

GRASSLAND BYPASS PROJECT

MONTHLY DATA REPORT

February 2012

August 2012

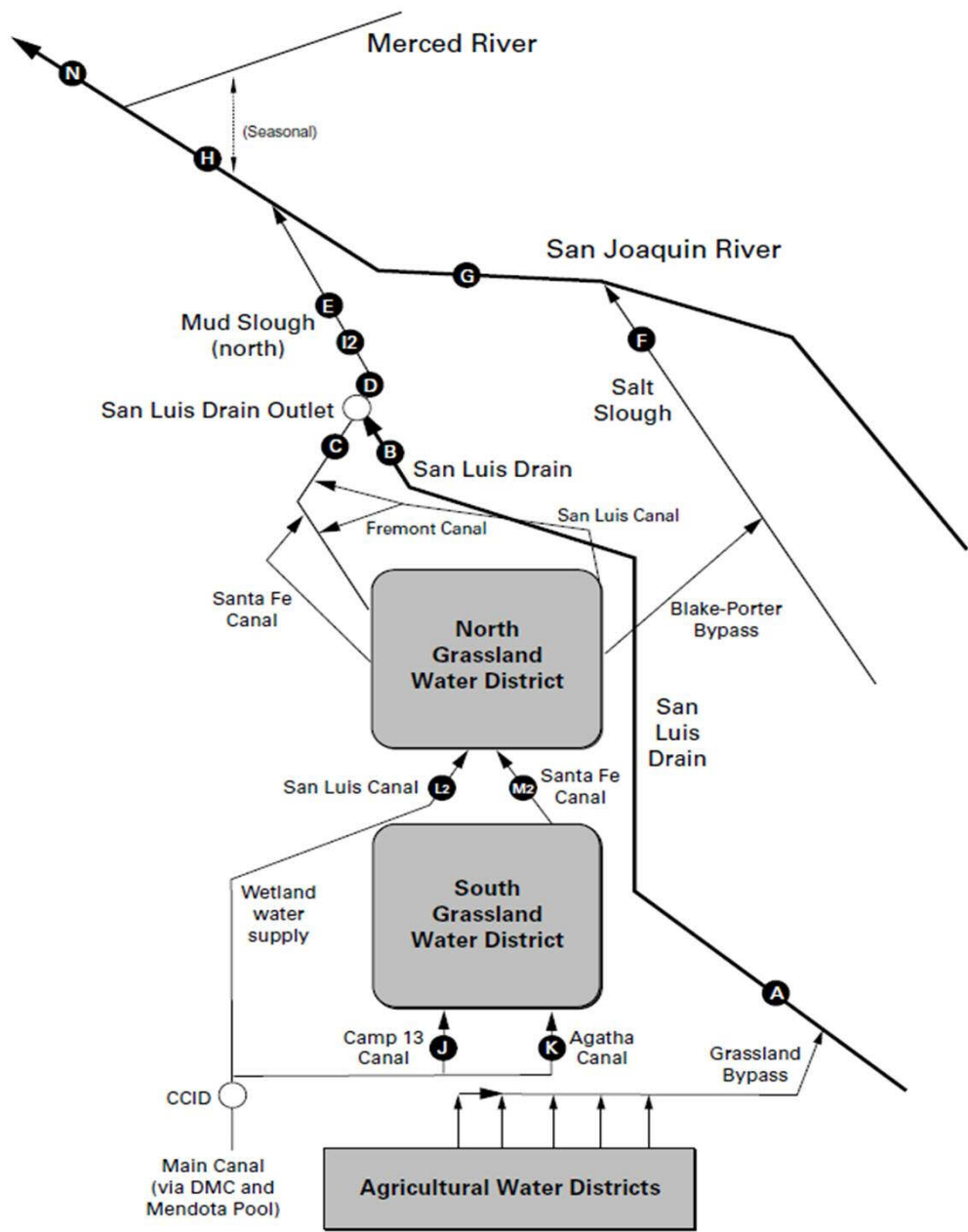
Preliminary Results

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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MONTHLY DATA REPORT

