

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

**November 2009**

May 18, 2010

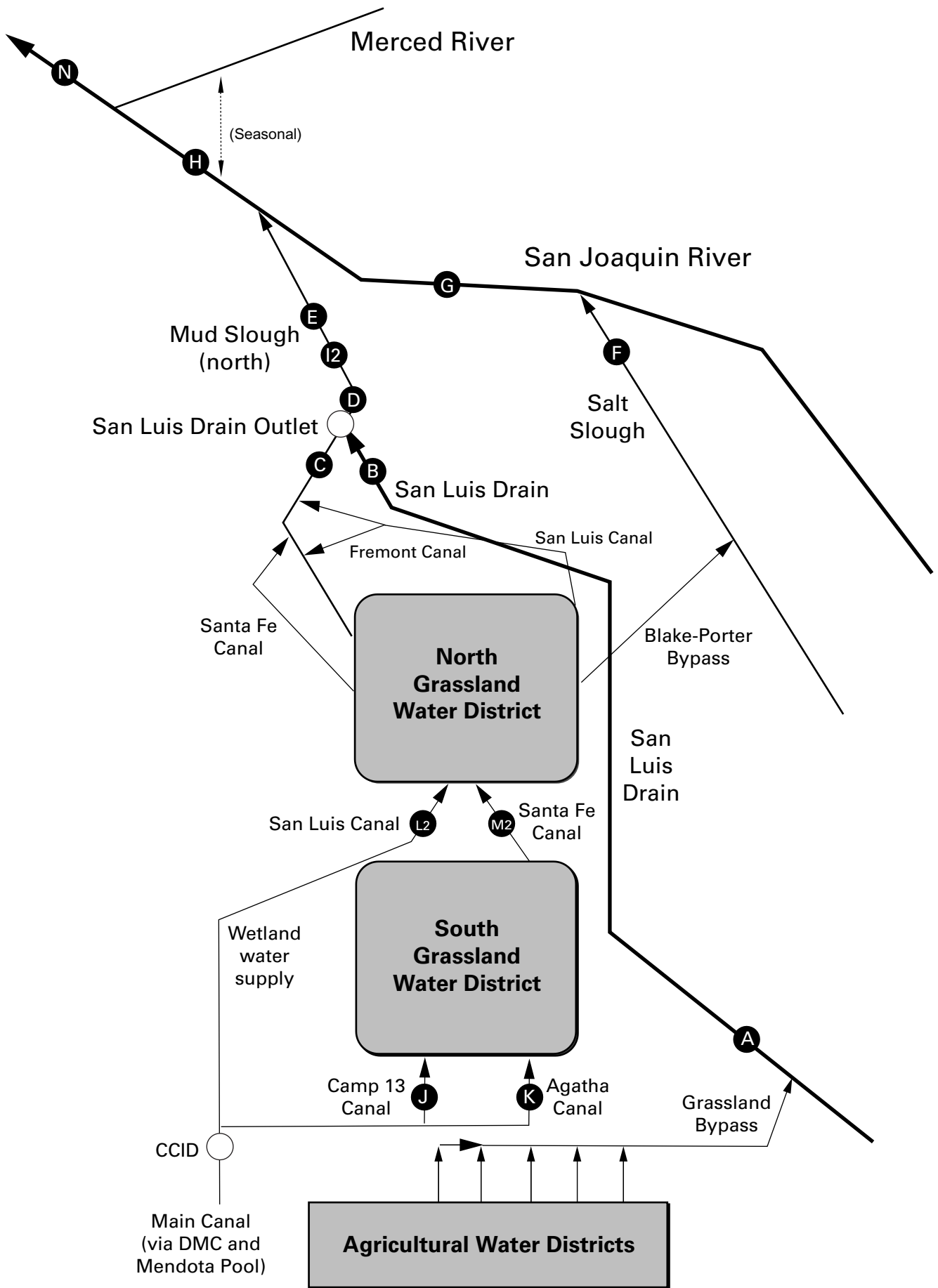
### **Preliminary Results**

A cooperative effort of:

U.S. Bureau of Reclamation  
Central Valley Regional Water Quality Control Board  
U.S. Fish and Wildlife Service  
California Department of Fish and Game  
San Luis & Delta-Mendota Water Authority  
U.S. Environmental Protection Agency  
U.S. Geological Survey

