

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

November 2002

March 03, 2003

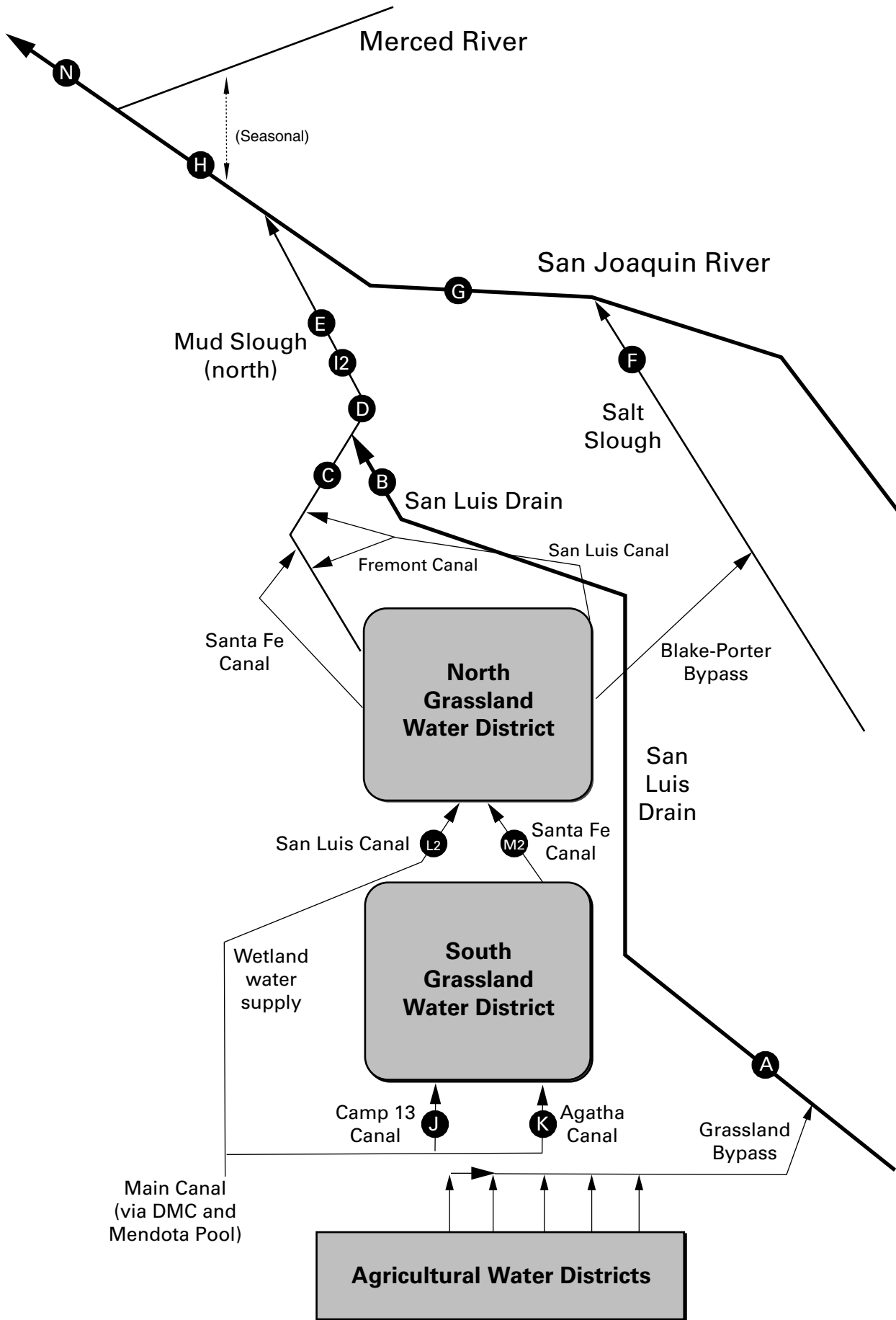
Preliminary Results

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





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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), November 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Specific Conductance
DATA SOURCE	SLDMWA	SLDMWA
UNITS	cfs	µS/cm
Nov-01-2002	14	5,520
Nov-02-2002	14	5,520
Nov-03-2002	15	5,300
Nov-04-2002	16	5,170
Nov-05-2002	16	4,980
Nov-06-2002	15	4,890
Nov-07-2002	17	4,910
Nov-08-2002	22	4,740
Nov-09-2002	23	4,120
Nov-10-2002	20	3,920
Nov-11-2002	16	4,220
Nov-12-2002	14	4,790
Nov-13-2002	14	4,910
Nov-14-2002	14	5,000
Nov-15-2002	16	4,860
Nov-16-2002	16	4,990
Nov-17-2002	16	4,570
Nov-18-2002	16	4,590
Nov-19-2002	14	4,510
Nov-20-2002	9	5,100
Nov-21-2002	10	5,160
Nov-22-2002	9	5,140
Nov-23-2002	9	4,970
Nov-24-2002	8	4,910
Nov-25-2002	8	4,820
Nov-26-2002	8	4,870
Nov-27-2002	15	5,080
Nov-28-2002	16	5,010
Nov-29-2002	16	4,830
Nov-30-2002	17	4,710
.	.	.
Mean	15	4,870

Table 2a. Continuous water monitoring at Station B (discharge from San Luis Drain), November 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)	Selenium (total) Load
DATA SOURCE	usgs	usgs	CVRWQCB	CVRWQCB	CVRWQCB	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Nov-01-2002	20	14.8	7.9	4,690	81.5	8.8
