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# 2007, November 2 - Zone 2B Proposition 218 Engineer's Report

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# *Zone 2B Proposition 218 Engineer's Report*

Monterey County Water  
Resources Agency



*November 2007*

**RMC**  
*Water and Environment*

2290 N. First Street, Suite 212  
San Jose, CA 95131  
P: 408.240.8160 F: 408.240.8161





# Zone 2B Proposition 218 Engineer's Report

Prepared by:  
**RMC**  
*Water and Environment*



November 2, 2007

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## **List of Abbreviations**

AF	Acre-foot (feet)
AFY	Acre-feet per year
CSIP	Castroville Seawater Intrusion Project
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FP	Flow Prescription
FY	Fiscal Year
MCWRA	Monterey County Water Resources Agency
MRWPCA	Monterey Regional Water Pollution Control Agency
NMFS	National Marine Fisheries Service
O&M	Operations and Maintenance
SBA	Supplemental Biological Assessment
SRDF	Salinas River Diversion Facility
SVWP	Salinas Valley Water Project



## Chapter 1 Introduction

Groundwater is the primary source of water in the Salinas Valley. Groundwater demands and extraction have historically exceeded groundwater recharge, resulting in an overdraft condition being exhibited in certain areas of the Basin. This historic basin overdraft has resulted in declining groundwater levels and seawater intrusion into the Salinas Valley groundwater aquifer. To stop seawater intrusion and produce a hydrologically balanced basin, the Monterey County Water Resources Agency (MCWRA) is implementing the recommended project components described in the Salinas Valley Water Project (SVWP) Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (2002), the Salinas Valley Water Project Summary Report (2002), and the Salinas Valley Water Project EIR Addendum (Addendum) (2007). These project components are described more fully in Section 2 of this Engineer's Report.

MCWRA certified the EIR/EIS for the project on June 4, 2002. MCWRA and the National Marine Fisheries Service (NMFS) began consultation in 2002, pursuant to the federal Endangered Species Act. A Supplemental Biological Assessment (SBA) and a Flow Prescription (FP) were developed, modifying the operation of the SVWP to enhance conditions in support of steelhead trout. These and other project modifications resulted in the preparation of the SVWP EIR Addendum, further describing the mentioned modifications to the SVWP. The Addendum was adopted by the Monterey County Board of Supervisors on July 31, 2007.

The SVWP will allow MCWRA to meet its water supply goals for the Salinas Valley. The combined goals of the SVWP are:

- Halting seawater intrusion;
- Continuing conservation of winter flows for recharge of the Salinas Valley basin through summer releases;
- Providing flood protection;
- Improving long-term hydrologic balance between recharge and withdrawal; and
- Providing a sufficient water supply to meet water needs through the year 2030.

A major implementation element for the proposed projects and the topic of the January, 2003 Engineer's Report is the development of a financing plan for the capital improvements, the annual operation and maintenance (O&M) costs for those improvements, and the annual operations and maintenance costs of the existing facilities. That process included the creation of a new zone of benefit, Zone 2C, and approval of a Proposition 218 land-based assessment to cover capital and O&M costs for the SVWP. As described in the January, 2003 Engineer's Report, O&M costs for the Salinas River Diversion Facility (SRDF) are to be recovered through water delivery charges that are to be paid by the recipients of the delivered water. The water delivery charges were not included in the Zone 2C assessment or related Prop. 218 proceeding.

### 1.1 Purpose of Engineer's Report

The purpose of this Engineer's Report is to document the basis of the delivery charges for recipients of water delivered from the SRDF. This Engineer's Report only addresses allocation of benefits for the purpose of establishing water delivery charges under the provisions of Proposition 218; it does not attempt, in any way, to address questions relating to water rights. This report includes documentation of the assessment methodology, delineation of the zone of benefit, and identification of the water delivered through the SRDF.

This Engineer's Report is organized into the following sections:

**Section 1 – Introduction.** Describes the need for the proposed water delivery charges, the purpose of this Engineer's Report, and presents the organization of the report.

**Section 2 – Project Description.** Summarizes the proposed facilities and estimated costs of operation and maintenance of the proposed project.

**Section 3 – Assessment Methodology.** Describes the basis used to establish the water delivery charges in accordance with Proposition 218.

