

# GRASSLAND BYPASS PROJECT

## MONTHLY DATA REPORT

**October 2010**

March 21, 2011

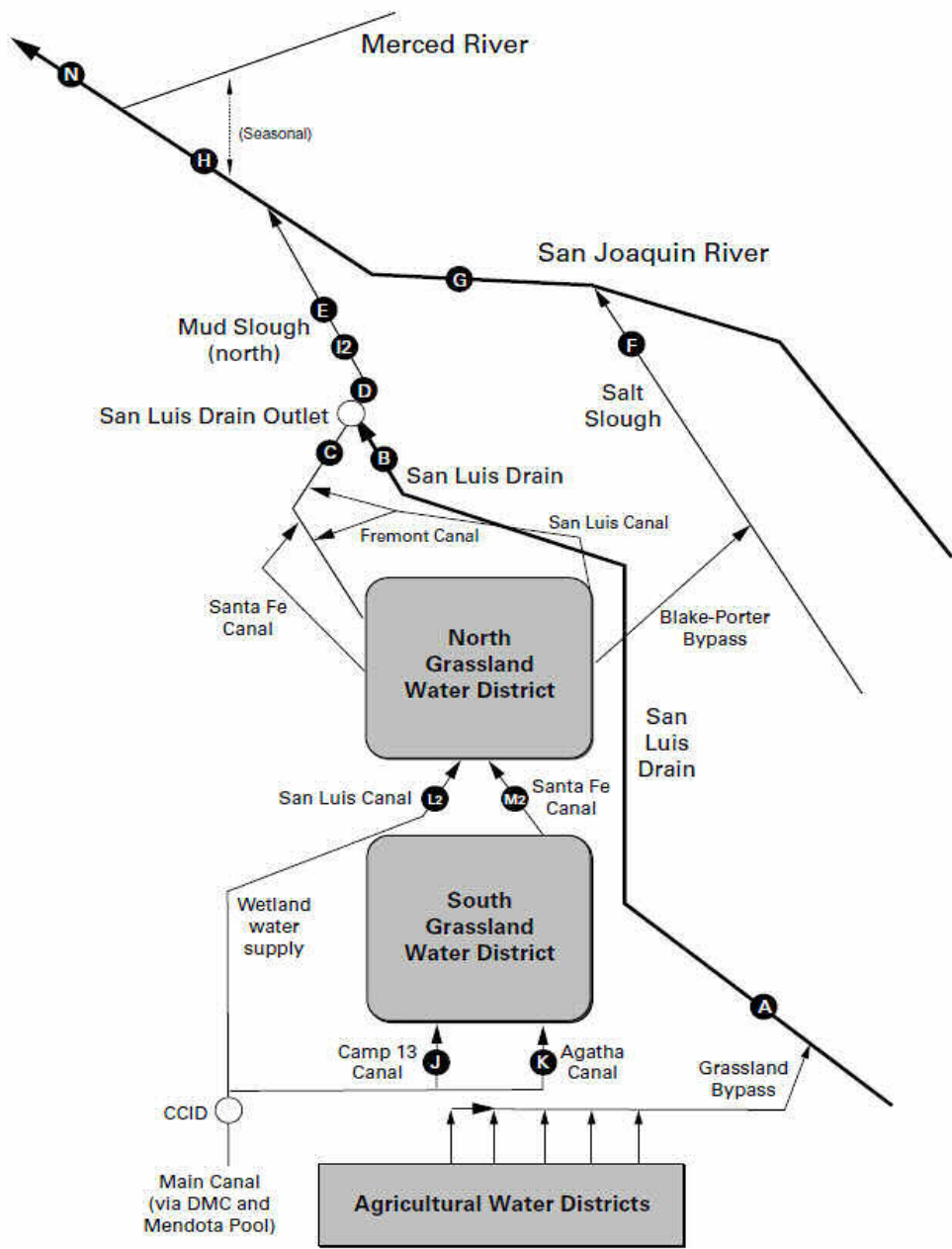
### **Preliminary Results**

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), October 2010.**

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>
Oct-01-2010	4	5,540
Oct-02-2010	4	5,500
Oct-03-2010	3	5,480
Oct-04-2010	1	5,250
Oct-05-2010	3	4,970
Oct-06-2010	5	4,410
Oct-07-2010	9	3,110
Oct-08-2010	8	3,400
Oct-09-2010	7	3,880
Oct-10-2010	6	3,550
Oct-11-2010	6	3,220
Oct-12-2010	6	4,500
Oct-13-2010	3	4,450
Oct-14-2010	3	5,260
Oct-15-2010	7	4,930
Oct-16-2010	7	4,500
Oct-17-2010	9	6,370
Oct-18-2010	11	5,540
Oct-19-2010	10	5,050
Oct-20-2010	7	4,850
Oct-21-2010	6	5,430
Oct-22-2010	7	5,830
Oct-23-2010	5	6,140
Oct-24-2010	3	6,060
Oct-25-2010	3	5,740
Oct-26-2010	3	5,330
Oct-27-2010	1	5,310
Oct-28-2010	3	5,280
Oct-29-2010	3	5,280
Oct-30-2010	5	5,210
Oct-31-2010	6	6,050
Mean	5	5,010

**Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), October 2010.**

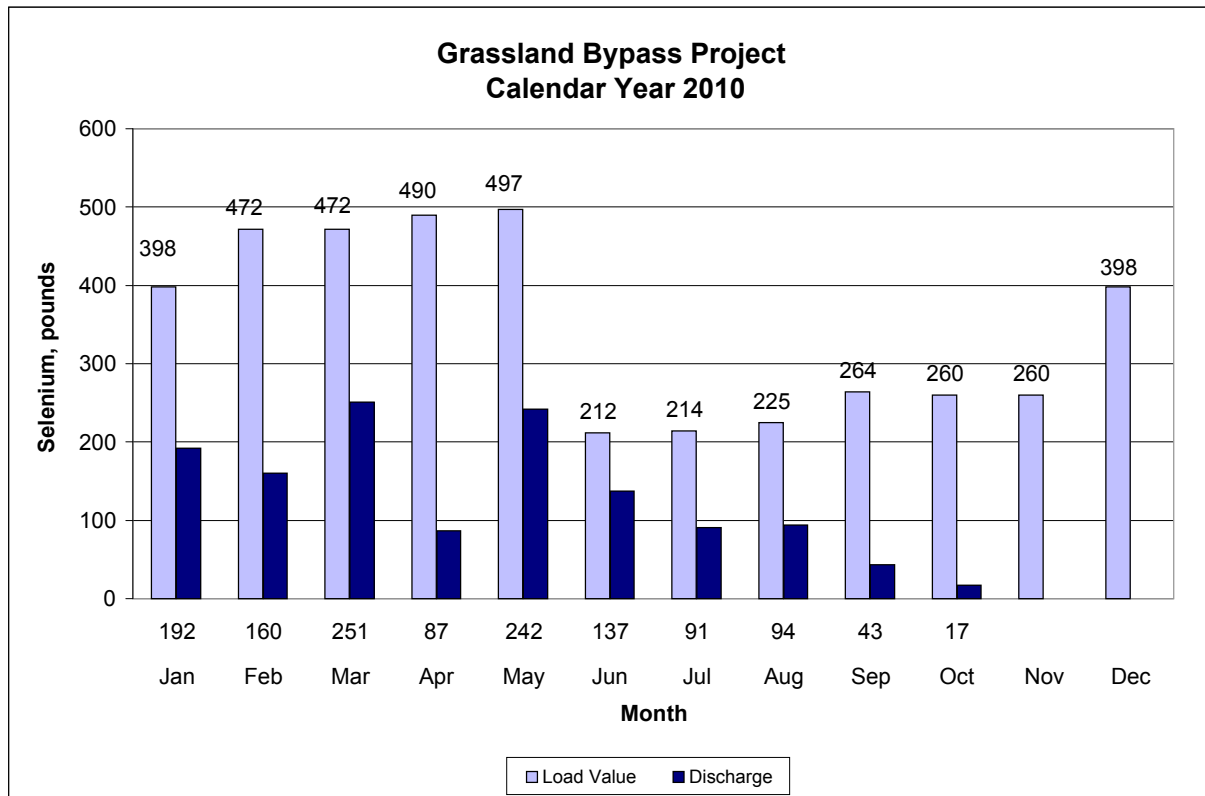
See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	San Luis Drain Outlet Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	SLDMWA*	SLDMWA	CVRWQCB	SLDMWA	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Oct-01-2010	7	25.4	8.5	4,410	11.9	0.4