compiled by San Francisco Estuary Institute





## GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

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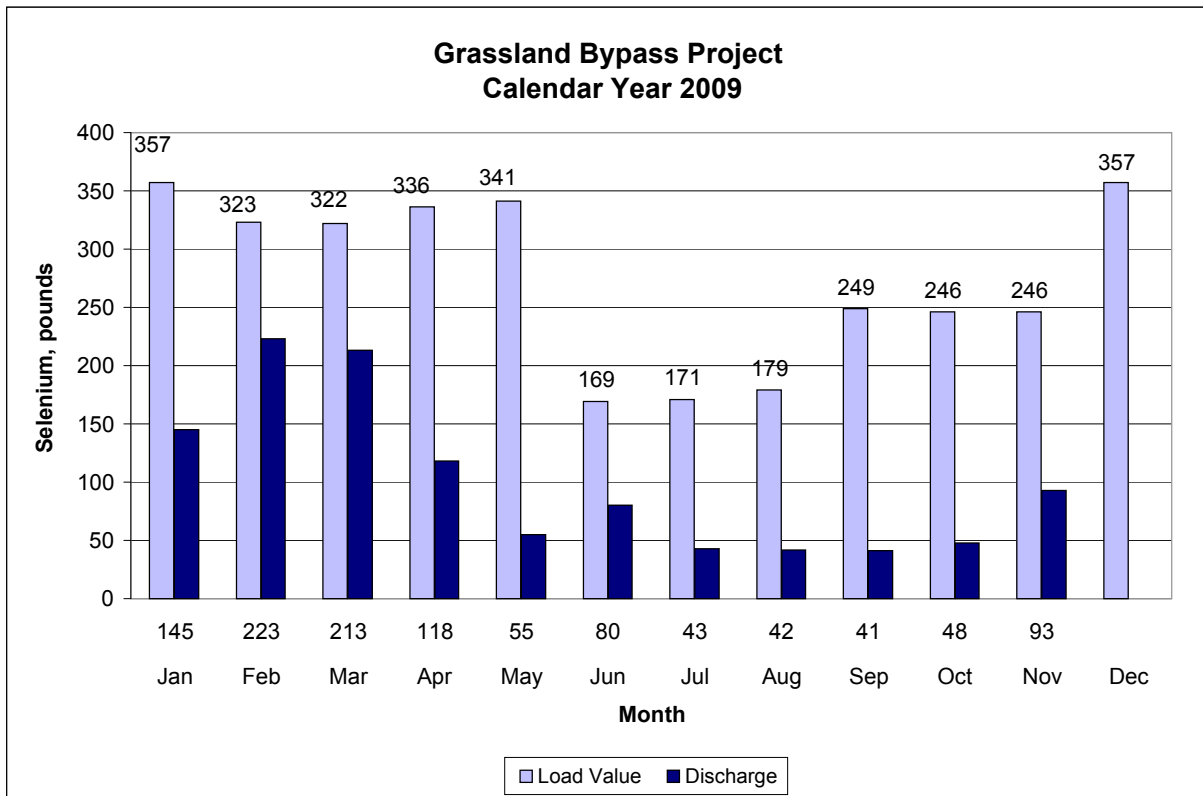
**Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), November 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>SLDMWA</b>	<b>SLDMWA</b>
<b>UNITS</b>	<b>cfs</b>	<b>µS/cm</b>
Nov-01-2009	14	3,710
Nov-02-2009	20	3,910
Nov-03-2009	23	3,640
Nov-04-2009	20	3,520
Nov-05-2009	15	3,510
Nov-06-2009	13	3,670
Nov-07-2009	14	3,800
Nov-08-2009	17	3,450
Nov-09-2009	17	3,240
Nov-10-2009	17	3,230
Nov-11-2009	18	3,600
Nov-12-2009	21	3,180
Nov-13-2009	20	3,310
Nov-14-2009	19	3,200
Nov-15-2009	18	3,410
Nov-16-2009	17	3,760
Nov-17-2009	18	3,600
Nov-18-2009	15	3,730
Nov-19-2009	13	3,950
Nov-20-2009	13	3,970
Nov-21-2009	13	3,970
Nov-22-2009	14	3,820
Nov-23-2009	16	3,790
Nov-24-2009	14	3,920
Nov-25-2009	11	3,830
Nov-26-2009	12	3,880
Nov-27-2009	16	3,890
Nov-28-2009	17	3,980
Nov-29-2009	15	3,950
Nov-30-2009	16	3,690
.	.	.
Mean	16	3,670



Figure 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.



**Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), November 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Nov-01-2009	89	15.6	2,350
Nov-02-2009	87	16.6	2,380
Nov-03-2009	92	17.2	2,470
Nov-04-2009	93	17.4	2,570
Nov-05-2009	89	17.0	2,470
Nov-06-2009	80	17.2	2,440
Nov-07-2009	73	16.9	2,510
Nov-08-2009	69	14.9	2,660
Nov-09-2009	72	14.0	2,660
Nov-10-2009	75	14.3	2,560
Nov-11-2009	74	14.3	2,590
Nov-12-2009	70	14.0	2,710
Nov-13-2009	69	13.0	2,840
Nov-14-2009	67	12.6	2,710
Nov-15-2009	75	12.3	2,470
Nov-16-2009	74	12.2	2,550
Nov-17-2009	75	12.3	2,480
Nov-18-2009	73	12.6	2,470
Nov-19-2009	70	11.6	2,530
Nov-20-2009	80	11.5	2,280
Nov-21-2009	74	11.5	2,430
Nov-22-2009	76	11.6	2,450
Nov-23-2009	71	11.8	2,600
Nov-24-2009	68	11.5	2,630
Nov-25-2009	65	11.7	2,800
Nov-26-2009	59	11.9	2,810
Nov-27-2009	60	12.2	2,860
Nov-28-2009	69	10.9	2,770
Nov-29-2009	69	10.1	2,850
Nov-30-2009	68	10.1	2,860
.	.	.	.
Mean	74	13.4	2,590