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Monthly Monitoring

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Table 1. Continuous water monitoring at Station A (inflow to San Luis Drain), February 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance	Salt Load
DATA SOURCE	SLDMWA	SLDMWA	SLDMWA	Computed
UNITS	cfs	°C	µS/cm	tons
Feb-01-2012	12	12.2	4,380	104
Feb-02-2012	18	11.7	3,980	144
Feb-03-2012	17	10.8	3,590	120
Feb-04-2012	15	10.8	3,350	99
Feb-05-2012	15	11.0	3,270	101
Feb-06-2012	15	10.7	3,170	96
Feb-07-2012	11	11.0	2,970	66
Feb-08-2012	8	12.7	3,010	47
Feb-09-2012	8	13.4	3,080	48
Feb-10-2012	9	14.0	3,130	54
Feb-11-2012	9	13.0	3,180	57
Feb-12-2012	7	13.3	3,250	47
Feb-13-2012	9	12.1	3,300	58
Feb-14-2012	16	11.4	3,420	109
Feb-15-2012	14	11.0	3,520	100
Feb-16-2012	18	10.3	3,680	133
Feb-17-2012	13	11.2	3,820	98
Feb-18-2012	10	12.0	3,790	75
Feb-19-2012	14	11.4	3,840	110
Feb-20-2012	18	11.9	3,830	135
Feb-21-2012	17	12.5	3,750	129
Feb-22-2012	11	13.2	3,730	79
Feb-23-2012	16	13.5	3,510	111
Feb-24-2012	16	13.8	3,560	113
Feb-25-2012	18	12.9	3,670	130
Feb-26-2012	18	10.9	3,770	135
Feb-27-2012	27	11.1	3,360	179
Feb-28-2012	20	11.5	2,940	115
Feb-29-2012	22	11.2	2,930	131
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Mean	14	11.9	3,480	2,922
Total Acre-feet	832			
Salinity Load Value (Dry Year, February)				11,524

Table 2a. Continuous water monitoring at Stations B and B2 (San Luis Drain Terminus), February 2012.

See Table 28 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	USBR	SLDMWA	USBR	Computed
UNITS	cfs	°C	mg/L	µS/cm	µg/L	lbs
Feb-01-2012	13	10.9	7.1	2,910	16.0	1.1
Feb-02-2012	17	10.1	7.2	2,750	16.0	1.5
Feb-03-2012	24	7.9	7.0	2,750	14.0	1.8
Feb-04-2012	23	10.3	7.0	2,670	16.0	2.0
Feb-05-2012	20	10.7	7.4	2,820	16.0	1.7
Feb-06-2012	21	10.0	7.3	2,870	15.0	1.7
Feb-07-2012	21	12.7	7.4	2,790	14.0	1.6
Feb-08-2012	17	12.3	6.0	2,590	13.0	1.2
Feb-09-2012	15	13.2	6.1	2,260	12.0	1.0
Feb-10-2012	14	13.9	5.8	2,340	12.0	0.9
Feb-11-2012	14	12.5	6.0	2,390	13.0	1.0
Feb-12-2012	15	12.2	5.6	2,320	13.0	1.1
Feb-13-2012	14	9.1	4.8	2,240	10.0	0.7
Feb-14-2012	15	9.4	5.1	2,070	10.0	0.8
Feb-15-2012	19	10.9	5.5	2,170	11.0	1.1
Feb-16-2012	22	9.7	5.9	2,280	9.7	1.1
Feb-17-2012	25	10.4	6.0	2,360	11.0	1.5
Feb-18-2012	21	10.8	6.6	2,560	15.0	1.7
Feb-19-2012	17	9.8	8.5	2,810	25.0	2.3
Feb-20-2012	21	10.4	8.6	3,380	24.0	2.8
Feb-21-2012	27	11.5	8.9	3,390	24.0	3.4
Feb-22-2012	25	12.5	7.8	3,330	24.0	3.3
Feb-23-2012	16	14.1	6.9	2,920	22.0	1.9
Feb-24-2012	22	15.2	8.9	3,280	26.0	3.1
Feb-25-2012	20	11.8	8.7	3,440	30.0	3.2
Feb-26-2012	24	10.8	8.4	3,150	28.0	3.6
Feb-27-2012	24	9.8	7.7	3,210	21.0	2.7
Feb-28-2012	31	9.5	8.8	3,200	21.0	3.5
Feb-29-2012	27	10.0	8.8	3,370	24.0	3.5
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Mean	20	11.1	7.1	2,780	17.4	2.0
Total Acre-feet	1,160					
Total (lbs)						57

Load Limitation for February 2012 (lbs)	185
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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.