Oct-02-2010	7	25.1	8.6	4,460	10.7	0.4
Oct-03-2010	7	25.5	8.7	4,550	8.9	0.3
Oct-04-2010	7	23.6	8.2	4,570	8.1	0.3
Oct-05-2010	6	21.8	8.2	4,390	9.6	0.3
Oct-06-2010	7	20.5	8.1	4,330	9.1	0.3
Oct-07-2010	8	20.3	7.2	4,200	8.0	0.3
Oct-08-2010	12	19.7	7.4	3,840	8.0	0.5
Oct-09-2010	11	20.4	7.4	3,980	8.6	0.5
Oct-10-2010	12	20.8	7.2	3,920	8.5	0.5
Oct-11-2010	10	22.0	7.1	3,890	8.0	0.4
Oct-12-2010	11	22.1	5.9	3,770	6.5	0.4
Oct-13-2010	12	21.9	5.6	3,290	6.4	0.4
Oct-14-2010	12	21.9	5.1	3,230	8.0	0.5
Oct-15-2010	11	22.5	5.1	2,970	9.4	0.6
Oct-16-2010	13	22.5	4.8	3,000	9.0	0.6
Oct-17-2010	13	21.0	4.9	2,900	11.6	0.8
Oct-18-2010	15	19.6	4.9	3,030	10.0	0.8
Oct-19-2010	17	19.4	4.7	2,920	7.3	0.7
Oct-20-2010	16	19.7	5.4	3,190	6.7	0.6
Oct-21-2010	14	19.7	6.1	3,180	7.5	0.6
Oct-22-2010	13	19.2	5.8	3,760	11.1	0.8
Oct-23-2010	13	18.9	7.1	3,500	10.5	0.8
Oct-24-2010	13	18.2	8.3	4,420	12.4	0.9
Oct-25-2010	11	17.6	7.8	4,530	14.5	0.9
Oct-26-2010	10	16.5	7.4	4,350	15.2	0.8
Oct-27-2010	11	15.4	7.0	4,180	11.1	0.7
Oct-28-2010	11	15.7	6.2	3,840	9.6	0.5
Oct-29-2010	10	15.6	6.4	3,600	8.5	0.5
Oct-30-2010	12	15.9	6.7	3,690	9.3	0.6
Oct-31-2010	12	15.7	7.7	3,760	10.5	0.7
<b>Mean</b>	<b>11</b>	<b>20.1</b>	<b>6.8</b>	<b>3,800</b>	<b>9.5</b>	<b>0.6</b>
<b>Total Acre-feet</b>	<b>680</b>					
<b>Total (lbs)</b>						<b>17</b>