**Section 4 – References**

## Chapter 2 Project Description

This section is a summary description of the existing MCWRA facilities and their operations and the proposed SVWP project facilities and their operations. The SVWP will halt seawater intrusion, provide flood protection, eliminate overdraft and create new water supplies for the Salinas Valley. In addition, the proposed project will provide additional flood protection while allowing for continued maximum beneficial use of Nacimiento Reservoir.

Overall, the SVWP includes:

- A specific operations and maintenance plan for the existing water supply facilities;
- Modification of the spillway at Nacimiento Dam; and
- Construction of the Salinas River Diversion Facility (SRDF).

The capital and annual operations and maintenance costs associated with SVWP were described in the Salinas Valley Water Project Engineer's Report, dated January 2003. The capital and operations and maintenance costs for the SVWP are presently funded through the Proposition 218 assessments within MCWRA Special Benefit Zone 2C.

The specific elements of the SVWP that addressed here are:

- Operation and Maintenance of the SRDF including the diversion facilities, fish screening facilities, and treatment facilities

The proposed water delivery charges described in this Engineer's Report would be paid by recipients of water delivered through the SRDF and would provide funding for the operations and maintenance of the Salinas River Diversion Facility.

### 2.1 Existing Facilities

MCWRA has operated and maintained the Nacimiento and San Antonio reservoirs since they became operational in 1957 and 1967, respectively. The operation of both reservoirs has served, and continues to serve, two primary functions: flood control and water conservation (i.e., storage and regulated release of runoff for groundwater recharge along the Salinas River channel). Other incidental benefits, such as recreation, are also provided by both reservoirs. Nacimiento Reservoir has a maximum capacity of 377,900 acre-feet (AF) and a maximum surface elevation of 800 feet. San Antonio Reservoir has a maximum capacity of 335,000 AF and a maximum surface elevation of 780 feet.

### 2.2 Proposed Project

The proposed project, for the purposes of this Engineer's Report, is operation and maintenance of the SRDF. Only the operations and maintenance costs for the SRDF are included in the proposed water delivery charges.

The SRDF portion of the Salinas Valley Water Project includes in-stream storage of water released from the two reservoirs and diversion of that water through a screened intake at the diversion facility. The diversion structure incorporates an Obermeyer Spillway gate approximately 230 feet in length with the height of the spillway gate controlled by an inflatable air bladder. The diversion structure foundation is to be constructed of reinforced concrete with vinyl sheet piles driven at the upstream and downstream ends. After being impounded in the river channel, the water will be pumped to the Salinas Valley Reclamation Project where it will be filtered and disinfected prior to being blended with recycled water produced at the Salinas Valley Reclamation Project. The blended recycled and Salinas River water will then flow into the distribution piping for conveyance to the customers within the Castroville Seawater Intrusion Project (CSIP) service area. In addition to these water conveyance and treatment facilities, the diversion facility

will also incorporate a fish screen on the intake structure to the pumping system and a fish bypass facility to allow fish to move around the diversion facility.

The proposed operation and maintenance of the SRDF would involve:

1. Operation and maintenance of the inflatable dam
2. Operation and maintenance of the fish screen and fish bypass facilities
3. Operation and maintenance of the diversion intake and pumping facilities
4. Operation and maintenance of the filtration and disinfection facilities
5. Operation and maintenance of the flow monitoring and control facilities

Water deliveries from the SRDF will be delivered to agricultural water users through the existing CSIP pipeline system. This system currently distributes a blend of recycled water and local groundwater to approximately 12,000 acres of agricultural land surrounding the City of Castroville. Each water user in the CSIP system has a delivery turnout with control and isolation valves and meters that allow the user to regulate flow of delivered water and allow metering of the total water use at each site. The locations of the SRDF and the existing CSIP system are shown on Figure 2-1.

The SRDF is being constructed within the Salinas River channel, approximately two miles upstream of Highway 1 near Moro Cojo at the approximate location of the Salinas River crossing of the CSIP distribution pipeline. The diversion facility will impound river water behind a collapsible dam during those times of the year when the dam is in operation (April-October). The dam will create a body of water within the existing river channel. Salinas River water will be diverted from the river by pumping through a new pipeline to filtration and disinfection facilities that will be located adjacent to the storage facility at the Salinas Valley Reclamation Project. It will then be blended with recycled water from the Salinas Valley Reclamation Project, and delivered to agricultural users within the CSIP service area.