Nov-02-2002	19	14.2	8.0	4,670	79.8	8.2
Nov-03-2002	20	14.0	8.0	4,680	83.1	9.0
Nov-04-2002	21	13.9	7.8	4,670	78.2	8.9
Nov-05-2002	22	14.1	7.8	4,670	77.4	9.2
Nov-06-2002	22	14.1	7.6	4,670	77.0	9.1
Nov-07-2002	17	14.5	7.6	4,500	68.0	6.2
Nov-08-2002	24	15.2	7.5	4,710	77.6	10.0
Nov-09-2002	27	15.9	7.1	4,650	81.6	11.9
Nov-10-2002	29	15.8	7.3	4,620	70.7	11.1
Nov-11-2002	27	15.7	6.9	4,390	67.0	9.8
Nov-12-2002	21	15.8	6.5	4,380	68.1	7.7
Nov-13-2002	23	15.8	6.4	4,340	68.4	8.5
Nov-14-2002	21	15.7	6.8	4,460	70.7	8.0
Nov-15-2002	21	15.0	6.2	4,270	78.5	8.9
Nov-16-2002	18	14.8	5.5	3,940	63.6	6.2
Nov-17-2002	21	14.5	5.2	3,880	62.1	7.0
Nov-18-2002	20	14.0	5.2	3,710	56.8	6.1
Nov-19-2002	20	14.0	5.5	3,950	55.3	6.0
Nov-20-2002	19	14.0	6.0	4,370	62.4	6.4
Nov-21-2002	15	13.8	5.9	4,310	64.0	5.2
Nov-22-2002	14	14.1	7.0	4,540	65.0	4.9
Nov-23-2002	14	14.1	7.2	4,550	71.4	5.4
Nov-24-2002	13	14.1	6.9	4,440	76.8	5.4
Nov-25-2002	13	13.9	7.1	4,500	80.2	5.6
Nov-26-2002	12	13.1	7.8	4,240	62.9	4.1
Nov-27-2002	12	12.4	7.1	4,180	60.9	3.9
Nov-28-2002	15	11.8	7.2	4,190	61.8	5.0
Nov-29-2002	19	11.9	6.7	4,000	53.9	5.5
Nov-30-2002	19	11.7	7.5	4,120	42.7	4.4
.
Mean	19	14.2	6.9	4,380	68.9	
Total Acre-feet	1,150				Total (lbs)	216

Load Limitation for November 2002	(lbs)	308
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Figure 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