<b>Load Limitation for October 2010 (lbs)</b>	<b>260</b>
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◆To improve the accuracy of flow measurements, Reclamation and the San Luis & Delta-Mendota Water Authority, with technical assistance from the USGS, are measuring flow at the San Luis Drain Outlet. The Outlet is located two miles from Station B. Discharge is measured as stage over a sharp-crested weir, identical to Station A. This is a simpler and more accurate method that will not be altered by sediment accumulation. Water quality data are still collected at the old Site B.

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), October 2010.**

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>
Oct-01-2010	65	24.5	1,450
Oct-02-2010	61	24.4	1,510
Oct-03-2010	64	24.5	1,490
Oct-04-2010	69	22.0	1,430
Oct-05-2010	64	19.9	1,490
Oct-06-2010	58	19.1	1,610
Oct-07-2010	67	19.8	1,540
Oct-08-2010	79	20.1	1,560
Oct-09-2010	85	20.3	1,570
Oct-10-2010	74	21.0	1,730
Oct-11-2010	75	21.7	1,680
Oct-12-2010	84	21.7	1,590
Oct-13-2010	82	22.0	1,560
Oct-14-2010	85	22.6	1,490
Oct-15-2010	79	22.9	1,520
Oct-16-2010	78	22.0	1,590
Oct-17-2010	88	20.0	1,490
Oct-18-2010	120	18.9	1,360
Oct-19-2010	131	19.4	1,390
Oct-20-2010	129	19.9	1,430
Oct-21-2010	136	19.5	1,380
Oct-22-2010	124	18.8	1,510
Oct-23-2010	135	18.5	1,440
Oct-24-2010	164	17.8	1,400
Oct-25-2010	172	17.4	1,330
Oct-26-2010	164	16.4	1,380
Oct-27-2010	152	15.3	1,440
Oct-28-2010	148	15.8	1,430
Oct-29-2010	145	15.9	1,420
Oct-30-2010	137	16.1	1,520
Oct-31-2010	136	16.3	1,550
Mean	105	19.8	1,490

**Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), October 2010.**

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>
Oct-01-2010	85	23.5	1,140
Oct-02-2010	77	23.7	1,260
Oct-03-2010	72	23.8	1,350
Oct-04-2010	78	20.7	1,310
Oct-05-2010	81	18.8	1,270
Oct-06-2010	92	17.9	1,240
Oct-07-2010	107	18.3	1,130
Oct-08-2010	113	18.9	1,110
Oct-09-2010	114	19.0	1,110
Oct-10-2010	113	19.8	1,090
Oct-11-2010	105	20.6	1,150
Oct-12-2010	100	20.7	1,220
Oct-13-2010	97	20.9	1,310
Oct-14-2010	104	21.3	1,240
Oct-15-2010	114	21.7	1,210
Oct-16-2010	128	21.1	1,150
Oct-17-2010	136	19.4	1,120
Oct-18-2010	141	18.3	1,120
Oct-19-2010	136	18.2	1,120
Oct-20-2010	145	18.6	1,110
Oct-21-2010	143	18.4	1,170
Oct-22-2010	135	18.0	1,260
Oct-23-2010	130	17.8	1,290
Oct-24-2010	128	17.3	1,310
Oct-25-2010	131	17.0	1,340
Oct-26-2010	137	15.9	1,290
Oct-27-2010	140	14.8	1,290
Oct-28-2010	140	14.8	1,290
Oct-29-2010	141	15.1	1,290
Oct-30-2010	137	15.7	1,340
Oct-31-2010	143	15.7	1,290
Mean	118	18.9	1,220



Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), October 2010.

See Table 27 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Selenium (total)
DATA SOURCE	usgs	usgs	cvrwqcb	cvrwqcb
UNITS	cfs	°C	µS/cm	µg/L
Oct-01-2010	598	23.5	890	0.6
Oct-02-2010	579	23.6	830	0.5
Oct-03-2010	568	23.9	890	0.5
Oct-04-2010	608	22.5	900	0.4
Oct-05-2010	615	21.0	810	0.4
Oct-06-2010	657	19.8	780	<0.4
Oct-07-2010	678	20.0	770	<0.4
Oct-08-2010	712	19.9	690	0.6
Oct-09-2010	715	19.9	690	<0.4
Oct-10-2010	786	20.3	640	0.5
Oct-11-2010	807	20.9	630	0.5
Oct-12-2010	716	20.8	670	0.4
Oct-13-2010	672	21.0	750	0.5
Oct-14-2010	642	21.5	800	0.5
Oct-15-2010	610	21.9	880	0.5
Oct-16-2010	593	21.4	890	0.5
Oct-17-2010	626	19.7	890	0.5
Oct-18-2010	686	18.7	840	0.6
Oct-19-2010	693	19.2	820	0.7
Oct-20-2010	705	19.4	870	0.9
Oct-21-2010	698	19.0	900	0.8
Oct-22-2010	721	18.4	870	0.8
Oct-23-2010	751	18.2	870	0.8
Oct-24-2010	868	17.6	840	0.7
Oct-25-2010	1,100	16.8	590	0.7
Oct-26-2010	1,210	15.8	556	0.4
Oct-27-2010	1,310	14.8	520	<0.4
Oct-28-2010	1,370	14.8	490	<0.4
Oct-29-2010	1,430	14.7	460	<0.4
Oct-30-2010	1,380	14.9	480	<0.4
Oct-31-2010	1,290	15.2	560	<0.4
Mean	819	19.3	740	0.7

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	.	.	.
Aug-02-2010	18	.	.	5,450	104	.	.	.
Aug-09-2010	21	.	.	4,410	153	.	.	.
Aug-16-2010	17	.	.	4,820	100	.	.	.
Aug-23-2010	16	.	.	5,130	66	.	.	.
Aug-30-2010	21	.	.	4,910	104	.	.	.
Sep-07-2010	13	.	.	5,090	70	.	.	.
Sep-13-2010	16	.	.	4,190	102	.	.	.
Sep-20-2010	11	.	.	5,030	41	.	.	.
Sep-27-2010	5	.	.	5,260	30	.	.	.
Oct-04-2010	1	.	.	4,980	26	.	.	.
Oct-11-2010	6	.	.	2,360	134	.	.	.
Oct-18-2010	11	.	.	5,490	102	.	.	.
Oct-25-2010	3	.	.	5,810	38	.	.	.