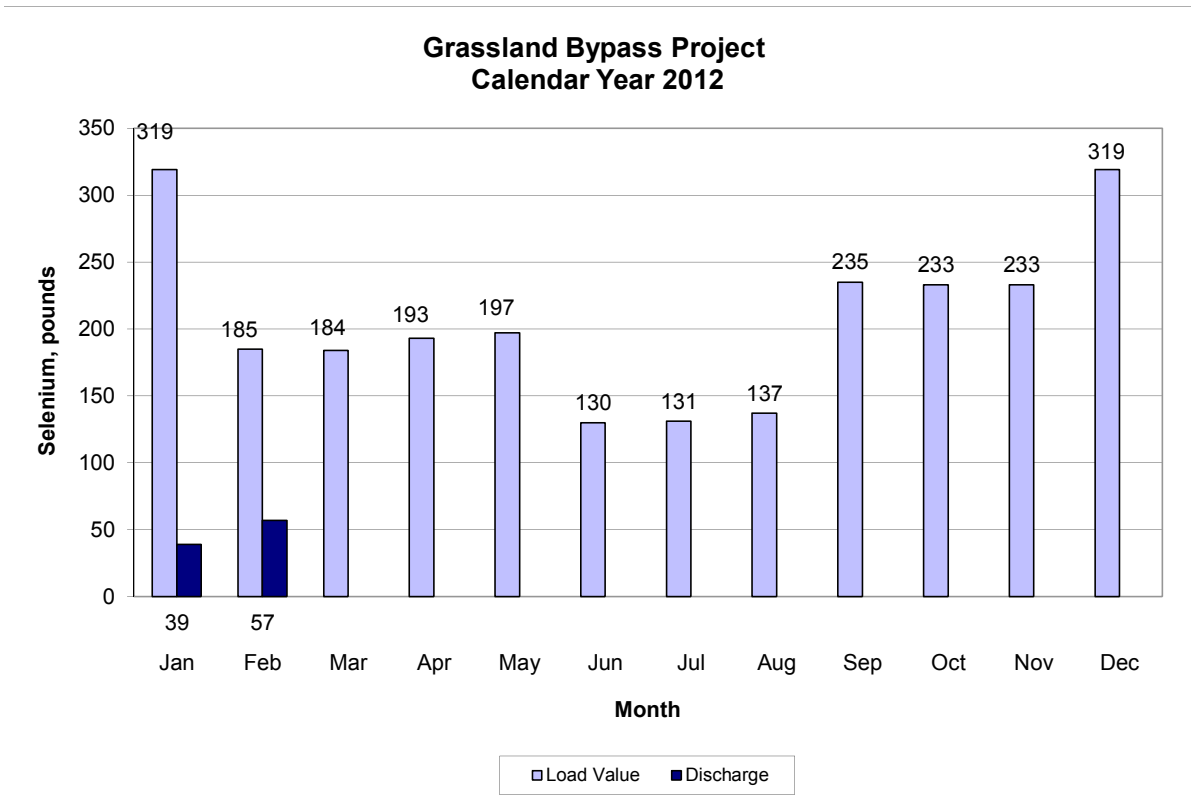


Table 3. Continuous water monitoring at Station D (Mud Slough North downstream of drainage discharges), February 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	usgs	usgs	usgs
UNITS	cfs	°C	µS/cm
Feb-01-2012	103	12.7	2,410
Feb-02-2012	101	12.4	2,510
Feb-03-2012	103	12.0	2,670
Feb-04-2012	101	12.1	2,570
Feb-05-2012	100	12.3	2,600
Feb-06-2012	106	12.1	2,630
Feb-07-2012	110	12.3	2,540
Feb-08-2012	104	12.9	2,450
Feb-09-2012	100	13.6	2,360
Feb-10-2012	98	14.3	2,380
Feb-11-2012	98	14.2	2,390
Feb-12-2012	96	14.0	2,400
Feb-13-2012	100	13.2	2,340
Feb-14-2012	113	12.1	2,210
Feb-15-2012	121	11.4	2,300
Feb-16-2012	114	10.6	2,430
Feb-17-2012	113	11.4	2,490
Feb-18-2012	108	12.2	2,500
Feb-19-2012	107	12.3	2,510
Feb-20-2012	109	12.4	2,730
Feb-21-2012	113	12.7	2,850
Feb-22-2012	116	13.7	3,170
Feb-23-2012	112	13.9	2,910
Feb-24-2012	112	13.8	3,010
Feb-25-2012	107	13.5	3,020
Feb-26-2012	109	11.3	2,960
Feb-27-2012	105	12.3	2,930
Feb-28-2012	110	12.1	3,020
Feb-29-2012	114	11.8	2,980
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Mean	107	12.6	2,630