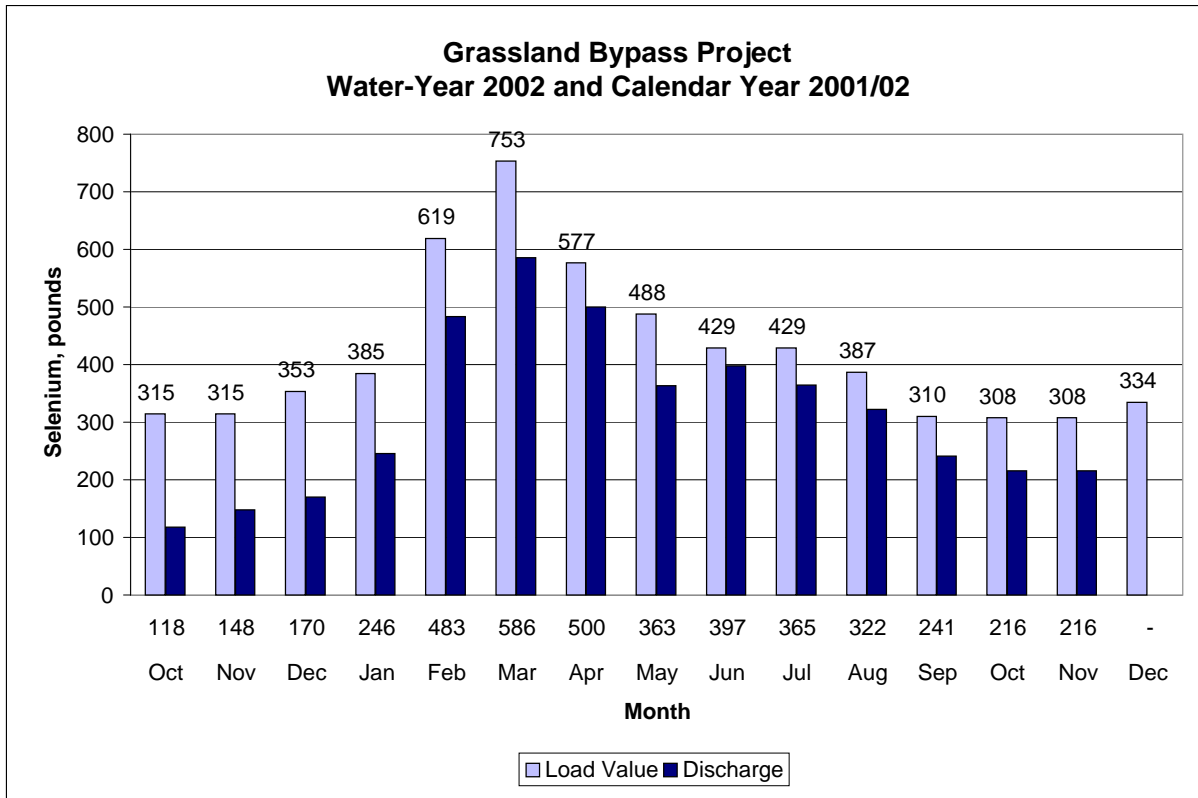


Table 2b. Monthly selenium discharges from the terminus of the San Luis Drain into Mud Slough compared to load values.

PARAMETER	Discharge	Load Value
UNITS	lbs	lbs
Oct	118	315
Nov	148	315
Dec	170	353
Jan	246	385
Feb	483	619
Mar	586	753
Apr	500	577
May	363	488
Jun	397	429
Jul	365	429
Aug	322	387
Sep	241	310
Oct	216	308
Nov	216	308
Dec	-	334

**Table 3. Continuous water monitoring at Station D
(Mud Slough North downstream of drainage discharges), November 2002.**

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Nov-01-2002	124 e	NA	NA
Nov-02-2002	124	13.3	1,910
Nov-03-2002	122	13.4	1,960
Nov-04-2002	122	13.5	1,980
Nov-05-2002	129	13.9	1,950
Nov-06-2002	134	14.0	1,930
Nov-07-2002	140	14.6	1,880
Nov-08-2002	211	15.2	1,650
Nov-09-2002	270	16.0	1,570
Nov-10-2002	277	15.5	1,610
Nov-11-2002	272	15.4	1,590
Nov-12-2002	262	15.4	1,540
Nov-13-2002	243	15.5	1,600
Nov-14-2002	224	15.1	1,700
Nov-15-2002	201	14.2	1,800
Nov-16-2002	183	14.0	1,790
Nov-17-2002	173	13.9	1,840
Nov-18-2002	161	13.4	1,900
Nov-19-2002	149	13.5	1,950
Nov-20-2002	150	13.6	1,930
Nov-21-2002	143	13.4	1,890
Nov-22-2002	131	14.0	1,930
Nov-23-2002	111	14.0	2,060
Nov-24-2002	103	13.9	2,080
Nov-25-2002	93	13.6	2,140
Nov-26-2002	88	12.4	2,140
Nov-27-2002	82	11.7	2,150
Nov-28-2002	83	11.4	2,190
Nov-29-2002	87	11.7	2,250
Nov-30-2002	89	11.4	2,240
.	.	.	.
Mean	156	13.8	1,900

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), November 2002.