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
Aug-10-2010	18	.	.	4,330	.	36.3	.	12.0
Aug-17-2010	17	.	.	5,300	.	31.3	.	8.5
Aug-24-2010	19	.	.	5,380	.	39.1	.	11.0
Aug-31-2010	15	.	.	5,500	.	35.0	.	9.2
Sep-05-2010	12	.	.	4,820	.	34.9	.	10.0
Sep-12-2010	17	.	.	4,520	.	25.4	.	8.7
Sep-19-2010	13	.	.	5,150	.	29.6	.	8.4
Sep-26-2010	5	.	.	5,010	.	28.0	.	11.0
Oct-03-2010	3	.	.	5,290	.	20.2	.	11.0
Oct-10-2010	6	.	.	3,280	.	20.0	.	6.6
Oct-17-2010	9	.	.	4,860	.	24.2	.	9.9
Oct-24-2010	3	.	.	5,520	.	23.5	.	13.0

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	SLDMWA	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB	CVRWQCB
UNITS	cfs	°C	.	µS/cm	mg/L	µg/L	mg/L
Aug-03-2010	15	25.3	9.0	5,790	51	38.7	12.0
Aug-10-2010	18	24.0	8.3	4,920	50	31.8	10.0
Aug-17-2010	14	25.0	7.5	4,180	62	29.8	8.2
Aug-24-2010	13	24.5	7.7	5,320	31	35.9	10.0
Aug-31-2010	18	21.4	8.3	4,730	31	35.0	10.0
Sep-07-2010	12	23.3	8.5	4,800	36	23.3	10.0
Sep-14-2010	16	21.6	8.8	4,670	64	24.2	8.8
Sep-21-2010	13	22.2	8.6	3,770	47	16.8	6.5
Sep-28-2010	7	22.9	8.5	4,420	47	18.6	8.6
Oct-05-2010	7	20.3	7.9	4,130	13	9.8	8.0
Oct-12-2010	10	21.2	8.3	3,170	33	6.2	5.8
Oct-19-2010	17	18.2	7.4	2,670	24	6.4	4.3
Oct-26-2010	10	16.3	8.3	4,060	47	13.2	7.4

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
Aug-03-2010	26	24.2	7.9	1,120	.	0.9	1.1
Aug-10-2010	14	23.5	8.1	1,030	.	1.0	1.2
Aug-17-2010	32	24.2	8.4	800	.	0.6	0.9
Aug-24-2010	24	24.0	7.2	840	.	1.2	0.7
Aug-31-2010	47	20.3	7.8	700	.	1.1	0.5
Sep-07-2010	36	22.3	8.0	507	.	0.6	0.5
Sep-14-2010	31	20.0	8.0	917	.	0.6	0.6
Sep-21-2010	22	18.7	7.6	1,280	.	<0.4	1.0
Sep-28-2010	42	22.1	7.5	925	.	0.5	0.6
Oct-05-2010	57	18.6	7.6	1,040	.	<0.4	0.8
Oct-12-2010	74	20.1	7.6	1,130	.	0.5	0.9
Oct-19-2010	114	17.8	7.8	1,170	.	<0.4	0.8
Oct-26-2010	154	15.4	7.9	1,160	.	0.4	0.9

\*\* 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
Aug-03-2010	41	24.1	8.7	2,850	15.9	5.3
Aug-10-2010	32	22.2	8.0	3,880	23.6	7.1
Aug-17-2010	46	24.1	8.0	2,030	10.4	3.3
Aug-24-2010	37	23.4	7.2	3,040	16.4	5.2
Aug-31-2010	65	20.4	8.0	2,080	11.3	3.4
Sep-07-2010	48	22.3	8.2	2,040	7.7	3.2
Sep-14-2010	47	20.4	8.2	2,560	10.4	4.0
Sep-21-2010	35	20.4	7.8	2,940	8.5	4.3
Sep-28-2010	49	22.0	7.6	1,560	3.3	1.8
Oct-05-2010	64	17.4	8.1	4,390	1.0	1.6
Oct-12-2010	84	20.2	7.6	1,590	1.7	1.8
Oct-19-2010	131	18.1	7.4	1,420	1.1	1.4
Oct-26-2010	164	15.6	7.8	1,400	1.5	1.4

**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
Aug-04-2010	.	8.8	2,580	64	12.4	4.2
Aug-12-2010	.	7.9	3,570	23	28.9**	8.6**
Aug-16-2010	.	9.1	1,990	25	9.3	2.7
Sept-01-2010	.	8.3	2,420	44	10.7	3.9
Sept-08-2010	.	8.4	2,390	62	8.4	3.6
Sept-15-2010	.	8.4	2,940	37	10.3	4.8
Sept-23-2010	.	8.3	2,310	28	7.2	2.8
Sept-29-2010	.	7.9	1,990	26	3.4	2.2
Oct-04-2010	.	8.1	1,460	46	0.9	1.7
Oct-13-2010	.	9.1	1,650	NA	1.0	1.7
Oct-21-2010	.	NA	NA	NA	0.8	1.4
Oct-26-2010	.	7.3	1,380	20	1.2	1.5

