

TESTIMONY OF JOSEPH C. MCGAHAN

STATE WATER RESOURCES CONTROL BOARD  
HEARING ON DELTA SALINITY DRAFT CDOs AND WQRP

I am here representing the San Luis & Delta-Mendota Water Authority (Water Authority) and its members<sup>1</sup>. I am a consulting engineer with Summers Engineering and represent Water Authority members in drainage and water quality issues. The Water Authority is a joint powers agency made up of 32 public agencies that receive Central Valley Project water pumped at the Tracy Pumping Plant and delivered through the Delta-Mendota and San Luis Unit facilities. The purpose of my testimony today is to provide evidence of the many actions being taken by the Water Authority and its members to address drainage management and to improve water quality in the San Joaquin River and Delta. A map of the Water Authority has been included in **Attachment 1** to my testimony.

Water Authority members have ongoing a long list of projects to manage drainage discharges to the San Joaquin River. These include the Grassland Bypass Project, Watershed Coalitions, Development of Best Management Practices, and participation in the San Joaquin River Water Quality Management Group.

Grassland Bypass Project

The Grassland Bypass Project was implemented in 1996 to manage discharges of subsurface drainage water that historically went into wetland channels, Mud and Salt Slough and the San Joaquin River. Participants include the Broadview Water District, Charleston Drainage District, Firebaugh Canal Water District, Pacheco Water District, Panoche Drainage District, Widren Water District and the Camp 13 Drainage District (located in part of Central California Irrigation District) whose boundaries encompass approximately 97,000 gross acres of irrigated farmland on the westside of the San Joaquin Valley. The Bypass Project is based on a Use Agreement between the U. S. Bureau of Reclamation (Bureau) and the Water Authority making a section of the San Luis Drain available to convey subsurface drainage around sensitive wetlands. The Regional Board has issued joint waste discharge requirements for selenium to the Water Authority and the Bureau for the project. The Bureau has supported the project by funding some of the monitoring costs and by various grants for treatment, as well as through oversight. A loan from the SWRCB was used for construction and has now been repaid. The benefits of the project are well documented. In 2004 the drainage volume

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<sup>1</sup> Members of the San Luis & Delta-Mendota Water Authority include: Banta-Carbona Irrigation District, Broadview Water District, Byron Bethany Irrigation District, Central California Irrigation District, Centinella Water District, City of Tracy, Columbia Canal Company, Del Puerto Water District, Eagle Field Water District, Firebaugh Canal Water District, Fresno Slough Water District, Grassland Water District, James Irrigation District, Laguna Water District, Mercy Springs Water District, Oro Loma Water District, Pacheco Water District, Pajaro Valley Water Management Agency, Panoche Water District, Patterson Irrigation District, Pleasant Valley Water District, Reclamation District 1606, San Benito County Water District, San Luis Canal Company, San Luis Water District, Santa Clara Valley Water District, Tranquillity Irrigation District, Turner Island Water District, West Side Irrigation District, West Stanislaus Irrigation District, Westlands Water District and Widren Water District

was reduced by 48% from pre-project conditions in 1995, and the salt load has been reduced by 51%. The discharge from this area in 1995 amounted to approximately 17% of the salt load at Vernalis, so this reduction has reduced the Vernalis salt load by approximately 9% from 1995 levels.

The local agencies that participate in the Grassland Bypass Project and their farmers have achieved this reduction through aggressive implementation of management practices, including improved irrigation methods to reduce the production of subsurface drainage water, recirculation projects to mix a portion of subsurface drainage water with irrigation supply water to reduce drainage discharges, projects to keep tailwater on-farm, and drainage reuse, where subsurface drainage water is used on salt tolerant crops again to reduce discharges. Research is also ongoing to develop treatment that will remove salt from the drainage water, resulting in a re-usable lowsalt supply and with the goal of achieving zero-discharge of subsurface agricultural drainage from the Project area to the San Joaquin River by 2010. This would result in a 17% reduction of the total salt load at Vernalis over 1995 levels.

The final stages of the reduction of discharges from the Grassland Bypass Project are being developed through the Westside Regional Drainage Plan. This is a locally-developed plan to reduce, manage and dispose of agricultural drainage in order to meet the continued reductions required for the Grassland Bypass Project and directed toward achieving zero discharge. Through implementation of the Westside Regional Drainage Plan, we expect to continue drainage service to lands presently served by the Grassland Bypass Project and to maintain a salt balance so that agricultural productivity is not impaired.

The Bureau of Reclamation's Feature Re-evaluation Process for providing drainage service incorporates elements similar to the Westside Regional Drainage Plan. Because the local plan will provide effective continued drainage service, the Feature Re-evaluation Process should be coordinated with the Westside Regional Drainage Plan.

