in a water-stressed region. California's legal framework for managing water resources is largely compatible with needed reforms, but without additional public investment, the capacity of the state's water management institutions to effectively regulate water rights will remain weak. This is a situation that urgently needs correcting to meet water management challenges arising from drought, population growth and climate change.

Acknowledgements

We greatly appreciate support and feedback from Jeanette Howard, Leo Winternitz, Laci Videmsky, Chacha Sikes, Phil Crader, Sam Boland and State Water Resources Control Board staff. Jay Lund provided helpful comments on an earlier draft of this manuscript. We also thank Daren Carlisle, David Wolock, Eric Holmes, Kurt Fessenmyer and Nick Santos for data analysis and modeling assistance. This research was supported by funding from the S D Bechtel, Jr Foundation.

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Appendix F

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