A plan view of the SRDF is included in Figure 2-2. A more detailed description of the SRDF facilities is contained in the 2003 Salinas Valley Water Project Engineer's Report. A detailed description of the proposed management of flows in the Salinas River is contained in the Flow Prescription.

Figure 2-1: Zone 2B Water Supply Facilities

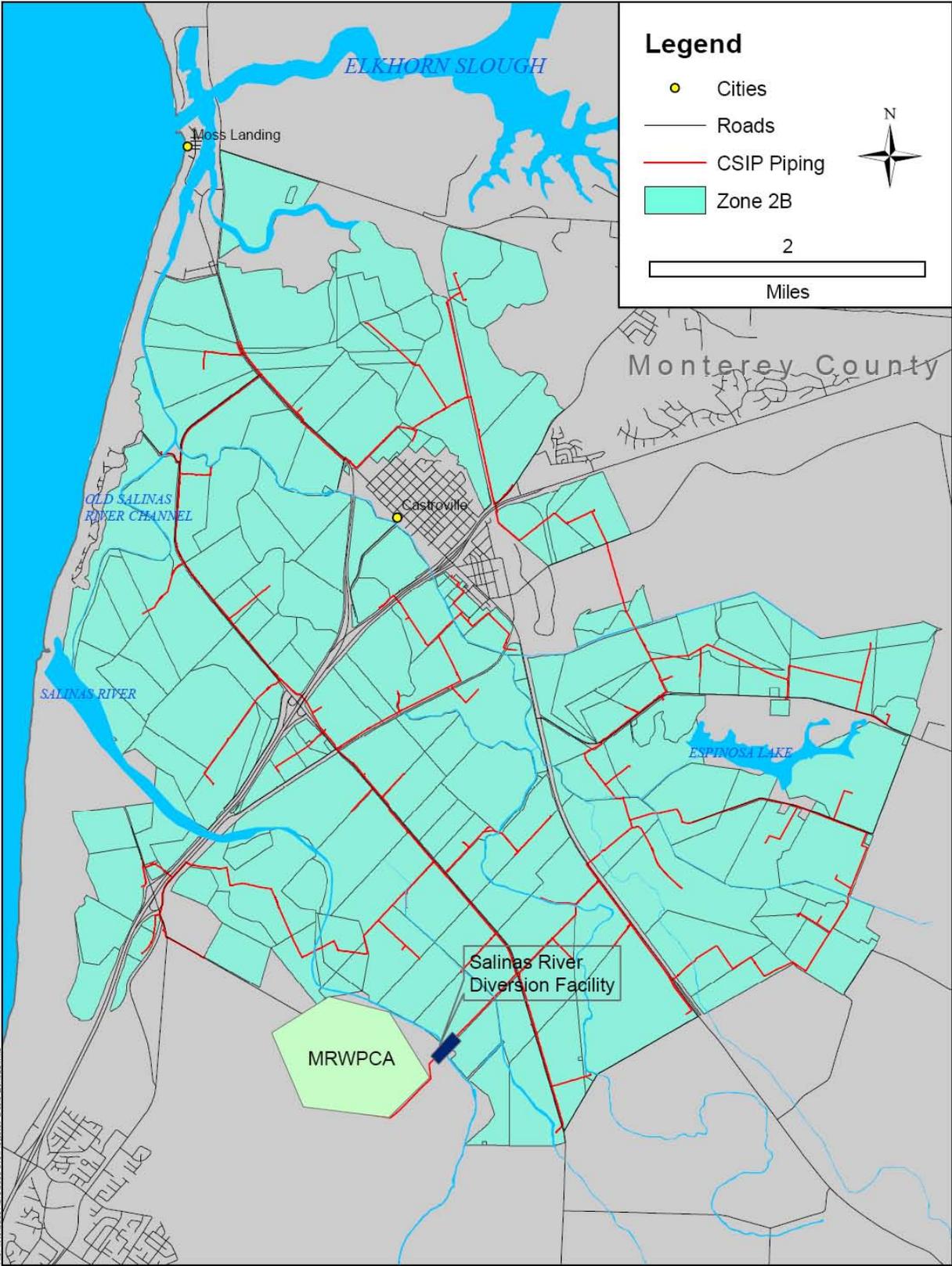
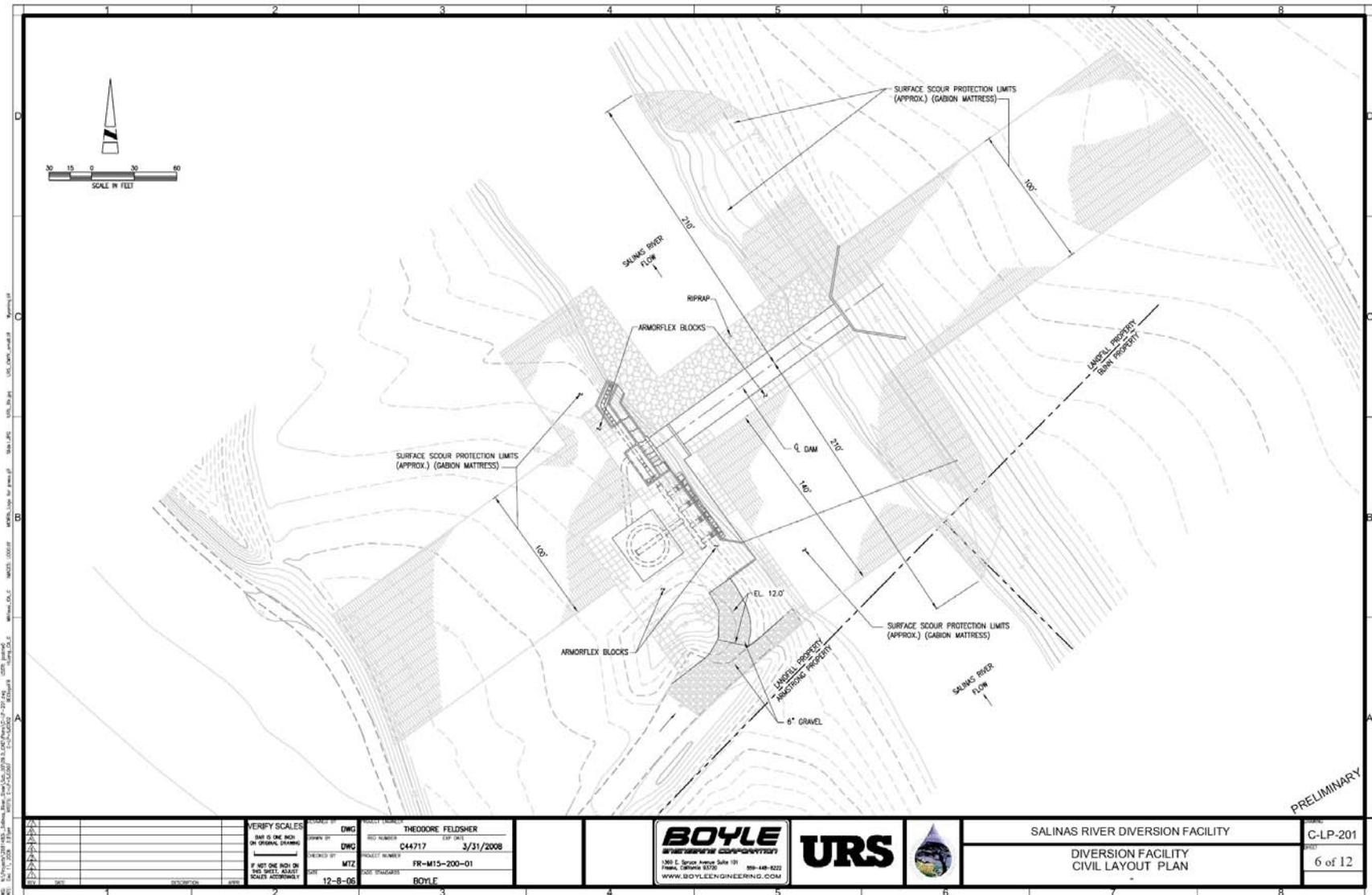


Figure 2-2: SRDF Plan View Drawing



### 2.2.1 Benefits of Proposed Project

Operation and maintenance of the SRDF will provide the benefits of increased availability of water and greater reliability of the water supply.