A more detailed discussion of the Grassland Bypass Project is included to my testimony as **Attachment 2**.

#### Watershed Coalitions

The Westside San Joaquin River Watershed Coalition and the Westlands Stormwater Coalition were formed to act as Coalition Groups under the Central Valley Regional Board's Irrigated Lands Conditional Waiver Program (Ag Waiver). Each Coalition has obtained a Coalition Group Conditional Waiver of Waste Discharge Requirements.

The Westside Coalition program includes approximately 500,000 acres of land, most of which is within boundaries of the Water Authority. The Westside Coalition is comprised of the lands within Del Puerto Water District, Patterson Irrigation District, the San Joaquin River Exchange Contractors Water Authority (which includes Central California Irrigation District, San Luis Canal Company, Henry Miller Reclamation District, Firebaugh Canal Water District, and Columbia Canal Company), Tranquillity

Irrigation District/Fresno Slough Water District, Twin Oaks Irrigation District, West Stanislaus Irrigation District, Oak Flat Water District, El Solyo Water District, Stevinson Water District, White Lake Mutual Water Company, Lone Tree Mutual Water Company, Turner Island Water District and individual lands outside of these districts. Grassland Water District/Grassland Resource Conservation District, State Refuges managed by the California Department of Fish and Game, and Federal Refuges managed by the U. S. Fish & Wildlife Service are also part of the Westside Coalition. Irrigated lands within the area ultimately drain to the San Joaquin River. The Ag Waiver program requires watershed coalitions to monitor water quality in the watershed, synthesize and report on ongoing water quality and irrigation practices, and to implement actions and projects to comply with water quality objectives in the San Joaquin River and tributaries. The Ag Waiver is also envisioned as the tool that will be used to comply with the salt and boron TMDL and other regulatory programs of the Regional Board. The monitoring program for the Ag Waiver includes 19 monitoring stations on the westside of the San Joaquin River. The monitoring stations are located on tributaries to the San Joaquin River that are dominated by agricultural runoff and measure more than 50 different parameters (including a scan of 30 organophosphorus pesticides). This program has been successful in identifying problem areas and has resulted in a number of meetings with growers, pest control advisors, and applicators to increase awareness and explore solutions to those water quality issues. As discussed below, the Westside Watershed Coalition is developing best management practices to implement water quality improvement measures.

The Westlands Stormwater Coalition includes approximately 605,000 acres within the Westlands Water District, also within the Water Authority, and was formed to comply with the Ag Waiver program related to stormwater discharges. There are no surface ag discharges to the San Joaquin River from these lands.

#### Development of Best Management Practices

Water Authority members and other parties such as the Westside Resource Conservation District, the West Stanislaus Resource Conservation District, the State Department of Pesticide Regulation, the State Department of Water Resources and the Natural Resources Conservation Service have ongoing 39 different projects to develop a wide range of best management practices within the Water Authority boundaries. The purpose of these grants is to develop the tools to better manage water supplies and drainage discharges. They include the construction of regional tailwater return systems, installation of improved irrigation systems, and development of management practices that can be implemented to comply with ongoing regulations including the Ag Waiver and existing and proposed TMDL's, such as the existing selenium TMDL, proposed salt/boron and dissolved oxygen TMDL's and the future pesticide TMDL. The projects also include the Upstream Dissolved Oxygen Monitoring studies requested by the California Bay Delta Authority to help determine causes of low dissolved oxygen in the Stockton Deep Water Ship Channel. The projects have a value of over \$40 million and are scheduled for completion within the next 4 years. **Attachment 3** to my testimony is a listing of these projects.

San Joaquin River Water Quality Management Group

I have provided technical information to the San Joaquin River Water Quality Management Group and have reviewed its Final Report, dated August, 2005. This is an informal stakeholder group comprised of DWR, Bureau of Reclamation, California Department of Fish and Game, US Fish and Wildlife Service, and local water agencies. It was formed to develop a management plan to achieve the Vernalis salinity objective and also to provide a plan to address dissolved oxygen water quality issues in the Stockton Deep Water Ship Channel. The group looked at both flow-related and discharge-related actions that could be implemented. The final report from the Group recommends support of the Westside Regional Drainage Plan as one of the primary tools to ensure compliance with the salinity objective.