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
Aug-03-2010	166	24.0	7.4	830	<0.4	0.4
Aug-10-2010	168	22.1	6.7	790	0.6	0.4
Aug-17-2010	165	23.5	7.7	710	0.5	0.3
Aug-24-2010	152	23.0	7.0	820	0.8	0.4
Aug-31-2010	145	19.4	7.7	950	0.5	0.5
Sep-07-2010	109	21.9	7.5	1,070	0.4	0.5
Sep-14-2010	95	19.2	7.5	1,140	0.5	0.5
Sep-21-2010	114	20.1	7.5	1,130	<0.4	0.5
Sep-28-2010	84	20.8	7.6	1,200	0.4	0.6
Oct-05-2010	81	18.1	7.6	1,130	<0.4	0.7
Oct-12-2010	100	19.1	7.6	1,210	0.5	0.7
Oct-19-2010	136	16.9	7.6	1,160	<0.4	0.6
Oct-26-2010	137	15.0	7.2	1,350	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
Aug-02-2010	0	.	.	350	0.4	0.2
Aug-09-2010	20	.	.	410	0.6	0.2
Aug-16-2010	30	.	.	510	<0.4	0.3
Aug-23-2010	30	.	.	500	0.7	0.2
Aug-30-2010	40	.	.	450	0.8	0.2
Sep-07-2010	30	.	.	470	0.4	0.2
Sep-13-2010	75	.	.	620	0.6	0.3
Sep-21-2010	105	.	.	610	0.5	0.5
Sep-27-2010	145	.	.	600	0.6	0.2
Oct-04-2010	145	.	.	600	0.4	0.2
Oct-11-2010	115	.	.	500	0.5	0.2
Oct-18-2010	55	.	.	530	0.4	0.2
Oct-25-2010	35	.	.	590	0.6	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
Aug-02-2010	0	.	.	420	1.2	0.3
Aug-09-2010	0	.	.	480	1.4	0.3
Aug-16-2010	70	.	.	420	0.7	0.2
Aug-23-2010	95	.	.	560	0.6	0.3
Aug-30-2010	70	.	.	420	0.7	0.2
Sep-07-2010	95	.	.	470	0.4	0.2
Sep-13-2010	110	.	.	620	0.6	0.3
Sep-21-2010	130	.	.	610	0.5	0.5
Sep-27-2010	130	.	.	600	0.6	0.2
Oct-04-2010	130	.	.	590	0.5	0.2
Oct-11-2010	100	.	.	530	0.5	0.2
Oct-18-2010	90	.	.	520	0.5	0.2
Oct-25-2010	80	.	.	580	0.8	0.3

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
Aug-02-2010	NA	.	.	510	0.5	0.3
Aug-09-2010	NA	.	.	500	0.7	0.4
Aug-16-2010	NA	.	.	550	0.5	0.3
Aug-23-2010	NA	.	.	460	0.7	0.2
Aug-30-2010	NA	.	.	460	0.8	0.2
Sep-07-2010	NA	.	.	500	0.8	0.2
Sep-13-2010	NA	.	.	620	0.5	0.3
Sep-21-2010	NA	.	.	570	0.6	3.2
Sep-27-2010	NA	.	.	620	0.7	0.3
Oct-04-2010	NA	.	.	530	<0.4	0.2
Oct-11-2010	NA	.	.	580	0.8	0.2
Oct-18-2010	NA	.	.	590	<0.4	0.3
Oct-25-2010	NA	.	.	610	0.7	0.4

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
Aug-02-2010	NA	.	.	920	0.8	1.7
Aug-09-2010	NA	.	.	940	1.1	1.6
Aug-16-2010	NA	.	.	970	1.0	1.6
Aug-23-2010	NA	.	.	660	0.8	0.4
Aug-30-2010	NA	.	.	670	0.8	0.5
Sep-07-2010	NA	.	.	670	0.6	0.6
Sep-13-2010	NA	.	.	720	0.5	0.6
Sep-21-2010	NA	.	.	760	0.6	0.2
Sep-27-2010	NA	.	.	780	0.9	0.5
Oct-04-2010	NA	.	.	770	0.8	0.5
Oct-11-2010	NA	.	.	780	0.8	0.6
Oct-18-2010	NA	.	.	830	0.4	0.6
Oct-25-2010	NA	.	.	880	0.6	0.8