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), November 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>usgs</b>	<b>usgs</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>µS/cm</b>
Nov-01-2009	111	14.8	1,310
Nov-02-2009	119	15.7	1,290
Nov-03-2009	117	16.2	1,290
Nov-04-2009	123	16.4	1,270
Nov-05-2009	114	16.2	1,350
Nov-06-2009	109	16.4	1,370
Nov-07-2009	107	16.3	1,370
Nov-08-2009	108	14.5	1,380
Nov-09-2009	119	13.5	1,310
Nov-10-2009	124	13.5	1,290
Nov-11-2009	124	13.4	1,310
Nov-12-2009	123	13.2	1,360
Nov-13-2009	126	12.3	1,370
Nov-14-2009	128	11.9	1,360
Nov-15-2009	123	11.7	1,390
Nov-16-2009	132	11.3	1,330
Nov-17-2009	143	11.2	1,240
Nov-18-2009	136	11.8	1,290
Nov-19-2009	117	11.1	1,390
Nov-20-2009	115	10.9	1,460
Nov-21-2009	116	11.0	1,470
Nov-22-2009	121	11.1	1,420
Nov-23-2009	126	11.2	1,390
Nov-24-2009	131	10.9	1,380
Nov-25-2009	128	11.0	1,330
Nov-26-2009	133	11.1	1,270
Nov-27-2009	136	11.2	1,190
Nov-28-2009	143	10.6	1,240
Nov-29-2009	137	10.1	1,360
Nov-30-2009	126	9.9	1,460
.	.	.	.
Mean	124	12.7	1,340



**Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), November 2009.**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>Specific Conductance</b>	<b>Selenium (total)</b>
<b>DATA SOURCE</b>	usgs	usgs	cvrwqcb	cvrwqcb
<b>UNITS</b>	cfs	°C	µS/cm	µg/L
Nov-01-2009	867	14.4	710	0.9
Nov-02-2009	807	15.2	770	0.8
Nov-03-2009	766	15.7	780	1.1
Nov-04-2009	705	16.1	900	1.1
Nov-05-2009	709	16.0	870	1.2
Nov-06-2009	666	16.2	910	1.2
Nov-07-2009	612	16.4	980	1.1
Nov-08-2009	593	14.8	1,000	1.0
Nov-09-2009	570	13.6	1,040	1.0
Nov-10-2009	563	13.8	1,060	1.2
Nov-11-2009	542	13.9	1,090	1.2
Nov-12-2009	533	13.8	1,090	1.2
Nov-13-2009	527	12.8	1,120	1.2
Nov-14-2009	529	12.4	1,180	1.4
Nov-15-2009	533	11.9	980	1.7
Nov-16-2009	536	11.7	1,150	1.2
Nov-17-2009	533	11.7	1,180	1.4
Nov-18-2009	544	12.1	1,110	1.3
Nov-19-2009	543	11.4	1,090	1.2
Nov-20-2009	530	11.1	1,160	1.1
Nov-21-2009	524	11.1	1,160	1.2
Nov-22-2009	525	11.3	1,180	1.2
Nov-23-2009	528	11.3	1,180	1.3
Nov-24-2009	524	10.9	1,170	1.5
Nov-25-2009	521	10.9	1,210	1.4
Nov-26-2009	513	10.9	1,230	1.3
Nov-27-2009	511	11.2	1,230	1.3
Nov-28-2009	523	10.4	1,220	1.4
Nov-29-2009	520	9.6	1,230	1.4
Nov-30-2009	510	9.8	1,280	1.3
.	.	.	.	.
Mean	580	12.7	1,080	1.3

Table 6a. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from grab samples.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Total Suspended Solids	.	.	.
DATA SOURCE	SLDMWA	.	.	CVRWQCB	CVRWQCB	.	.	.
UNITS	cfs	.	.	µS/cm	mg/L	.	.	.
Sep-08-2009	16	.	.	4,800	120	.	.	.
Sep-14-2009	11	.	.	4,190	108	.	.	.
Sep-21-2009	12	.	.	4,510	111	.	.	.
Sep-28-2009	10	.	.	3,890	53	.	.	.
Oct-05-2009	4	.	.	4,640	19	.	.	.
Oct-12-2009	9	.	.	4,090	64	.	.	.
Oct-19-2009	11	.	.	4,360	81	.	.	.
Oct-26-2009	19	.	.	4,880	193	.	.	.
Nov-02-2009	20	.	.	4,830	188	.	.	.
Nov-09-2009	17	.	.	4,240	62	.	.	.
Nov-16-2009	17	.	.	4,420	NA	.	.	.
Nov-23-2009	16	.	.	4,410	110	.	.	.
Nov-30-2009	16	.	.	4,190	43	.	.	.