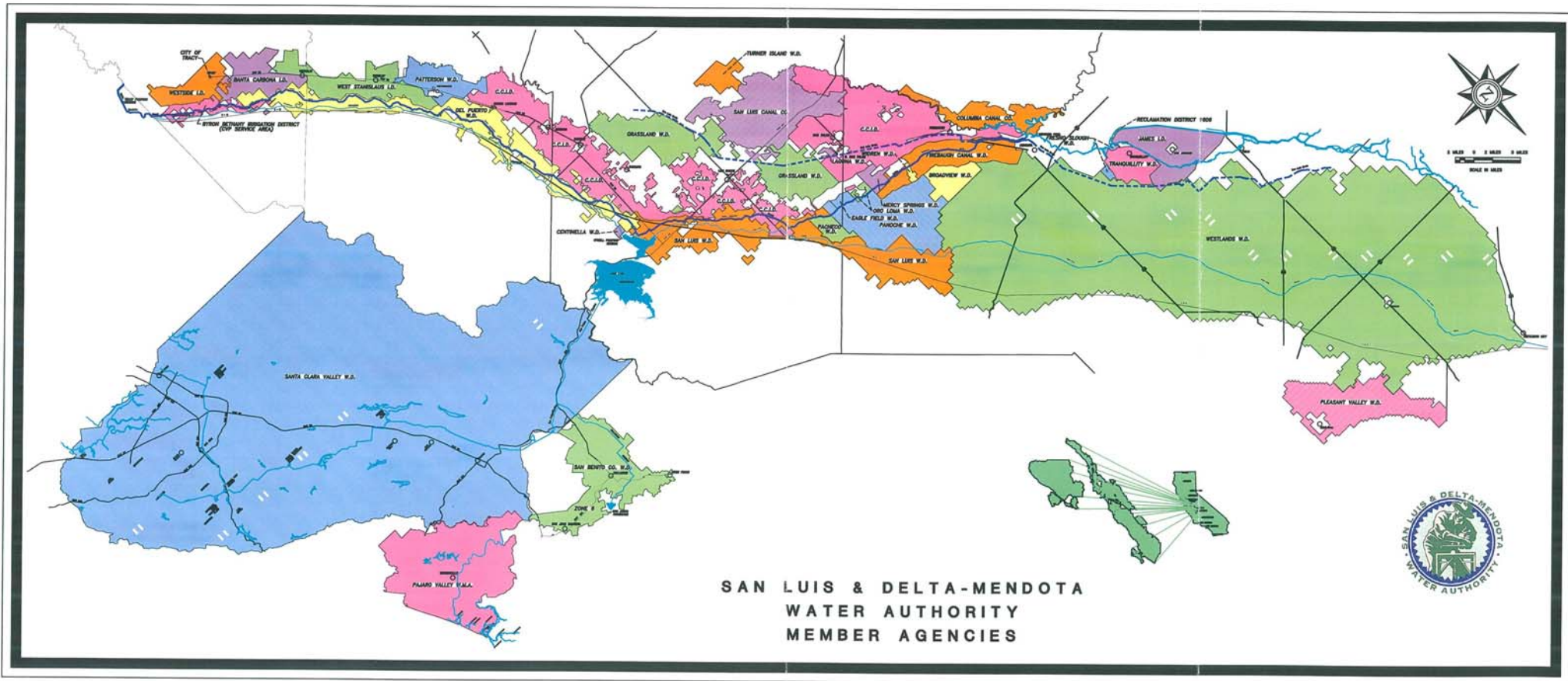
DWR Testimony

I have reviewed the Department of Water Resources "Report on San Joaquin Drainage Programs". I fully support the statements in this report. I note that the Y-axis on Figure 6 should be "Salt Load (tons)". This Figure 6 indicates that the salt load from the Grassland Drainage Area has reduced from 220,000 tons in 1998 to 120,000 tons in 2004, a reduction of 100,000 tons. The Westside Drainage Plan would result in elimination of 17% of the Vernalis salt load as stated in Table 3. The Grasslands salt load identified as 37% includes not only the discharge from the Grassland Bypass Project but also other areas including agricultural tailwater and wetland discharges.

Conclusion

Water Authority members that irrigate using CVP water pumped at Tracy are fully engaged in the Regional Board's regulatory processes addressing salinity in discharges from irrigated agriculture. They are aggressively developing projects with the Bureau of Reclamation, DWR, the SWRCB, and through local initiatives. These have resulted and will continue to result in decreased salinity inputs from their areas, and therefore, improvements in water quality in the San Joaquin River and Delta. This includes compliance with Vernalis salinity objectives in all months of all water year types.

# **ATTACHMENT 1**



# **ATTACHMENT 2**

## **GRASSLAND BYPASS PROJECT DRAINAGE ACTIVITY IMPACTS**

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This report outlines the activities of the Grassland Area Farmers and the water quality improvements caused by the implementation of the Grassland Bypass Project and other drainage reduction activities.