Table 4. Continuous water monitoring at Station F (Salt Slough at Highway 165), February 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Specific Conductance
DATA SOURCE	USGS	USGS	USGS
UNITS	cfs	°C	µS/cm
Feb-01-2012	135	12.0	1,400
Feb-02-2012	142	11.9	1,410
Feb-03-2012	140	11.4	1,480
Feb-04-2012	141	11.2	1,570
Feb-05-2012	155	11.3	1,570
Feb-06-2012	178	11.1	1,440
Feb-07-2012	182	11.4	1,440
Feb-08-2012	179	12.0	1,470
Feb-09-2012	188	12.7	1,410
Feb-10-2012	201	13.2	1,380
Feb-11-2012	207	13.5	1,440
Feb-12-2012	208	13.4	1,460
Feb-13-2012	220	12.8	1,460
Feb-14-2012	230	11.7	1,470
Feb-15-2012	235	11.2	1,410
Feb-16-2012	253	10.5	1,410
Feb-17-2012	256	10.7	1,440
Feb-18-2012	244	11.4	1,490
Feb-19-2012	236	11.8	1,500
Feb-20-2012	240	11.9	1,510
Feb-21-2012	240	12.1	1,540
Feb-22-2012	242	12.7	1,580
Feb-23-2012	245	13.1	1,580
Feb-24-2012	242	13.4	1,610
Feb-25-2012	238	13.2	1,660
Feb-26-2012	230	11.8	1,700
Feb-27-2012	219	11.8	1,710
Feb-28-2012	215	11.5	1,710
Feb-29-2012	205	11.3	1,720
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Mean	208	12.0	1,520

Table 5. Continuous water monitoring at Station N (San Joaquin River at Crow's Landing), February 2012.

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	Boron	Specific Conductance	Selenium (total)
DATA SOURCE	USGS	USGS	USBR	USGS	USBR
UNITS	cfs	°C	mg/L	µS/cm	µg/L
Feb-01-2012	664	12.5	0.7	1,340	0.8
Feb-02-2012	586	12.4	0.8	1,460	0.7
Feb-03-2012	571	11.9	0.8	1,540	0.8
Feb-04-2012	569	11.7	0.9	1,590	1.0
Feb-05-2012	571	12.0	0.9	1,630	0.9
Feb-06-2012	583	11.9	0.9	1,670	1.0
Feb-07-2012	600	12.0	0.9	1,690	0.9
Feb-08-2012	615	12.5	0.9	1,650	0.9
Feb-09-2012	612	13.4	1.0	1,620	0.9
Feb-10-2012	608	13.9	0.9	1,600	1.0
Feb-11-2012	607	14.2	0.9	1,560	0.8
Feb-12-2012	606	13.9	0.9	1,630	0.7
Feb-13-2012	631	13.7	0.9	1,540	0.6
Feb-14-2012	640	12.5	0.8	1,510	0.8
Feb-15-2012	650	12.2	0.8	1,490	0.6
Feb-16-2012	681	11.1	0.8	1,480	0.6
Feb-17-2012	700	11.6	0.9	1,480	0.6
Feb-18-2012	707	12.3	0.9	1,460	0.7
Feb-19-2012	721	12.2	0.9	1,480	0.9
Feb-20-2012	702	12.4	0.8	1,490	0.9
Feb-21-2012	662	12.8	0.9	1,540	0.9
Feb-22-2012	651	13.4	1.0	1,610	1.0
Feb-23-2012	669	13.7	1.1	1,670	1.3
Feb-24-2012	661	13.8	1.0	1,710	1.0
Feb-25-2012	650	13.9	1.0	1,660	1.0
Feb-26-2012	659	12.1	1.0	1,670	1.2
Feb-27-2012	661	12.4	1.0	1,650	1.5
Feb-28-2012	629	12.6	1.0	1,660	1.4
Feb-29-2012	638	12.5	1.0	1,650	1.1
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Mean	638	12.7	0.9	1,580	0.9