Table 6b. Weekly water quality monitoring at Station A (inflow to San Luis Drain), taken from composite samples.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	.	Selenium (total)	.	Boron
DATA SOURCE	SLDMWA	.	.	CVRWQCB	.	CVRWQCB	.	CVRWQCB
UNITS	cfs	.	.	µS/cm	.	µg/L	.	mg/L
Sep-06-2009	8	.	.	5,820	.	39.3	.	9.1
Sep-13-2009	10	.	.	4,500	.	38.1	.	6.9
Sep-20-2009	14	.	.	4,240	.	30.8	.	7.0
Sep-27-2009	11	.	.	3,700	.	22.0	.	7.3
Oct-04-2009	4	.	.	4,700	.	21.7	.	8.8
Oct-11-2009	10	.	.	4,180	.	21.6	.	8.5
Oct-18-2009	11	.	.	4,360	.	28.9	.	8.2
Oct-25-2009	23	.	.	4,380	.	35.4	.	7.8
Nov-01-2009	14	.	.	4,530	.	38.9	.	8.4
Nov-08-2009	17	.	.	4,250	.	37.6	.	7.4
Nov-15-2009	18	.	.	4,030	.	41.4	.	6.9
Nov-22-2009	14	.	.	4,430	.	41.9	.	7.1
Nov-29-2009	15	.	.	4,610	.	51.5	.	7.2

Table 7. Weekly water quality monitoring at Station B (discharge from San Luis Drain), taken from grab samples.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Total Suspended Solids	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	mg/L	µg/L	mg/L
Sep-01-2009	7	24.1	8.6	3,700	38	17.6	6.3
Sep-08-2009	8	22.9	7.9	4,240	12	14.8	7.3
Sep-15-2009	11	22.4	8.7	5,010	32	25.6	9.6
Sep-22-2009	12	23.8	8.5	3,420	31	19.7	5.4
Sep-29-2009	10	23.2	8.4	3,930	43	16.8	6.7
Oct-06-2009	7	15.9	8.3	3,710	30	12.2	6.5
Oct-13-2009	18	16.7	8.5	3,530	45	10.2	6.8
Oct-20-2009	15	18.6	8.2	3,390	41	16.6	5.5
Oct-27-2009	19	17.2	7.2	3,930	74	27.9	6.4
Nov-03-2009	22	15.9	8.2	4,270	42	29.6	6.8
Nov-10-2009	20	13.8	8.1	3,870	48	29.0	6.0
Nov-17-2009	20	11.5	8.0	3,750	30	30.4	5.9
Nov-24-2009	19	10.6	7.8	3,900	NA	30.5	6.2

Table 8. Weekly water quality monitoring at Station C (Mud Slough North upstream of drainage discharges).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	.	Selenium (total)	Boron
DATA SOURCE	calculated **	CVRWQCB	CVRWQCB	CVRWQCB	.	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	.	µg/L	mg/L
Sep-01-2009	9	26.0	8.4	1,100	.	0.8	0.7
Sep-08-2009	11	22.1	8.0	640	.	1.0	0.4
Sep-15-2009	23	20.5	7.9	860	.	0.4	0.4
Sep-22-2009	13	21.0	7.8	1,280	.	0.4	0.8
Sep-29-2009	41	20.9	7.6	980	.	<0.4	0.6
Oct-06-2009	41	14.5	7.6	1,130	.	<0.4	0.6
Oct-13-2009	149	15.7	7.7	1,010	.	0.7	0.7
Oct-20-2009	220	17.1	7.5	1,040	.	<0.4	0.7
Oct-27-2009	137	15.9	7.2	1,340	.	0.6	0.9
Nov-03-2009	70	16.0	7.9	1,660	.	0.4	1.3
Nov-10-2009	55	13.2	7.9	1,830	.	0.6	1.4
Nov-17-2009	55	10.8	7.7	1,890	.	<0.4	1.4
Nov-24-2009	49	10.2	7.9	2,110	.	<0.4	1.7

\*\* Calculated flow value. Flow at Station C = flow at Station D - flow at Station B.