The Grassland Area Farmers formed a regional drainage entity in March 1996 under the umbrella of the San Luis and Delta-Mendota Water Authority to implement the Grassland Bypass Project. Participants include the Broadview Water District, Charleston Drainage District, Firebaugh Canal Water District, Pacheco Water District, Panoche Drainage District, Widren Water District and the Camp 13 Drainage District (located in part of Central California Irrigation District). This entity includes approximately 97,000 gross acres of irrigated farmland on the westside of the San Joaquin Valley, referred to as the Grassland Drainage Area. The area is highly productive, producing an estimated \$113 Million annually in agricultural crop market value, with an additional estimated \$126 Million generated for the local and regional economies, for a total estimated economic value of \$239 Million.

The Grassland Area Farmers have implemented several activities aimed at reducing discharge of subsurface drainage waters to the San Joaquin River. These activities have included the Grassland Bypass Project and the San Joaquin River Water Quality Improvement Project. They also include: formation of a regional drainage entity, newsletters and other communication with the farmers, a monitoring program, using State Revolving Fund loans for improved irrigation systems, utilizing and installing drainage recycling systems to mix subsurface drainage water with irrigation supplies under strict limits, tiered water pricing and tradable loads programs.

### **GRASSLAND BYPASS PROJECT**

The Grassland Bypass Project is an innovative program that was designed to improve water quality in the channels used to deliver water to wetland areas. Prior to the Project, subsurface drainage water was conveyed through those channels in route to the San Joaquin River and limited their availability to deliver high-quality habitat supplies. The Project consolidates subsurface drainage flows on a regional basis and utilizes a portion of the federal San Luis Drain to convey the flows around the habitat areas.

Negotiations between the San Luis & Delta-Mendota Water Authority and the U S Bureau of Reclamation to utilize a portion of the San Luis Drain for the Project commenced in 1988. Stakeholders included in the process were: U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, California Department of Fish and Game, the Central Valley Regional Water Quality Control Board, Environmental Defense, Contra Costa County and Contra Costa Water District. In late 1995, environmental documentation for the first five years was completed and the Use Agreement was signed. Discharge through the project began in September 1996. In September 2001, the Use Agreement was extended for another 8 years and 3 months (through December 2009). An Environmental Impact Report/Environmental Impact Statement

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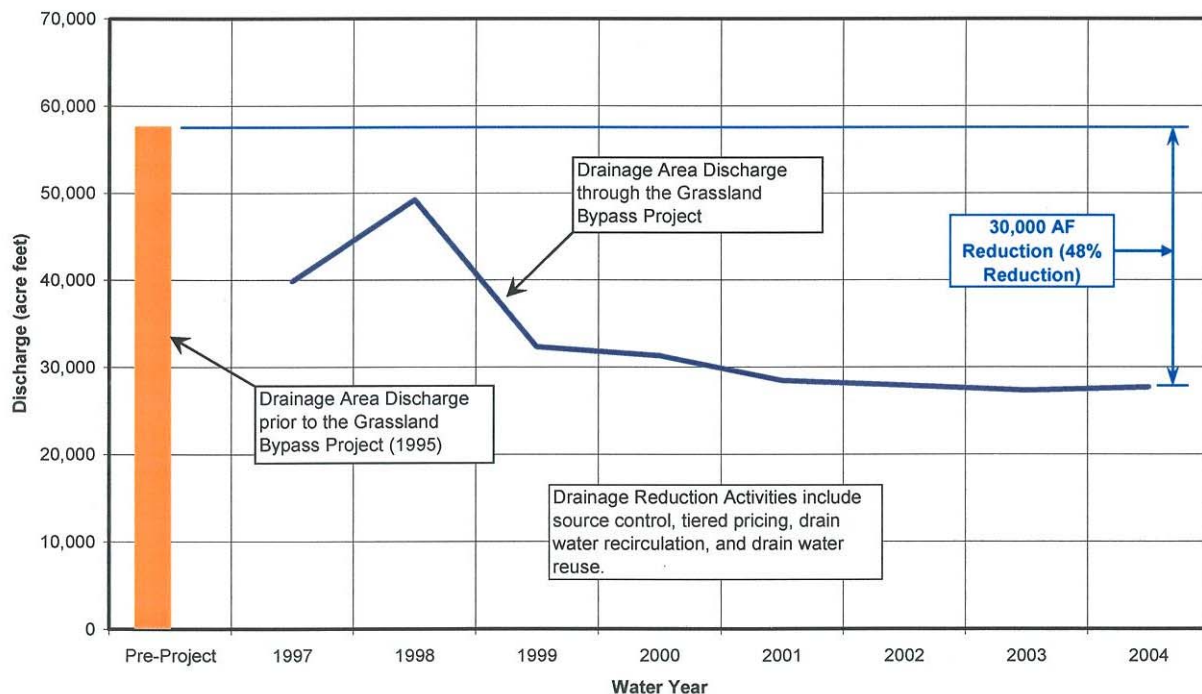