See Table 26 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Nov-01-2002	135	13.6	1,380
Nov-02-2002	128	13.0	1,430
Nov-03-2002	128	13.0	1,450
Nov-04-2002	136	13.0	1,420
Nov-05-2002	142	13.1	1,370
Nov-06-2002	151	13.2	1,330
Nov-07-2002	160	14.0	1,330
Nov-08-2002	197	15.0	1,300
Nov-09-2002	237	15.7	1,250
Nov-10-2002	259	15.3	1,230
Nov-11-2002	262	15.2	1,270
Nov-12-2002	265	15.1	1,290
Nov-13-2002	263	15.2	1,290
Nov-14-2002	237	14.9	1,350
Nov-15-2002	215	14.1	1,410
Nov-16-2002	213	13.8	1,410
Nov-17-2002	217	13.6	1,390
Nov-18-2002	221	13.1	1,380
Nov-19-2002	215	12.9	1,400
Nov-20-2002	206	13.1	1,430
Nov-21-2002	200	13.1	1,400
Nov-22-2002	205	13.6	1,350
Nov-23-2002	198	13.6	1,400
Nov-24-2002	175	13.5	1,470
Nov-25-2002	158	13.5	1,520
Nov-26-2002	151	12.6	1,530
Nov-27-2002	157	11.6	1,470
Nov-28-2002	151	11.2	1,500
Nov-29-2002	145	11.5	1,510
Nov-30-2002	138	11.4	1,540
.	.	.	.
Mean	189	13.5	1,390

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), November 2002.

See Table 26 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
Nov-01-2002	747	13.6	991	1.9
Nov-02-2002	702	13.0	1,060	2.2
Nov-03-2002	683	12.9	1,100	2.3
Nov-04-2002	694	13.1	1,090	2.3
Nov-05-2002	723	13.2	1,090	2.3
Nov-06-2002	733	13.4	1,100	2.4
Nov-07-2002	743	14.0	1,110	2.5
Nov-08-2002	859	15.0	1,050	2.3
Nov-09-2002	953	15.8	991	2.0
Nov-10-2002	1,050	15.4	863	1.9
Nov-11-2002	1,070	15.1	917	2.1
Nov-12-2002	1,040	15.2	995	2.2
Nov-13-2002	1,020	15.3	1,000	1.8
Nov-14-2002	981	15.0	990	1.7
Nov-15-2002	942	14.2	1,060	1.5
Nov-16-2002	910	14.0	1,120	1.8
Nov-17-2002	888	14.0	1,100	1.8
Nov-18-2002	869	13.5	1,110	1.5
Nov-19-2002	857	13.1	1,110	1.5
Nov-20-2002	840	13.4	1,110	1.4
Nov-21-2002	822	13.3	1,170	1.6
Nov-22-2002	792	13.7	1,190	1.5
Nov-23-2002	769	13.6	1,190	1.7
Nov-24-2002	756	13.7	1,190	1.4
Nov-25-2002	723	13.6	1,240	1.5
Nov-26-2002	691	12.6	1,280	1.6
Nov-27-2002	677	11.8	1,310	1.8
Nov-28-2002	675	11.4	1,280	1.6
Nov-29-2002	670	11.5	1,260	1.5
Nov-30-2002	659	11.3	1,310	2.1
.
Mean	818	13.6	1,110	1.9

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

See Table 26 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-04-2002	48	.	.	3,890	91	.	.	.
Sep-11-2002	36	.	.	3,960	110	.	.	.
Sep-18-2002	25	.	.	4,650	P	.	.	.
Sep-25-2002	16	.	.	5,070	88	.	.	.
Oct-02-2002	11	.	.	6,170	57	.	.	.
Oct-09-2002	18	.	.	4,470	110	.	.	.
Oct-16-2002	17	.	.	5,010	65	.	.	.
Oct-23-2002	15	.	.	5,210	59	.	.	.
Oct-30-2002	14	.	.	5,480	P	.	.	.
Nov-06-2002	15	.	.	3,990	P	.	.	.
Nov-13-2002	14	.	.	5,080	86	.	.	.
Nov-20-2002	9	.	.	5,240	38	.	.	.
Nov-26-2002	8	.	.	4,990	15	.	.	.