#### Availability of Water

Operation and maintenance of the SRDF will provide direct delivery of Salinas River water to Zone 2B agricultural water users. The availability of this water supply to the agricultural water users within Zone 2B is a special benefit to those lands. Currently, the Zone 2B agricultural water users receive a blend of recycled water and local groundwater through the CSIP system. The implementation of the SRDF will increase the overall water supply to this system and will reduce groundwater pumping to that required to meet peak demand and dry year water conditions. The delivery of surface water from the SRDF and the corresponding reduction in groundwater use reduces the total demand on the groundwater system and will correspondingly reduce the seawater intrusion into the groundwater basin.

#### Reliability of Water Supply

Operation and maintenance of the SRDF provides a reliable water supply by blending Salinas River water with recycled water made available through the Salinas Valley Reclamation Project. By delivering Salinas River water for blending with recycled water, the reliability of supply is increased over the existing supply which is a combination of recycled water and pumped groundwater. This increase in reliability is derived from two elements:

- Addition of Salinas River water as a new water source improves water supply reliability by providing an additional supply to meet the agricultural water demands.
- Reduction in groundwater use decreases impacts from seawater intrusion in this area. The reduced level of seawater intrusion will result in enhanced reliability of the groundwater to augment the combined surface water and recycled water supplies.

## 2.3 SRDF Operations and Maintenance Cost Estimates

The annual operation and maintenance costs for the SRDF and its ancillary facilities are based on estimates developed for the specific efforts required to provide proper operation and maintenance of the facilities. The overall operation and maintenance costs include:

- Labor time
- Materials
- Utilities
- Outside consultants
- Training
- Equipment procurement
- Other related costs

The total estimated annual operation and maintenance cost for the SRDF is \$1.26 million based on water use from an average year. The estimate was developed based on actual operations and maintenance costs associated with the existing CSIP distribution system and the actual costs for operations and maintenance of their pumping systems and similar systems operated by the Monterey Regional Water Pollution Control Agency. This cost is estimated for an average water use year based on labor, electricity and materials costs for the 2008-2009 fiscal year, the projected first year of operations, and is anticipated to change annually with variations in water use, electricity costs, labor costs and material costs. The actual annual operation and maintenance cost for the SRDF will be determined on an annual basis and will be used as the basis for adjusting water delivery charges, if appropriate. A detailed breakdown of these average operation and maintenance costs is included as Appendix A.



## Chapter 3 Benefit Assessment

This Chapter summarizes the identification and allocation of benefits associated with the SVWP elements being funded with this assessment.

### 3.1 Benefit Zone Definition

The zone of benefit for this water delivery charge is defined as the zone which will receive specific special benefits from the operation and maintenance of the Salinas River Diversion Facility. This zone is the area that will receive the water from the Salinas River Diversion Facility and is also the same area that is currently served by the Castroville Seawater Intrusion Project (CSIP) recycled water distribution system. This area is currently defined (for purposes of the CSIP system) as Zone 2B and is shown as the shaded area in Figure 2-1. The area of special benefit (Zone 2B) consists of 12,043 irrigated acres. A similar level of special benefit is being provided by the operation and maintenance of the SRDF to all irrigated agricultural lands within the Zone; there is therefore no need for further subdivision of the zone of benefit.