## GRASSLAND BYPASS PROJECT

was completed and on September 7, 2001 the Central Valley Regional Water Quality Control Board issued new Waste Discharge Requirements. Other items completed to support the continued use were a Biological Assessment/Biological Opinion, a selenium Total Maximum Monthly Load (TMML) report submitted by the Regional Board to EPA and a continued monitoring program. The new Use Agreement contains continued reductions in selenium discharge until ultimately TMML limits are achieved in 2005 for above normal and wet years and continued progress is made to meet water quality objectives in 2010 for below normal, dry and critical years.

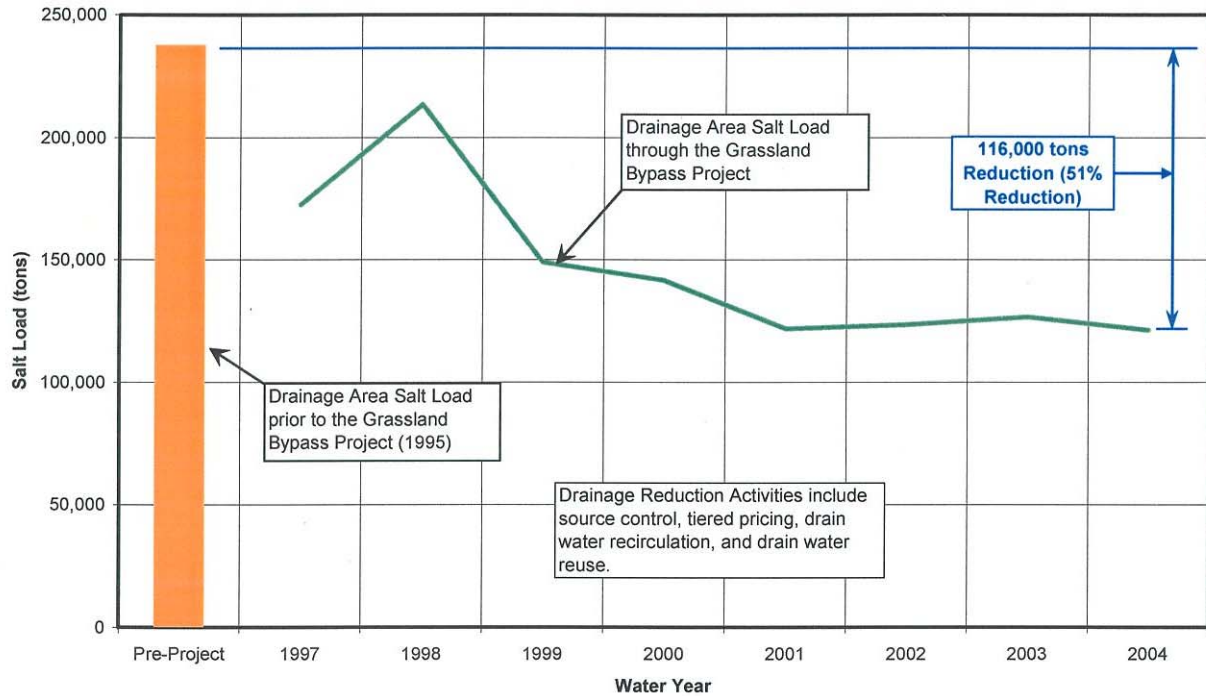
The benefits of the Grassland Bypass Project are well documented. In water year (WY) 2004, drainage volume has been reduced **48%** and the salt load has been reduced **51%**, all from pre-project conditions in WY 1995. In WY 1996, prior to the Grassland Bypass Project, the mean annual selenium concentration in Salt Slough at Lander Avenue was 16 parts per billion (ppb). Since October 1996, the 2 ppb monthly mean water quality objective for Salt Slough has been met in all months except one. The only month in which objectives were not met was February 1998 when uncontrollable flood flows were mixed with subsurface drainage water and could not be contained within the Grassland Bypass Project (that month the selenium concentration in Salt Slough was 4 ppb). In WY 1996 the mean annual selenium concentration at Camp 13 Ditch was 55.9 parts per billion (ppb). In WY 2004, the mean annual selenium concentration at Camp 13 Ditch was 0.6 ppb.