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
Aug-02-2010	.	.	.	530	0.5	0.3
Aug-09-2010	.	.	.	350	0.8	0.2
Aug-16-2010	.	.	.	400	<0.4	0.2
Aug-23-2010	.	.	.	380	0.4	0.2
Aug-30-2010	.	.	.	430	0.7	0.2
Sep-07-2010	.	.	.	460	0.6	0.2
Sep-13-2010	.	.	.	520	0.8	0.2
Sep-21-2010	.	.	.	470	0.6	0.2
Sep-27-2010	.	.	.	600	0.5	0.2
Oct-04-2010	.	.	.	530	<0.4	0.2
Oct-11-2010	.	.	.	590	0.7	0.3
Oct-18-2010	.	.	.	590	0.6	0.2
Oct-25-2010	.	.	.	590	0.7	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
Aug-03-2010	247	23.6	7.9	890	<0.4	0.3
Aug-10-2010	216	23.5	7.0	760	<0.4	0.3
Aug-17-2010	209	24.1	7.7	650	<0.4	0.3
Aug-24-2010	171	22.4	7.4	980	0.5	0.4
Aug-31-2010	248	20.8	7.6	950	0.6	0.4
Sep-07-2010	247	22.3	7.6	629	<0.4	0.2
Sep-14-2010	300	20.9	7.5	658	<0.4	0.2
Sep-21-2010	212	20.6	7.5	793	<0.4	0.3
Sep-28-2010	162	22.1	7.8	954	<0.4	0.4
Oct-05-2010	141	19.9	7.5	1,020	<0.4	0.4
Oct-12-2010	249	19.6	7.4	600	0.5	0.3
Oct-19-2010	191	17.6	7.2	1,290	<0.4	0.4
Oct-26-2010	230	15.7	7.5	1,060	0.4	0.5

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
Aug-04-2010	.	.	.	1,050	1.1	0.7
Aug-11-2010	.	.	.	1,330	2.5	1.1
Aug-18-2010	.	.	.	1,100	1.6	0.7
Aug-25-2010	.	.	.	1,430	1.9	1.0
Sep-01-2010	.	.	.	1,230	2.0	0.9
Sep-08-2010	.	.	.	911	1.2	0.7
Sep-15-2010	.	.	.	918	0.9	0.6
Sep-22-2010	.	.	.	1,290	0.9	0.8
Sep-29-2010	.	.	.	1,180	0.9	0.6
Oct-06-2010	.	.	.	1,170	0.6	0.6
Oct-13-2010	.	.	.	1,310	0.7	0.7
Oct-20-2010	.	.	.	1,290	0.8	0.8
Oct-27-2010	.	.	.	1,180	0.4	0.8



**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>
Aug-03-2010	552	23.5	7.9	1,050	1.5	0.7
Aug-10-2010	526	23.5	7.0	950	1.4	0.8
Aug-17-2010	587	24.1	7.9	860	1.1	0.6
Aug-24-2010	439	22.5	7.3	1,050	1.3	0.8
Aug-31-2010	609	21.1	7.1	860	1.4	0.6
Sep-07-2010	588	21.5	7.8	780	0.4	0.7
Sep-14-2010	2,020	17.8	7.7	300	0.1	0.4
Sep-21-2010	813	20.6	7.5	600	0.3	0.4
Sep-28-2010	612	21.7	7.6	880	0.4	0.6
Oct-05-2010	615	20.3	7.6	830	<0.4	0.4
Oct-12-2010	716	19.6	7.7	680	0.6	0.4
Oct-19-2010	693	18.0	7.7	880	0.7	0.5
Oct-26-2010	1,210	15.2	7.7	590	<0.4	0.3

**Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from November 2009 to October 2010. 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	%	%	%	%	%	%
Nov-2009	100	93	90	83	95	100
Dec-2009	98	88	93	98	100	98
Jan-2010	98	95	98	100	98	100
Feb-2010	98	100	95	95	100	90
Mar-2010	98	95	95	100	98	100
Apr-2010	95	98	100	100	100	98
May-2010	95	93	98	85	90	95
Jun-2010	100	100	100	98	95	98
Jul-2010	95	98	100	100	100	93
Aug-2010	98	98	98	98	93	95
Sep-2010	95	93	100	100	100	95
Oct-2010	95	100	100	100	100	100

**Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from November 2009 to October 2010. 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
Nov-2009	0.38	0.40	0.37	0.38	0.36	0.43
Dec-2009	0.50	0.48	0.52	0.49	0.46	0.47
Jan-2010	0.43	0.49	0.50	0.48	0.49	0.41
Feb-2010	0.47	0.53	0.49	0.52	0.49	0.51
Mar-2010	0.41	0.48	0.48	0.46	0.40	0.45
Apr-2010	0.53	0.48	0.53	0.50	0.43	0.48
May-2010	0.35	0.34	0.36	0.39	0.37	0.37
Jun-2010	0.37	0.34	0.35	0.35	0.37	0.38
Jul-2010	0.35*	0.37	0.39	0.37	0.41	0.41
Aug-2010	0.32	0.28	0.33	0.33	0.26	0.35
Sep-2010	0.41	0.43	0.39	0.41	0.41	0.38
Oct-2010	0.38	0.43	0.42	0.39	0.37	0.33

**Table 22. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from November 2009 to October 2010. 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	%	%	%	%	%	%
Nov-2009	90	80	90	90	70†	70†
Dec-2009	90	90	90	100	100	80
Jan-2010	100	90	90	100	90	100
Feb-2010	90	90	90	100	100	90
Mar-2010	90	100	90	80	90	90
Apr-2010	70	90	90	80	40†	80
May-2010	80	70	100	100	90	80
Jun-2010	100	100	100	90	90	100
Jul-2010	90	100	90	90	100	100
Aug-2010	100	100	100	100	90	50†
Sep-2010	100	100	90	100	88	90
Oct-2010	80	100	90	100	100	100

**Table 23. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from November 2009 to October 2010. 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
Nov-2009	38.5	21.3	29.1	21.8	16.4	18.6
Dec-2009	30.2	30.7	35.4	35.2	39.7	30.9
Jan-2010	39.7	32.3	44.1	30.7	34.4	33.8
Feb-2010	22.9	22.1	26.2	25.7	23.1	25.4
Mar-2010	23.6	28.4	23.3	19.5	25.0	16.6
Apr-2010	34.8	41.4	39.2	24.1	20.1	28.5
May-2010	30.6	45.4	39.3	42.9	33.8	19.4
Jun-2010	23.0	27.2	29.5	24.2	23.1	21.4
Jul-2010	43.6	48.8	46.3	46.6	38.7	38.6
Aug-2010	27.7	31.8	28.4	25.8	26.1	2.6†††
Sep-2010	35.5	29.8	30.0	28.1	24.3	20.0
Oct-2010	28.1	23.7	30.0	29.2	29.9	25.2

**Table 24. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from November 2009 to October 2010. 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
Nov-2009	20.6*	39.0	35.8	33.5	26.2	28.1
Dec-2009	6.8*	28.5	21.7	26.7	20.9	24.1
Jan-2010	0.2*	27.5	1.4*	28.9	20.8	19.8
Feb-2010	19.1*	36.0	31.7	29.9	28.7	23.1
Mar-2010	17.6	28.4	27.8	27.4	19.5	15.5
Apr-2010	5.2*	22.2	25.1	33.2	26.3	24.7
May-2010	12.8	23.5	23.2	26.4	15.0	11.3
Jun-2010	17.7	29.6	24.8	33.0	22.7	22.0
Jul-2010	17.6	25.3	18.8	19.7	17.6	16.1
Aug-2010	19.6	25.0	21.8	28.8	21.4	22.3
Sep-2010	22.6	28.9	26.3	29.1	25.1	25.2
Oct-2010	27.6	34.4	38.0	29.0	25.6	21.2

**Table 25. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, August 2010 to October 2010.**

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
Aug-09-2010	37	1.1**	25	<0.4	0.7
Aug-11-2010	40	0.9**	25	<0.4	0.5
Aug-13-2010	26	0.6	32**	0.4	<0.4
Sep-20-2010	16	<0.4	5.9	0.4	<0.4
Sep-22-2010	21	0.5	5.9	<0.4	<0.4
Sep-24-2010	20	<0.4	6.9	0.4	<0.4
Oct-18-2010	7.4	<0.4	2.0	<0.4	<0.4
Oct-20-2010	5.7	<0.4	1.6	<0.4	<0.4
Oct-22-2010	11	<0.4	1.5	<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, August 2010 to October 2010.**

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
Aug-09-2010	51	29	44	102	17
Aug-11-2010	96	31	72	75	26
Aug-13-2010	102	35	115	106	25
Sep-20-2010	46	36	46	74	13
Sep-22-2010	67	40	53	96	11
Sep-24-2010	79	56	70	82	17
Oct-18-2010	33	38	45	72	14
Oct-20-2010	23	27	29	89	16
Oct-22-2010	50	53	44	88	16

**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