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

See Table 26 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-06-2002	39	.	.	3,890	.	37.1	.	6.4
Sep-10-2002	41	.	.	4,140	.	51.4	.	6.0
Sep-17-2002	32	.	.	4,480	.	56.8	.	7.9
Sep-24-2002	17	.	.	5,030	.	66.0	.	8.7
Oct-01-2002	12	.	.	5,650	.	89.5	.	10.0
Oct-08-2002	16	.	.	5,860	.	83.7	.	11.0
Oct-15-2002	13	.	.	4,530	.	68.0	.	8.1
Oct-22-2002	16	.	.	4,950	.	95.5	.	8.4
Oct-29-2002	14	.	.	5,550	.	108	.	9.4
Nov-05-2002	16	.	.	5,590	.	108	.	9.6
Nov-12-2002	14	.	.	4,740	.	89.1	.	7.5
Nov-19-2002	14	.	.	5,000	.	88.5	.	8.6
Nov-25-2002	8	.	.	5,210	.	62.3	.	8.5

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

See Table 26 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-05-2002	49	23.6	8.3	3,570	50	29.6	.	5.2
Sep-12-2002	39	23.0	8.1	3,620	P	42.1	.	5.8
Sep-19-2002	28	22.4	8.5	4,940	P	60.3	.	9.0
Sep-26-2002	18	23.4	7.8	4,460	21	99.0	.	8.5
Oct-03-2002	16	15.5	8.4	4,970	40	70.0	.	8.8
Oct-10-2002	22	21.2	8.4	5,010	59	62.6	.	9.1
Oct-17-2002	22	17.7	8.3	3,860	47	45.4	.	7.1
Oct-24-2002	23	16.5	8.1	3,990	P	65.7	.	6.2
Oct-31-2002	22	15.0	8.1	4,820	P	79.1	.	7.0
Nov-07-2002	17	14.1	8.3	4,720	42	72.0	.	7.7
Nov-14-2002	21	14.9	8.0	4,510	35	75.2	.	7.5
Nov-21-2002	15	13.8	8.3	4,390	58	62.7	.	7.1
Nov-26-2002	12	13.3	8.3	4,240	43	63.7	.	P

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

See Table 26 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-05-2002	-6	21.2	8.0	1,270	<0.4	1.0
Sep-12-2002	23	21.8	8.0	1,290	<0.4	1.0
Sep-19-2002	21	21.7	8.1	1,120	0.4	0.8
Sep-26-2002	54	25.0	7.8	972	<0.4	0.5
Oct-03-2002	25	15.1	7.9	1,190	<0.4	0.7
Oct-10-2002	19	23.4	8.3	1,360	<0.4	0.9
Oct-17-2002	117	16.6	8.1	937	0.4	0.5
Oct-24-2002	172	15.9	7.7	989	0.4	0.6
Oct-31-2002	110	14.3	7.7	1,200	<0.4	0.7
Nov-07-2002	123	14.0	7.7	1,330	0.5	0.8
Nov-14-2002	203	14.2	7.7	1,300	<0.4	0.9
Nov-21-2002	128	13.4	7.6	1,510	<0.4	P
Nov-26-2002	76	12.4	7.9	1,800	<0.4	P

++ 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 26 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-05-2002	43	22.9	8.3	3,130	24.3	4.4
Sep-12-2002	62	22.4	8.1	3,400	33.9	5.7
Sep-19-2002	49	21.6	8.2	3,210	30.4	5.2
Sep-26-2002	72	23.6	7.7	2,180	13.1	3.0
Oct-03-2002	41	14.4	8.0	2,510	19.7	3.4
Oct-10-2002	41	22.0	8.2	3,040	26.4	4.6
Oct-17-2002	139	16.7	8.1	1,430	6.4	1.6
Oct-24-2002	195	16.0	7.7	1,420	9.7	1.3
Oct-31-2002	132 e	14.3	7.8	1,740	9.5	1.6
Nov-07-2002	140	14.0	7.7	1,900	11.8	7.9
Nov-14-2002	224	14.3	7.8	1,680	7.7	1.6
Nov-21-2002	143	13.2	7.8	1,900	7.2	1.8
Nov-26-2002	88	12.3	8.0	2,200	8.6	P

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

See Table 26 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-04-2002	.	7.9	2,960	13.8	24.3	5.0
Sep-10-2002	.	7.9	3,270	22.5	34.3	5.6
Sep-17-2002	.	7.9	2,530	29.4	22.8	3.6
Sep-24-2002	.	7.5	1,860	21.8	10.1	1.9
Oct-01-2002	.	7.5	2,900	NA	19.5	3.2
Oct-08-2002	.	7.7	2,710	NA	23.8	3.3
Oct-14-2002	.	8.2	2,720	NA	7.3	1.5
Oct-22-2002	.	7.5	1,480	NA	7.8	1.7
Oct-28-2002	.	7.6	1,720	NA	9.0	1.7
Nov-05-2002	.	7.3	1,740	NA	13.4	2.0
Nov-13-2002	.	7.9	1,960	NA	5.9	1.4
Nov-19-2002	.	7.4	2,018	NA	8.2	2.0
Nov-26-2002	.	7.5	2,320	NA	9.2	2.2