### Grassland Drainage Area Drainage Area Discharge



# GRASSLAND BYPASS PROJECT

## Grassland Drainage Area Drainage Area Salt Load



A variety of activities implemented by the Grassland Area Farmers can be attributed to these reductions, including recirculation activities, local irrigation pricing incentives, irrigation system improvement incentives and drainage reuse.

### DRAINAGE REUSE: THE SAN JOAQUIN RIVER IMPROVEMENT PROJECT

Funds provided from Proposition 13 allowed for the purchase and improvement of 4,000 acres of land within the Grassland Drainage Area as part of the San Joaquin River Improvement Project (SJRIP) for the purpose of drain water reuse. The first phase of the SJRIP was implemented in the winter of WY 2001 with the planting of salt tolerant crops and construction of distribution facilities. 1,821 acres were irrigated with drainage water or blended water. This resulted in a displacement of 1,025 pounds of selenium, 14,500 tons of salt and 62,000 pounds of boron, which were prevented from discharging to the Grassland Bypass Project and to the San Joaquin River. Table 1 shows the annual drain water reuse by the SJRIP, including the selenium, salt, and boron loads.

## GRASSLAND BYPASS PROJECT

**Table 1.**

Water Year	Reused Drain Water (acre feet)	Displaced Selenium (pounds)	Displaced Boron (pounds)	Displaced Salt (tons)
1998*	1,211	329	NA	4,608
1999*	2,612	321	NA	10,230
2000*	2,020	423	NA	7,699
2001	2,850	1,025	61,847	14,491
2002	3,711	1,119	77,134	17,715
2003	5,367	1,626	141,299	27,728
2004	7,890	2,417	193,956	41,444

NA = Not Available

\* PDD drainage reuse project prior to SJRIP

Since 2002, funding assistance from the Central Valley Regional Water Quality Control Board, U.S. Bureau of Reclamation, CalFed, and the U.S. Department of Agriculture has helped develop the SJRIP. Currently, 3,100 acres of the SJRIP have been planted with pastures like bermuda, and fescue, salt tolerant forage grasses like jose tall wheatgrass, halophytes like paspalum, and other miscellaneous crops like asparagus, sunflowers, and pistachios. This financial assistance has also helped with the construction of the pump stations and pipelines that move the drain water to the fields for irrigation.



Asparagus and alfalfa grown with blended drain water on the SJRIP. Other crops on the SJRIP include Jose Tall Wheatgrass, bermuda, fescue, paspalum grass, sun flowers, desert palm trees, and pistachio trees.

## **GRASSLAND BYPASS PROJECT**

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The SJRIP project is the key for the Grassland Drainage Area as a whole to meet the near-term selenium load limits. However, by 2009, the selenium water quality objective of 2 ppb will need to be met, effectively shutting down the Grassland Bypass and San Luis Drain. To address this, the Grassland Area Farmers are preparing to implement an In-Valley drainage solution, all drainage originating within the GDA will stay within its boundaries. The SJRIP will be the cornerstone of this solution, along with source control (irrigation and delivery improvements), recirculation, and drainage treatment.

### **RECIRCULATION PROJECTS**

As a tool to manage subsurface drain water and to meet monthly and annual selenium load allocation, a number of the districts within the GDA constructed facilities to recirculate drain water back into their irrigation distribution system.

In 1998, Charleston Drainage District began the construction of a district wide recirculation system that diverted water from landowner owned tile sumps to the district's irrigation distribution system. A loan was obtained from the SWRCB's State Revolving Fund program in the amount of \$320,000 for the construction of the recirculation system. In 2004, a second recirculation system was constructed. This system cost \$71,200, and was paid through district funds.

From 1997 through 2000, Firebaugh Canal Water District (FCWD) implemented a number of projects to divert more than 50% of the district's tile sump discharge into the irrigation distribution system. These recirculation projects were completed with district funding to a total cost of \$271,100. Also during this period, FCWD imposed a "no tail water" policy, under which the growers installed a number tail water return systems at significant cost.

In 1997, Pacheco Water District procured a loan from the SWRCB's state revolving fund to construct a district wide recirculation system. The system transports subsurface drainage water from the district's main discharge point through a ½ mile long pipeline and concrete lined ditch. The recirculated drain water is discharged into the primary irrigation facilities for Pacheco Water District. The cost for this project was \$1,375,000.

In 1998, Panoche Drainage District began the construction of a 14 mile long, district wide recirculation system at a cost of \$4,228,000. The funds for this project were obtained through the SWRCB's State Revolving Fund.

## GRASSLAND BYPASS PROJECT

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Panoche Drainage District Recirculation System Pumping Plant and Air Chamber. Districts throughout the GDA have developed drainage recirculation systems, which are a critical tool in managing drainage discharge.