Table 6. Weekly water quality monitoring at Station A (inflow to San Luis Drain).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Total Suspended Solids	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA	Panoche DD	USBR	USBR	USBR
		Grab sample	Composite	Composite	Composite
UNITS	cfs	mg/L	µS/cm	µg/L	mg/L
Dec-05-2011	10	<10	5,930	44	11.0
Dec-12-2011	21	88	6,360	45	13.0
Dec-19-2011	12	<10	5,910	45	11.0
Dec-26-2011	14	NA	5,950	45	12.0
Dec-27-2011	10	12	NA	NA	NA
Jan-02-2012	10	20	5,260	33	8.7
Jan-09-2012	8	<10	5,110	26	8.7
Jan-16-2012	10	11	5,250	33	9.2
Jan-23-2012	16	36	5,500	28	9.8
Jan-30-2012	7	20	4,390	20	6.3
Feb-06-2012	15	120	4,320	17	7.1
Feb-13-2012	9	123	5,570	33	9.2
Feb-20-2012	18	114	4,780	26	8.2
Feb-27-2012	27	268	5,730	32	9.0

Note: Weekly results for specific conductance, selenium, and boron from composite of seven daily samples.

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Total Suspended Solids	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA	Panoche DD	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	mg/L	°C	.	µS/cm	µg/L	mg/L
Dec-01-2011	12	17	9.3	7.9	4,580	24	7.3
Dec-08-2011	18	21	7.8	7.7	4,670	21.0	9.2
Dec-13-2011	26	20	9.6	6.9	5,190	35	9.1
Dec-20-2011	17	18	7.8	8.2	4,620	25	7.9
Dec-29-2011	14	22	8.5	7.6	4,670	30	7.8
Jan-05-2012	16	15	10.0	7.5	4,840	38	8.7
Jan-12-2012	14	18	9.7	7.8	4,180	27	6.5
Jan-17-2012	17	18	7.9	7.7	4,060	14	6.7
Jan-24-2012	21	31	10.5	7.6	3,710	22	5.2
Jan-31-2012	13	11	13.2	7.9	4,420	17	7.5
Feb-07-2012	21	27	11.4	7.7	4,040	15	6.7
Feb-17-2012	25	<10	11.6	7.9	3,600	11	5.4
Feb-21-2012	27	31	13.3	8.0	5,040	26	8.1
Feb-28-2012	31	47	12.3	8.6	5,130	23	8.6

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow		Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	calculated **		USBR	USBR	USBR	USBR	USBR
UNITS	cfs		°C	.	µS/cm	µg/L	mg/L
Dec-01-2011	122	.	9.8	8.1	1,340	< 0.4	1.0
Dec-08-2011	95	.	7.0	8.2	1,510	< 0.4	1.1
Dec-13-2011	87	.	8.6	7.9	1,550	< 0.4	1.2
Dec-20-2011	113	.	7.2	8.2	1,440	< 0.4	1.0
Dec-29-2011	104	.	8.3	8.0	1,600	< 0.4	1.2
Jan-05-2012	113	.	9.0	8.1	1,600	0.5	1.2
Jan-12-2012	118	.	8.7	8.2	1,700	< 0.4	1.2
Jan-17-2012	103	.	7.6	8.2	1,750	0.4	1.3
Jan-24-2012	124	.	11.1	8.1	1,750	< 0.4	1.4
Jan-31-2012	96	.	12.9	8.2	1,900	0.7	1.4
Feb-07-2012	89	.	11.8	8.6	2,080	0.4	1.7
Feb-17-2012	88	.	11.1	8.2	2,140	0.5	1.6
Feb-21-2012	86	.	13.1	8.4	2,130	0.7	1.7
Feb-28-2012	79	.	13.2	8.0	1,840	0.7	1.9