**Table 9. Weekly water quality monitoring at Station D (Mud Slough North downstream of drainage discharges).**

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Sep-01-2009	16	24.3	8.4	2,100	8.3	2.9
Sep-08-2009	e19	21.9	7.8	2,010	5.4	3.0
Sep-15-2009	34	21.1	8.3	2,670	11.8	4.2
Sep-22-2009	25	22.5	8.0	2,910	13.0	4.2
Sep-29-2009	51	21.3	7.6	1,660	4.6	1.8
Oct-06-2009	48	14.8	7.7	1,550	1.9	1.5
Oct-13-2009	167	16.1	7.7	1,470	2.2	1.6
Oct-20-2009	235	17.5	7.5	1,280	2.0	1.2
Oct-27-2009	156	16.2	7.1	1,750	4.9	1.8
Nov-03-2009	92	15.7	7.8	2,490	9.1	2.8
Nov-10-2009	75	13.3	7.9	2,520	8.0	2.8
Nov-17-2009	75	11.0	7.8	2,470	8.6	2.6
Nov-24-2009	68	10.3	7.9	2,560	7.9	2.9

**Table 10. Weekly water quality monitoring at Station I2 (Mud Slough backwater downstream of Station D).**

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER		pH	Specific Conductance	Turbidity	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR
UNITS		.	µS/cm	NTU	µg/L	mg/L
Sep-03-2009	.	8.6	2,520	35	7.7	3.5
Sep-10-2009	.	8.7	3,770	29	18.2	6.6
Sep-15-2009	.	8.6	2,790	18	12.4	4.7
Sep-22-2009	.	8.8	2,300	29	13.0	4.4
Sep-29-2009	.	8.2	3,150	26	4.5	1.9
Oct-07-2009	.	7.8	1,740	21	2.1	2.0
Oct-22-2009	.	7.6	1,580	26	2.3	1.9
Oct-27-2009	.	8.3	1,950	42	4.6	2.1
Nov-03-2009	.	8.4	2,540	25	8.2	3.0
Nov-12-2009	.	6.5	2,690	24	9.3	3.4
Nov-24-2009	.	8.3	2,670	11	7.4	2.9

Table 11. Weekly water quality monitoring at Station F (Salt Slough at Lander Avenue).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Sep-01-2009	117	22.3	7.8	970	<0.4	0.3
Sep-08-2009	86	21.8	7.8	940	0.6	0.4
Sep-15-2009	82	20.0	7.7	1,060	<0.4	0.5
Sep-22-2009	61	21.8	7.7	1,200	<0.4	0.5
Sep-29-2009	48	20.1	7.9	860	0.5	0.8
Oct-06-2009	63	13.7	7.9	1,060	<0.4	0.6
Oct-13-2009	93	15.8	7.9	420	0.7	0.6
Oct-20-2009	134	16.9	7.6	1,260	0.4	0.6
Oct-27-2009	130	16.3	7.1	1,190	0.5	0.6
Nov-03-2009	117	14.5	6.9	1,340	<0.4	0.7
Nov-10-2009	124	12.4	7.6	1,270	0.4	0.6
Nov-17-2009	143	10.1	7.8	1,200	<0.4	0.6
Nov-24-2009	131	10.0	7.7	1,380	<0.4	0.7

Table 12. Weekly water quality monitoring at Station J (Camp 13 Ditch).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-08-2009	125	.	.	570	0.4	0.2
Sep-14-2009	125	.	.	610	<0.4	0.2
Sep-21-2009	170	.	.	620	0.7	0.2
Sep-28-2009	210	.	.	590	<0.4	0.2
Oct-05-2009	210	.	.	620	0.7	0.2
Oct-12-2009	135	.	.	600	<0.4	0.2
Oct-19-2009	135	.	.	640	<0.4	0.3
Oct-26-2009	85	.	.	530	0.6	0.3
Nov-02-2009	85	.	.	510	0.4	0.2
Nov-09-2009	85	.	.	520	0.8	0.3
Nov-16-2009	30	.	.	630	0.5	0.3
Nov-23-2009	10	.	.	560	0.5	0.3
Nov-30-2009	NA	.	.	710	0.4	0.3

Table 13. Weekly water quality monitoring at Station K (Agatha Canal).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-08-2009	125	.	.	570	0.6	0.2
Sep-14-2009	165	.	.	570	<0.4	0.2
Sep-21-2009	175	.	.	610	0.6	0.2
Sep-28-2009	175	.	.	580	0.5	0.2
Oct-05-2009	175	.	.	590	0.6	0.3
Oct-12-2009	85	.	.	600	0.5	0.2
Oct-19-2009	70	.	.	610	<0.4	0.2
Oct-26-2009	70	.	.	540	0.4	0.3
Nov-02-2009	70	.	.	510	0.6	0.3
Nov-09-2009	70	.	.	510	0.8	0.3
Nov-16-2009	60	.	.	510	<0.4	0.3
Nov-23-2009	50	.	.	530	<0.4	0.3
Nov-30-2009	NA	.	.	510	<0.4	0.2

Note: The peak in selenium is caused by no flow conditions at this site.