### INCENTIVES FOR IMPROVED IRRIGATION

Recognizing that deep percolation due to irrigation inefficiencies is a significant source of subsurface drainage production, the districts of the GDA have developed programs that encourage growers to improve their irrigation practices. Panoche Drainage District and Pacheco Water District have developed programs to provide low interest loans to growers for the purchase of improved irrigation equipment. Since 1996, Panoche Drainage District has distributed \$4,997,294 and Pacheco Water District has distributed \$737,500. Both of these programs were funded through the SWRCB's State Revolving Fund. Similarly, Firebaugh Canal Water District provides incentives to its growers through a self-funded combination grant/loan program that funds 25% of the project as a grant and finances the remaining 75% at 3% for 5 years. Firebaugh Canal Water District has provided more than \$1 million in grant funds and financed almost \$3.5 million for improved irrigation equipment. Additionally, Firebaugh has spent almost \$2 million on infrastructure improvements in the form of lining and piping canal systems.

### OTHER ACTIVITIES

The Grassland Area Farmers and member districts are continuing advances into drainage management and disposal with the cooperation of federal and state agencies. Research is

## **GRASSLAND BYPASS PROJECT**

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being undertaken in "Zero-Discharge" reverse osmosis treatment; a process which not only produces a usable treated water supply but reduces the waste stream to a dry solid that can be managed in an efficient and environmentally friendly manner. Continued funding is being sought for these activities through state and federal grants.

The Grassland Area Farmers are active participants in this process as well other regulatory efforts such as the dissolved oxygen issue in the San Joaquin River and the Conditional Waiver program.

*November, 2005*

# **ATTACHMENT 3**

**ATTACHMENT 3  
SLDMWA Ex. 1**

San Luis & Delta-Mendota Water Authority  
Project Summaries  
Updated November 11, 2005

Line No.	Funding Source	Title	Sponsor	Description
<b>Current Projects:</b>				
1	SWRCB Ag Water Quality Grant Program	Irrigation Systems Improvement Project (ISIP)	WWD, SWRCB	Funds used for growers to install more efficient on farm irrigation systems
2	CALFED Drinking Water Program - Prop 13	Water Conservation	WWD, DWR	ISIP Program, SCADA Project, Satellite Imagery, Water Conservation
3	Prop 13 - Water Use Efficiency	SCADA System	WWD, DWR	Perform analysis for remote metering in the District
4	CALFED Drinking Water Program - Prop 13	Orestimba Creek Watershed - Agricultural Water Quality Pilot Program	CURES	Identify and design BMP's for reduction of discharge from the Orestimba Creek watershed.
5	PRISM Grant - Dept of Pesticide Regulation	PIN No. 17 - Western San Joaquin Valley Pesticide BMP Implementation Program	SJVDA - Transferred to SL&D-MWA June 21, 2004	Demonstrate an achievable reduction of chlorpyrifos in drainage water discharging from the tributary watershed of Orestimba Creek into the San Joaquin River from alfalfa, vegetable and other row crop farms
6	CALFED Drinking Water Program - Prop 13	PIN No. 471 - Agricultural Discharge Management Program Monitoring and Evaluation - West Stanislaus County	SJVDA - Transferred to SL&D-MWA August 5, 2004	Examine and evaluate four BMP strategies currently being used in the region for the control of sediments and pesticides: drainage retention ponds (reservoirs), constructed wetlands, vegetated ditches and PAM applications.
7	CALFED Directed Action Proposal	Monitoring and Investigations of the San Joaquin River and Tributaries Related to Dissolved Oxygen	SJVDA	Perform monitoring and analysis of the existence and fate of constituents discharged from the east and west side of the San Joaquin River upstream of Stockton that contribute to the dissolved oxygen deficit in the Stockton deep water ship channel
8	Prop 13	San Luis Drain Oxygen Demand Reduction Project	Grassland Basin Drainers - Transferred to the SL&D-MWA January 28, 2004	Scientific study of algae growth in the San Luis Drain with the objective of understanding factors controlling algal biomass and total organic carbon production in this system.
9	DWR -Prop 204		SL&D-MWA	
10	CALFED	Algal Bacterial Selenium Reduction - Intermediate Scale Facility	Panoche DD	Construction
11	USBR - Appropriations	RP5/RP6 Project	Panoche DD	SJRIP Improvement
12	SWRCB - Ag Drainage Loan Program	ADLP	Panoche DD	Loans for Irrigation Improvement
13	USBR - Reimbursement Fund	Halophyte Development Project	Panoche DD	SJRIP Improvement
14	USBR - Appropriations	SJRIP Development	Panoche DD	SJRIP Improvement
15	CALFED/Prop 13	Panoche Creek Stabilization Project	Westside RCD	Low Flow Crossing on Panoche Creek
16	CALFED ERP	Panoche-Silver Creek Assessment	Westside RCD	Develop BMP's on Big Panoche, designate sites for erosion implementation projects, make connection between BMP's
17	CALFED Watershed Grant	Silver Creek Watershed Assessment	Westside RCD	Watershed Assessment for Silver Creek & Panoche Alluvial
18	CALFED/Prop 13	Salt - Martinez Creeks Watershed Assessment	Westside RCD	Watershed Assessment for Salt & Martinez Creeks