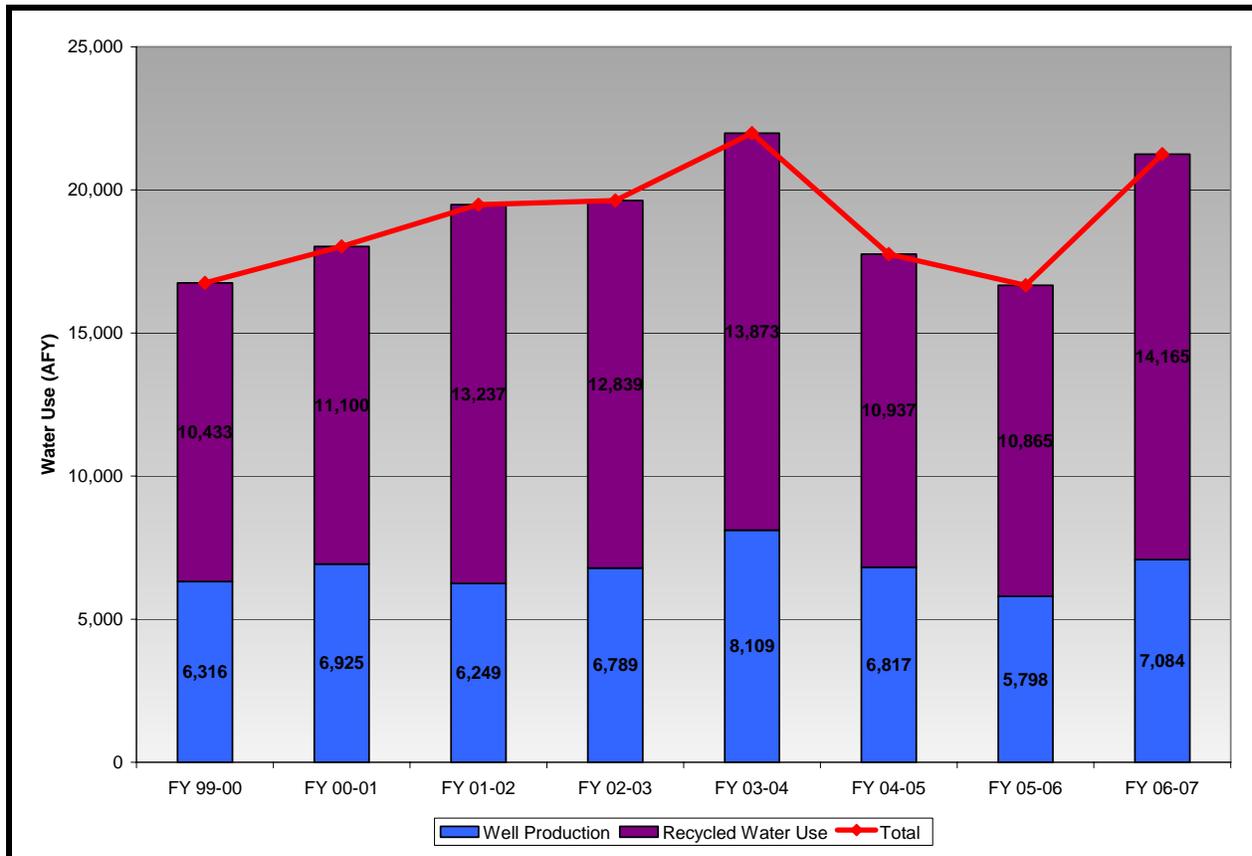
### 3.2 Apportionment of Assessment

The proposed water delivery charge is based on the recognition that the benefit received by each land owner is directly proportionate to the amount of agricultural irrigation water received. Since every land owner uses a different amount of water, the most appropriate method of imposing the charges is to base the charges on actual water deliveries.

The water delivery charges will be determined by dividing the total costs for the Project by the total number of acre feet of water delivered. The result will be a uniform per-unit charge for delivered water; therefore, each customer's water delivery charges will vary in direct proportion to the amount delivered, and the cost will thus be directly proportional to the benefit received.

The SRDF will provide diverted Salinas River water that will serve to replace pumped groundwater that is currently used to supplement the recycled water to meet irrigation requirements on the 12,043 irrigated acres within Zone 2B. Actual water deliveries to the CSIP system have varied between 16,663 AFY to 21,982 AFY between FY 1999-2000 and FY 2006-2007. The average water use between FY 1999-2000 and FY 2006-2007, was 18,942 AFY. The historical total, recycled, and groundwater deliveries are shown in Figure 3-1.