Table 14. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-08-2009	NA	.	.	630	0.7	0.3
Sep-14-2009	NA	.	.	610	0.5	0.2
Sep-21-2009	NA	.	.	780	0.9	0.4
Sep-28-2009	NA	.	.	640	0.5	0.2
Oct-05-2009	NA	.	.	610	0.5	0.3
Oct-12-2009	NA	.	.	610	0.4	0.2
Oct-19-2009	NA	.	.	680	0.5	0.4
Oct-26-2009	NA	.	.	810	0.7	0.6
Nov-02-2009	NA	.	.	890	0.6	0.7
Nov-09-2009	NA	.	.	560	0.7	0.3
Nov-16-2009	NA	.	.	640	0.6	0.4
Nov-23-2009	NA	.	.	1,440	0.8	1.5
Nov-30-2009	NA	.	.	730	0.8	0.8

Table 15. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA <sup>††</sup>	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Sep-08-2009	NA	.	.	640	0.7	0.3
Sep-14-2009	NA	.	.	670	<0.4	0.3
Sep-21-2009	NA	.	.	670	0.5	0.3
Sep-28-2009	NA	.	.	740	0.6	0.3
Oct-05-2009	NA	.	.	730	0.7	0.4
Oct-12-2009	NA	.	.	730	0.5	0.4
Oct-19-2009	NA	.	.	780	0.5	0.5
Oct-26-2009	NA	.	.	790	0.5	0.6
Nov-02-2009	NA	.	.	860	0.5	0.7
Nov-09-2009	NA	.	.	910	0.6	0.7
Nov-16-2009	NA	.	.	830	0.4	0.7
Nov-23-2009	NA	.	.	1,070	<0.4	1.0
Nov-30-2009	NA	.	.	1,250	<0.4	1.2

Table 16. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	.	.	.	µS/cm	µg/L	mg/L
Sep-08-2009	.	.	.	550	0.6	0.2
Sep-14-2009	.	.	.	570	0.6	0.2
Sep-21-2009	.	.	.	550	0.5	0.2
Sep-28-2009	.	.	.	580	0.7	0.2
Oct-05-2009	.	.	.	570	0.6	0.2
Oct-12-2009	.	.	.	600	<0.4	0.2
Oct-19-2009	.	.	.	560	0.4	0.2
Oct-26-2009	.	.	.	540	<0.4	0.3
Nov-02-2009	.	.	.	500	0.4	0.2
Nov-09-2009	.	.	.	480	0.7	0.2
Nov-16-2009	.	.	.	660	1.0	0.4
Nov-23-2009	.	.	.	600	0.7	0.3
Nov-30-2009	.	.	.	680	<0.4	0.3

Table 17. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Sep-01-2009	126	24.4	7.8	1,010	<0.4	0.4
Sep-08-2009	95	20.5	7.9	1,260	0.4	0.4
Sep-15-2009	91	20.6	7.4	890	<0.4	0.5
Sep-22-2009	66	22.3	7.7	1,620	<0.4	0.7
Sep-29-2009	47	20.5	7.7	2,120	<0.4	0.8
Oct-06-2009	71	14.2	7.8	1,410	<0.4	0.6
Oct-13-2009	98	15.6	7.3	1,430	0.5	0.7
Oct-20-2009	178	17.3	7.8	1,300	<0.4	0.6
Oct-27-2009	172	15.8	7.7	1,360	<0.4	0.6
Nov-03-2009	166	15.4	7.9	1,340	<0.4	0.6
Nov-10-2009	143	12.8	7.5	1,330	0.7	0.6
Nov-17-2009	153	10.3	7.8	1,090	<0.4	0.6
Nov-24-2009	144	9.9	7.7	1,490	<0.4	0.8

Table 18. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	.	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	.	.	.	µS/cm	µg/L	mg/L
Sep-01-2009	.	.	.	1,380	1.7	0.8
Sep-08-2009	.	.	.	1,730	13.6	1.7
Sep-15-2009	.	.	.	2,910	29.0	3.0
Sep-22-2009	.	.	.	1,960	8.3	2.4
Sep-29-2009	.	.	.	1,970	2.6	1.4
Oct-06-2009	.	.	.	1,920	20.6	1.5
Oct-21-2009	.	.	.	2,810	32.2	1.9
Oct-27-2009	.	.	.	1,610	2.6	1.2
Nov-04-2009	.	.	.	1,720	9.7	2.0
Nov-10-2009	.	.	.	2,200	16.8	2.6
Nov-18-2009	.	.	.	2,020	23.0	1.5
Nov-25-2009	.	.	.	1,420	11.4	1.2

Outside of normal range.