**ATTACHMENT 3  
SLDMWA Ex. 1**

San Luis & Delta-Mendota Water Authority  
Project Summaries  
Updated November 11, 2005

Line No.	Funding Source	Title	Sponsor	Description
19	Department of Water Resources	Cantua/Salt Creek Watershed Management Plan	Westside RCD	Watershed Management Plan for Cantua/Salt Creek Watershed
20	Department of Water Resources	Arroyo Pasajero Watershed Project Implementation Grant	Westside RCD	Project Implementation for Arroyo Pasajero and Domengine Watersheds
21	CALFED/Prop 13	Domengine Planning Grant	Westside RCD	Watershed Management Plan for Domengine Watershed
22	BLM Assistance Grant	Weed Abatement Grant	Westside RCD	Removal of noxious and Invasive Plants in Western Fresno County
23	CALFED Watershed Grant	Arroyo Pasajero Project Implementation Grant	Westside RCD	Project Implementation for BMP's in Arroyo Pasajero Watershed
24	CALFED/DOC	Watershed Coordinator Grant	Westside RCD	Funding of Watershed Coordinator
25	Wildlife Conservation Board	Ecological Reserve Restoration	Westside RCD	Funding to restore Fish & Game ecological reserve
26	Packard Grant	Kester Ranch Project Implementation	Westside RCD	Funding to implement BMP's on Kester Ranch
27	Prop 204	Drainage Master Contract 460000534	Westside RCD	Funding various tasks on salt/drainage management
28	USBR	Drainage Treatment and Restoration of Retired Lands	Westside RCD	Drainage treatment at Red Rock Ranch and restoration in section 10
29	SWRCB 319(h)	IFDM Manuals	Westside RCD	Technical and Farm Manuals on Integrated, On-farm Drainage Management
<b>Pending Projects:</b>				
30	DHS - Prop 50, Small water System	Panoche Silver Creek Flood Control Project	WWD, City of Mendota	Obtain funding to complete the environmental and design work for Panoche Silver Creek Flood Control
31	CALFED Water Use Efficiency Grant	Decision support for implementation and evaluation of agricultural water reuse best management practices to improve district-level irrigation efficiency	Patterson ID	Marshall Road type reservoir on district's north side, return water storage and delivery
32	SWRCB Ag Water Quality Grant Program - Prop 50 or Federal 319(h)	Real-time salt & nutrient drainage load reduction strategies - PIN 2168	Patterson ID & W. Stan ID	Marshall Road type reservoir on district's north side, return water storage and delivery and comparing it to private reservoir project in W. Stan
33	SWRCB Ag Water Quality Grant Program - Prop 50 or Federal 319(h)	San Joaquin River Water Quality Improvement Project - Reuse Development -PIN 1278	Panoche DD	
34	SWRCB	ABSR Continuing Operations	Panoche DD	Operation and investigation
35	DWR Water Use Efficiency	Optimizing a Tail Water Return System	Del Puerto WD	BMP Construction Project for tail water recovery and monitoring
36	SWRCB- Ag Drainage Loan Program	ADLP	Del Puerto WD	Fund installation of Irrigation & Drainage systems to improve water efficiency and reduce drainage.
37	SWRCB Ag Water Quality Grant Program - Prop 50	Westside San Joaquin Watershed Irrigated Agricultural Water Quality Implementation Project- PIN 2146	CURES, DPWD, CCID, PID	Watershed Characterization, implement tailwater return system BMP's, monitor & outreach .
38	USBR - Appropriations	Study to examine drainage reduction due to buried drip tape.	Westlands WD, Panoche DD	Match includes \$59,000 from ITRC and \$21,000 from sponsors.

**ATTACHMENT 3**  
**SLDMWA Ex. 1**

San Luis & Delta-Mendota Water Authority  
Project Summaries  
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Line No.	Funding Source	Title	Sponsor	Description
39	SWRCB Ag Water Quality Grant Program - Prop 50 or Federal 319(h)	Adaptive, coordinated real-time management of wetland drainage - PIN 2216	Grassland Water District	