Figure 3-1: Historical Well Water and Recycled Water Use



Meters are located at each turnout within the CSIP distribution system. These meters presently measure the combined total of recycled and pumped groundwater delivered to each recipient of agricultural irrigation water within Zone 2B. Although meters are maintained on each well serving the CSIP system, as well as the Salinas Valley Recycling Facility, the only method of billing for water delivered to each user of irrigation water is based on the total combined water delivered through the meters that are located at each turnout. Salinas River water diverted through the SRDF will be blended with recycled water and, when necessary, with supplemental groundwater, then delivered to agricultural water users through the CSIP distribution system. All agricultural water users within the CSIP delivery system receive the same proportionate benefit of water pumped through the SRDF. Therefore metering for SRDF operations and maintenance costs based on total flow to each water user results in equitable apportionment of the operations and maintenance costs for the SRDF.

Charges for water delivered through the SRDF are therefore based on the total combined quantity of water delivered through the meters located at each turnout. The estimated cost of delivered water is therefore the estimated annual cost of the operations and maintenance of the SRDF divided by the total combined amount of water delivered to each turnout as represented by the meter readings at each turnout. The water delivery charge for the operations and maintenance of the SRDF in an average water use year, and for labor, electricity and material costs applicable for the 2008-2009 fiscal year, is therefore \$1.26 million divided by the average annual water use of 18,942 AF, or \$66.23/AF, as shown in Table 3-1.

**Table 3-1: Estimated Water Delivery Charge**

Element	Value
Average Annual Operations & Maintenance Cost (FY08-09 unit costs)	\$1,260,000
Average Delivered Water (AF)	18,942
Water Delivery Charge	\$66.23/AF

With the implementation of the SRDF, the use of the supplemental wells will be reduced, with their use being limited to providing water in those years, and portions of years, when the diversion through the SRDF plus the available recycled water is less than the irrigation water requirements within the project service area. The primary costs for the operation of the wells are electrical costs and annual maintenance costs, which will be significantly reduced through the operation of the SRDF. This reduced level of operation and maintenance costs for the groundwater wells will result in a reduction in the existing Zone 2B delivery charge.



## Chapter 4 References

EDAW. 2002. Final Environmental Impact Report/Environmental Impact Statement for the Salinas Valley Water Project. April 2002.

ENTRIX, Inc. and RMC Water and Environment. 2007. Salinas Valley Water Project EIR Addendum. July 17, 2007.

Monterey County Water Resources Agency. 2005. Salinas Valley Water Project Flow Prescription for Steelhead Trout in the Salinas River. October 11, 2005.

Monterey County Water Resources Agency. 2005. Supplement to the Biological Assessment for the Salinas Valley Water Project, Salinas River, CA. October 11, 2005.

RMC. 2003. Salinas Valley Water Project Engineer's Report. January 2003



## **Appendix A Detailed O&M Cost Estimate**

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## FY 2008-2009 Annual SRDF O&M Cost Estimate Summary

<b>Item</b>	<b>SRDF Budget</b>
Outside printers - other	\$1,200
Property insurance (earthquake and flood)	\$75,000
Other insurance	\$0
Maintenance services	\$15,000
maintenance supplies	\$10,000
Employee travel	\$2,000
Employee training	\$2,000
Rental of equipment	\$7,500
Communications	\$0
Utilities	\$470,000
Other legal services	\$3,000
Laboratory services	\$4,440
Temporary help services	\$0
Other outside consultants	\$60,000
Other Prof & Spel Svcs-Labor Chg (salaries)	\$360,150
Non-capital equipment	\$2,500
Other special dept. Expense	\$0
Other special Dept. exp. (sinking fund/ reserves)	\$50,000
County assessment collection fee	\$0
Publications and legal notices	\$1,000
Memberships	\$1,000
Computer software upgrade	\$4,000
Equipment purchase	\$4,000
Capital lease/purchase	\$0
Mileage	\$1,000
<b>Total Services and Supplies</b>	<b>\$1,073,790</b>

<b>Other costs</b>	
Overtime (operations)	\$7,000
Stand-by operations	\$12,500
Startup Testing	\$12,460
Indirect Costs (5% on chemicals and utilities)	\$26,700
Direct Costs (10%)	\$30,342
<b>Total other Costs</b>	<b>\$89,002</b>

Chlorination Labor	\$11,990
Cost of Chlorine	\$64,000
Maintenance of Chlorine System	\$15,677
<b>Total transfers out</b>	<b>\$91,667</b>

<b>TOTAL ANNUAL COSTS</b>	<b>\$1,254,459</b>
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