**Table 19. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).**

See Table 27 for explanation of footnotes and agency abbreviations.

<b>PARAMETER</b>	<b>Flow</b>	<b>Temperature</b>	<b>pH</b>	<b>Specific Conductance</b>	<b>Selenium (total)</b>	<b>Boron</b>
<b>DATA SOURCE</b>	<b>usgs</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>	<b>CVRWQCB</b>
<b>UNITS</b>	<b>cfs</b>	<b>°C</b>	<b>.</b>	<b>µS/cm</b>	<b>µg/L</b>	<b>mg/L</b>
Sep-01-2009	247	23.9	7.8	1,150	0.8	0.5
Sep-08-2009	218	20.6	7.8	1,230	0.8	0.5
Sep-15-2009	280	21.2	7.8	1,070	1.2	0.6
Sep-22-2009	240	22.5	7.8	1,310	1.5	0.8
Sep-29-2009	275	21.1	7.8	1,170	0.6	0.6
Oct-06-2009	310	15.5	7.8	1,040	0.6	0.5
Oct-13-2009	431	16.2	7.7	1,000	0.8	0.6
Oct-20-2009	844	18.0	7.7	910	0.5	0.6
Oct-27-2009	1,070	16.5	7.7	740	1.1	0.5
Nov-03-2009	766	15.0	7.8	790	1.1	0.5
Nov-10-2009	563	13.1	7.7	1,050	1.6	0.7
Nov-17-2009	533	10.9	7.8	1,180	1.4	0.8
Nov-24-2009	524	10.4	7.9	1,210	1.2	0.8

**Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from December 2008 to November 2009. Each value is the mean of 4 replicates with 10 fish in each replicate.**

See Table 27 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	%	%	%	%	%	%
Dec-2008	100	100	100	95	100	100
Jan-2009	95	95	93	93	93	95
Feb-2009	98	95	100	98	100	95
Mar-2009	98	100	100	100	98	95
Apr-2009	100	93	95	95	73	98
May-2009	98	98	98	100	93	95
Jun-2009	95	95	95	93	93	95
Jul-2009	95	98	93	98	98	100
Aug-2010	98	98	88	93	100	100
Sep-2010	100	98	98	100	100	98
Oct-2010	100	100	95	95	95	100
Nov-2010	100	93	90	83	95	100

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from December 2008 to November 2009. Each value is the mean of 4 replicates with 10 fish in each replicate.**

See Table 27 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg	mg	mg	mg	mg	mg
Dec-2008	0.34	0.35	0.35	0.34	0.34	0.32
Jan-2009	0.35	0.37	0.36	0.33	0.30	0.36
Feb-2009	0.51	0.53	0.49	0.46	0.50	0.35
Mar-2009	0.50	0.50	0.45	0.50	0.44	0.44
Apr-2009	0.33	0.43	0.35	0.40	0.30	0.38
May-2009	0.48	0.41	0.41	0.42	0.42	0.42
Jun-2009	0.42	0.40	0.46	0.44	0.43	0.45
Jul-2009	0.46	0.49	0.50	0.52	0.44	0.47
Aug-2010	0.42	0.40	0.41	0.38	0.43	0.52
Sep-2010	0.43	0.41	0.42	0.45	0.39	0.43
Oct-2010	0.51	0.52	0.49	0.50	0.41	0.44
Nov-2010	0.38	0.40	0.37	0.38	0.36	0.43

**Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from December 2008 to November 2009. Each value is the mean of 10 replicates with 1 animal in each replicate.**

See Table 27 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	%	%	%	%	%	%
Dec-2008	100	100	100	100	100	90
Dec-2009	90	100	100	100	100	100
Feb-2009	100	80	90	70	90	80
Mar-2009	100	100	100	100	90	90
Apr-2009	100	100	80	90	90	100
May-2009	80	100	90	100	100	100
Jun-2009	100	0*	30*	90	100	100
Jul-2009	90	70	100	100	90	90
Aug-2010	100	100	100	100	100	100
Sep-2010	100	100	80	90	100	100
Oct-2010	80	90	100	90	90	100
Nov-2010	90	80	90	90	70†	70†

**Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from December 2008 to November 2009. Each value is the mean of 10 replicates with 1 animal in each replicate.**

See Table 27 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	neonates per female	neonates per female	neonates per female	neonates per female	neonates per female	neonates per female
Dec-2008	32.6	26.0	26.3	22.6	30.3	21.2
Jan-2009	19.7	22.4	21.0	24.1	19.0	19.3
Feb-2009	24.0	19.1	23.9	19.0	21.9	18.9
Mar-2009	43.9	34.5	41.2	35.6	37.5	27.2
Apr-2009	45.4	52.3	23.1	30.2	30.2	31.6
May-2009	22.1	31.8	36.3	29.3	29.9	23.6
Jun-2009	42.9	4.8*	13.6*	35.9	28.2	28.6
Jul-2009	34.2	21.6	38.5	32.1	26.4	22.4
Aug-2010	42.6	40.9	38.5	37.8	30.6	24.7
Sep-2010	34.8	43.3	26.8	25.1	28.7	22.7
Oct-2010	36.7	32.8	42.2	33.5	31.1	28.8
Nov-2010	38.5	21.3	29.1	21.8	16.4	18.6

**Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from December 2008 to November 2009. Each value is the mean of 4 replicates.**

See Table 27 for explanation of footnotes and agency abbreviations.