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

See Table 26 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-05-2002	50	21.5	7.8	1,110	0.5	0.4
Sep-12-2002	55	21.4	7.9	1,280	0.4	0.5
Sep-19-2002	52	20.5	7.6	1,320	0.4	0.6
Sep-26-2002	72	22.4	8.0	1,260	<0.4	0.6
Oct-03-2002	82	14.0	8.0	1,260	0.5	0.6
Oct-10-2002	53	20.1	7.8	1,360	<0.4	0.7
Oct-17-2002	88	16.8	7.8	958	0.5	0.6
Oct-24-2002	138	14.7	7.9	1,110	0.6	0.6
Oct-31-2002	149	14.5	7.7	1,390	0.5	0.7
Nov-07-2002	160	13.3	7.9	1,260	<0.4	0.6
Nov-14-2002	237	14.2	7.5	1,300	0.5	0.8
Nov-21-2002	200	12.4	7.3	1,440	0.5	0.9
Nov-26-2002	151	12.3	7.9	1,590	0.4	P

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

See Table 26 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-04-2002	15	.	.	748	1.1	0.6
Sep-11-2002	15	.	.	702	0.9	0.3
Sep-18-2002	45	.	.	675	0.9	0.3
Sep-25-2002	60	.	.	763	0.9	0.4
Oct-02-2002	135	.	.	745	0.9	0.3
Oct-09-2002	185	.	.	770	1.9	0.4
Oct-16-2002	185	.	.	722	1.1	0.3
Oct-23-2002	40	.	.	735	2.1	0.4
Oct-30-2002	30	.	.	687	0.6	0.3
Nov-06-2002	30	.	.	630	0.5	0.2
Nov-13-2002	10	.	.	665	1.3	0.3
Nov-20-2002	10	.	.	688	2.5	0.4
Nov-26-2002	10	.	.	629	0.7	0.3

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

See Table 26 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-04-2002	55	.	.	608	0.9	0.3
Sep-11-2002	95	.	.	615	0.7	0.2
Sep-18-2002	95	.	.	615	0.7	0.2
Sep-25-2002	115	.	.	694	0.8	0.3
Oct-02-2002	165	.	.	705	0.6	0.2
Oct-09-2002	165	.	.	650	0.6	0.2
Oct-16-2002	165	.	.	664	0.6	0.2
Oct-23-2002	70	.	.	605	0.5	0.2
Oct-30-2002	70	.	.	619	0.5	0.2
Nov-06-2002	70	.	.	630	0.5	0.2
Nov-13-2002	30	.	.	641	0.9	0.2
Nov-20-2002	30	.	.	614	0.7	0.3
Nov-26-2002	50	.	.	623	0.8	0.3

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

See Table 26 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-04-2002	45	.	.	820	0.9	0.4
Sep-11-2002	120	.	.	793	1.8	0.3
Sep-18-2002	155	.	.	862	0.8	0.4
Sep-25-2002	155	.	.	802	0.7	0.3
Oct-02-2002	155	.	.	765	0.8	0.3
Oct-09-2002	155	.	.	715	0.6	0.2
Oct-16-2002	135	.	.	672	0.5	0.2
Oct-23-2002	95	.	.	640	0.5	0.2
Oct-30-2002	55	.	.	682	0.6	0.2
Nov-06-2002	55	.	.	700	0.6	0.3
Nov-13-2002	42	.	.	684	0.7	0.3
Nov-20-2002	0	.	.	1,300	1.3	1.1
Nov-26-2002	0	.	.	1,620	1.0	1.6

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

See Table 26 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-04-2002	4	.	.	1,250	1.2	1.4
Sep-11-2002	8	.	.	1,110	1.2	0.7
Sep-18-2002	39	.	.	950	0.8	0.6
Sep-25-2002	27	.	.	985	0.7	0.6
Oct-02-2002	38	.	.	900	0.7	0.5
Oct-09-2002	44	.	.	880	0.7	0.4
Oct-16-2002	64	.	.	804	0.7	0.4
Oct-23-2002	105	.	.	852	0.6	0.5
Oct-30-2002	87	.	.	996	0.6	0.7
Nov-06-2002	99	.	.	1,090	0.6	0.7
Nov-13-2002	137	.	.	1,000	0.6	0.8
Nov-20-2002	128	.	.	1,160	0.5	1.0
Nov-26-2002	113	.	.	1,240	0.8	1.1

Table 16. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 26 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-05-2002	120	21.2	7.8	1,250	0.4	0.5
Sep-12-2002	103	21.8	7.5	1,490	<0.4	0.5
Sep-19-2002	83	20.7	7.8	1,820	0.4	0.7
Sep-26-2002	89	21.9	8.0	1,490	<0.4	P
Oct-03-2002	93	13.6	7.8	1,550	0.4	0.8
Oct-10-2002	57	19.6	7.8	1,960	<0.4	0.8
Oct-17-2002	86	17.1	7.8	1,470	0.5	0.7
Oct-24-2002	135	15.2	7.3	1,200	0.5	0.6
Oct-31-2002	171	13.0	7.4	1,450	0.6	0.7
Nov-07-2002	173	13.3	7.6	1,400	<0.4	0.6
Nov-14-2002	265	14.2	7.5	1,210	0.5	0.7
Nov-21-2002	215	12.8	7.6	1,500	<0.4	0.8
Nov-26-2002	179	12.3	7.7	NA	<0.4	P

Table 17. Weekly water quality monitoring at Station H (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 26 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-03-2002	.	.	.	1,930	6.5	1.6
Sep-10-2002	.	.	.	1,710	6.7	1.3
Sep-17-2002	.	.	.	1,820	5.9	1.2
Sep-24-2002	.	.	.	1,660	5.4	1.2
Oct-01-2002	.	.	.	1,730	5.6	1.4
Oct-08-2002	.	.	.	1,980	7.7	1.2
Oct-22-2002	.	.	.	1,640	3.3	1.0
Oct-29-2002	.	.	.	1,440	3.8	1.0
Nov-05-2002	.	.	.	1,670	4.6	1.1
Nov-12-2002	.	.	.	1,260	2.8	0.8
Nov-19-2002	.	.	.	1,560	2.5	1.0
Nov-26-2002	.	.	.	1,980	4.0	1.3

Table 18. Weekly water quality monitoring at Station N (San Joaquin River at Crow's Landing).

See Table 26 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-05-2002	345	21.7	7.8	1,530	2.9	1.1
Sep-12-2002	333	22.1	7.8	1,300	3.6	1.0
Sep-19-2002	367	21.5	7.8	1,390	4.0	1.0
Sep-26-2002	386	21.1	7.7	1,260	1.9	0.7
Oct-03-2002	344	15.2	7.8	1,260	2.6	0.8
Oct-10-2002	296	20.0	7.8	1,320	2.5	0.8
Oct-17-2002	572	16.8	7.9	890	2.0	0.6
Oct-24-2002	1,100	15.0	7.5	563	1.2	0.4
Oct-31-2002	782	14.1	7.8	911	1.9	0.6
Nov-07-2002	743	13.8	7.7	1,090	2.2	0.7
Nov-14-2002	981	14.6	7.6	1,000	1.7	0.7
Nov-21-2002	822	12.9	7.7	1,160	1.7	P
Nov-26-2002	691	12.1	7.7	1,280	1.5	0.8

Table 19. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from December 2001 to November 2002. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 26 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-2001	98	55*	68*	90	98	100
Jan-2002	83	95	98	100	100	98
Feb-2002	93	90	93	95	93	100
Mar-2002	98	90	98	80	88	98
Apr-2002	93	93	85	95	95	98
May-2002	98	95	95	90	85	88
Jun-2002	98	100	100	95	95	100
Jul-2002	100	95	98	93	90	100
Aug-2002	85	88	95	90	95	98
Sep-2002	100	98	98	95	95	93
Oct-2002	93	98	100	93	98	100
Nov-2002	98	55*	83	65*	100	100

Table 20. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from December 2001 to November 2002. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 26 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-2001	0.48	0.34*	0.41	0.55	0.47	0.50
Jan-2002	0.39	0.41	0.44	0.51	0.44	0.40
Feb-2002	0.55	0.47	0.58	0.55	0.52	0.42
Mar-2002	0.40	0.47	0.50	0.41	0.43	0.48
Apr-2002	0.64	0.63	0.50	0.63	0.55	0.58
May-2002	0.63	0.70	0.62	0.65	0.61	0.56
Jun-2002	0.38	0.43	0.41	0.42	0.31	0.50
Jul-2002	0.31	0.33	0.34	0.35	0.31	0.34
Aug-2002	0.49*	0.49	0.49	0.58	0.57	0.55
Sep-2002	0.38	0.38	0.29	0.33	0.31	0.30
Oct-2002	0.66	0.66	0.71	0.62	0.67	0.61
Nov-2002	0.41	0.22*	0.41	0.27*	0.38	0.33