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal	Laboratory Control
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL	10 <sup>5</sup> cells/mL
Dec-2008	17.5	23.9	21.0	20.0	20.3	18.4
Jan-2009	2.5*	27.9	20.2	25.1	3.2++++	22.6
Feb-2009	14.4*	36.5	42.9	33.8	34.9	29.4
Mar-2009	12.9*	32.9	31.3	34.0	27.4	29.9
Apr-2009	20.9*	22.2	27.0	24.3	25.0	19.3
May-2009	21.6	33.2	25.2	11.4*	21.4	22.8
Jun-2009	19.8	20.2	24.4	21.7	20.1	17.0
Jul-2009	22.5	28.4	28.2	26.8	22.9	19.7
Aug-2010	21.7	26.4	24.6	26.6	22.0	23.0
Sep-2010	31.6	32.6	25.6	28.9	27.6	22.3
Oct-2010	35.3	30.5	32.2	26.8	20.4	19.2
Nov-2010	20.6*	39.0	35.8	33.5	26.2	28.1

**Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September 2009 to November 2009.**

See Table 27 for explanation of footnotes and agency abbreviations

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal
DATA SOURCE	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR	SLDMWA/USBR
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L
Sep-21-2009	24	<0.4	14	<0.4	<0.4
Sep-23-2009	24	<0.4	9.3	<0.4	<0.4
Sep-25-2009	23	<0.4	5.1	<0.4	<0.4
Oct-05-2009	10	<0.4	1.9	<0.4	<0.4
Oct-07-2009	12	<0.4	2.1	<0.4	<0.4
Oct-09-2009	11	<0.4	2.0	<0.4	<0.4
Nov-02-2009	32	<0.4	7.8	<0.4	<0.4
Nov-04-2009	26	<0.4	11	<0.4	<0.4
Nov-06-2009	28	<0.4	8.0	<0.4	<0.4

**Table 26. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September 2009 to November 2009.**

See Table 27 for explanation of footnotes and agency abbreviations

LOCATION	Station B	Station C	Station D	Station F	Delta Mendota Canal
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	SLDMWA	SLDMWA
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L
Sep-21-2009	13	62	65	40	17
Sep-23-2009	17	28	38	22	20
Sep-25-2009	42	18	21	23	11
Oct-05-2009	32	82	54	34	8
Oct-07-2009	20	56	48	39	12
Oct-09-2009	31	77	56	30	10
Nov-02-2009	42	18	42	45	4
Nov-04-2009	35	38	53	43	9
Nov-06-2009	34	44	63	59	13

**Table 27. Explanations of footnotes and agency abbreviations.**

<b>Footnote</b>	<b>Explanation</b>
CVRWQCB	California Regional Water Quality Control Board, Central Valley Region
SLDMWA	San Luis & Delta-Mendota Water Authority
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
e	Estimated value
.	Not applicable
<	Less than MDL. If needed in calculation, use 1/2 MDL
NA	Not analyzed - operator error, data will not be available in the future
NP	Not Provided. Data may be available in the future.
NT	Not tested
P	Pending, data not available at this time but will be available in the future
*	Significantly reduced from Delta Mendota Canal (p<0.05)
**	Sample re-analyzed and result confirmed.
L	Result may be biased low. Sample was not preserved in the field
†	DMC water failed to meet the survival (>80%) acceptability criteria.
††	Data from records of the Grassland Water District. Data is not subjected to the criteria documented in the Compliance Monitoring Program for the Use and Operation of the Grassland Bypass Project (1996) nor the Quality Assurance Project Plan for the GBP.
†††	DMC water failed to meet the reproduction (>10 neonates/adult) acceptability criteria.
††††	DMC water failed to meet minimum growth (10 <sup>6</sup> cell/mL) acceptability criteria.
‡	Control value exceeds suggested maximum variance (20%) acceptability criteria.
‡‡	Fungal growth observed on test organisms.
‡‡‡	Failed cell density requirement of 1E6 cells.
#	New testing laboratory with reporting limit of 0.4 µg/L as of June 1998.
❖	Based on definitive bioassay, NOEC is 50 percent
D	Sample was dechlorinated