Table 21. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from December 2001 to November 2002. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 26 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-2001	90	100	90	90	100	100
Jan-2002	100	90	80	100	100	67†
Feb-2002	100	80	90	90	100	100
Mar-2002	90	100	100	100	90	100
Apr-2002	100	90	100	90	100	100
May-2002	80	100	80	100	89	30†
Jun-2002	100	90	90	90	100	90
Jul-2002	90	100	100	100	100	100
Aug-2002	100	90	100	60*	100	90
Sep-2002	90	100	90	100	90	90
Oct-2002	100	89	90	100	100	89
Nov-2002	60*‡‡ D	100	100	100	100	100

Table 22. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from December 2001 to November 2002. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 26 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-2001	41.3	45.9	43.3	42.4	45.1	36.7
Jan-2002	29.4	29.3	23.6	30.5	30.1	11.9
Feb-2002	42.8(*)	37.7	42.0	40.6	47.4	32.4
Mar-2002	47.2	47.7	49.8	45.8	54.5	50.2
Apr-2002	56.2	43.4	59.8	49.3	49.5	47.3
May-2002	26.4	36.5	30.7	37.2	27.9	2.9†
Jun-2002	40.0	36.1	43.1	24.3*	45.3	28.6
Jul-2002	28.3	29.7	34.6	29.6	33.1	29.1
Aug-2002	40.8	26.6	34.1	20.4	25.6	22.9
Sep-2002	24.4	28.0	28.7	31.1	23.7	16.6
Oct-2002	70.4	30.2	29.6	27.9	29.9	21.1
Nov-2002	7.9* D	30.3	33.5	29.5	18.4	20.3

(*) Although reproduction values were less at Stations C, D, and F, they were not statistically different from the DMC water. This was due to the increased survival rate at Station B.

Table 23. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from December 2001 to November 2002. Each value is the mean of 4 replicates.

See Table 26 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 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL	10 ⁵ cells/mL
Dec-2001	7.5*	9.4	9.6	9.3	8.9 †††	9.1 †††
Jan-2002	6.3*†††	19.2	17.4	24.7	15.1	10.1
Feb-2002	8.7*	17.3	14.9*	12.7*	18.2	12.6
Mar-2002	8.7*	14.2*	12.9*	18.3	17.8	13.5
Apr-2002	1.44*	7.0	4.4*	6.6	5.8	33.0
May-2002	4.8 †	7.9	6.1	6.3	7.1 †††	3.8 †
Jun-2002	3.7*	9.5	7.7*	6.8*	11.7	10.2
Jul-2002	6.0	10.2	10.3	10.5	6.8	8.7
Aug-2002	NA	NA	NA	NA	NA	NA
Sep-2002	10.9	8.2	7.4	7.6	11.9	12.0
Oct-2002	8.9	5.9*	6.4*	6.4*	7.8	9.5
Nov-2002	10.8*	15.7	11.9*	10.8*	15.7	14.2

Table 24. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, September 2002 to November 2002.

See Table 26 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-23-2002	48	0.5	15	0.5	<0.4
Sep-25-2002	44	0.5	11	<0.4	<0.4
Sep-27-2002	48	<0.4	18	0.4	<0.4
Oct-14-2002	75	0.4	15	<0.4	<0.4
Oct-16-2002	52	<0.4	7.0	<0.4	<0.4
Oct-18-2002	57	<0.4	10	<0.4	<0.4
Nov-18-2002	55	0.5	7.6	<0.4	<0.4
Nov-20-2002	67	0.4	7.6	0.5	<0.4
Nov-22-2002	68	0.4	6.5	<0.4	<0.4

Table 25. Summary of total suspended solids concentrations in grab water samples collected from September 2002 to November 2002.

See Table 26 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-23-2002	55	76	72	38	41
Sep-25-2002	66	52	69	168	21
Sep-27-2002	70	111	69	148	146
Oct-14-2002	45	69	71	130	14
Oct-16-2002	59	93	67	197	29
Oct-18-2002	56	44	58	72	24
Nov-18-2002	55	23	35	60	12
Nov-20-2002	82	26	34	94	17
Nov-22-2002	67	43	43	119	24

Table 26. Explanations of footnotes and agency abbreviations.

Footnote	Explanation
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.
†	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 ⁶ 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