** 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 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature		pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR		USBR	USBR	USBR	USBR
UNITS	cfs	°C		.	µS/cm	µg/L	mg/L
Dec-01-2011	134	9.5	.	8.1	1,680	1.5	1.5
Dec-08-2011	113	7.6	.	7.9	2,120	3.9	2.3
Dec-13-2011	113	8.6	.	7.9	2,420	6.9	3.0
Dec-20-2011	130	7.3	.	8.0	2,010	4.3	2.0
Dec-29-2011	118	8.5	.	8	2,080	3.8	2.0
Jan-05-2012	129	9.7	.	7.9	2,110	5.1	2.1
Jan-12-2012	132	9.0	.	7.9	2,030	3.2	1.8
Jan-17-2012	120	7.8	.	8.1	2,150	2.1	2.0
Jan-24-2012	145	11.1	.	8.0	2,130	3.2	2.0
Jan-31-2012	109	13.0	.	7.9	2,270	2.9	2.0
Feb-07-2012	110	11.8	.	7.9	2,540	3.1	2.8
Feb-17-2012	113	11.6	.	8.2	2,490	2.6	2.4
Feb-21-2012	113	13.4	.	8.2	2,770	4.4	2.8
Feb-28-2012	110	13.1	.	8.2	3,250	5.9	3.8

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER		Temperature	Turbidity	pH	Specific Conductance	Selenium	Boron
DATA SOURCE		USBR	USBR	USBR	USBR	USBR	USBR
UNITS		°C	NTU	.	µS/cm	µg/L	mg/L
Dec-01-2011	.	9.9	26	8.1	1,830	1.6	1.6
Dec-08-2011	.	7.5	16	7.9	2,200	3.7	2.2
Dec-13-2011	.	9.1	10	7.7	2,640	6.6	3.1
Dec-20-2011	.	7.1	10	7.9	2,100	4.5	2.1
Dec-29-2011	.	8.6	25	7.9	2,170	3.9	2.1
Jan-05-2012	.	9.4	13	7.9	2,200	5.0	2.2
Jan-12-2012	.	9.2	12	7.9	2,190	3.3	1.8
Jan-17-2012	.	8.4	18	7.9	2,340	2.1	2.0
Jan-24-2012	.	14.4	32	7.9	2,340	3.1	2.1
Jan-31-2012	.	13.6	61	7.9	2,850	2.9	2.2
Feb-07-2012	.	11.8	191	7.8	2,980	2.9	2.8
Feb-17-2012	.	13.2	39	8.1	2,640	2.5	2.4
Feb-21-2012	.	13.3	49	8.1	2,940	4.5	3.0
Feb-28-2012	.	13.7	58	8.3	2,470	5.5	3.8

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Dec-01-2011	e92	NA	NA	NA	NA	NA
Dec-08-2011	69	NA	NA	NA	NA	NA
Dec-13-2011	63	NA	NA	NA	NA	NA
Dec-20-2011	50	NA	NA	NA	NA	NA
Dec-29-2011	53	NA	NA	NA	NA	NA
Jan-05-2012	54	NA	NA	NA	NA	NA
Jan-12-2012	54	NA	NA	NA	NA	NA
Jan-17-2012	71	NA	NA	NA	NA	NA
Jan-24-2012	92	NA	NA	NA	NA	NA
Jan-31-2012	138	NA	NA	NA	NA	NA
Feb-07-2012	182	11.4	7.0	1,460	0.6	0.6
Feb-17-2012	256	11.6	7.3	1,430	0.5	0.6
Feb-21-2012	240	12.1	7.4	1,520	0.6	0.7
Feb-28-2012	215	NA	NA	NA	NA	NA

Site inaccessible due to construction, no grab sample taken starting November 22, 2011 through January 31, 2012.

Table 12. Weekly water quality monitoring at Station G (San Joaquin River at Fremont Ford).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	.	µS/cm	µg/L	mg/L
Dec-01-2011	227	10.7	8.0	1,680	< 0.4	0.7
Dec-08-2011	171	7.1	7.9	2,040	< 0.4	0.8
Dec-13-2011	152	8.6	7.9	2,130	< 0.4	0.8
Dec-20-2011	NA	7.4	7.9	2,280	< 0.4	0.7
Dec-29-2011	97	8.0	7.9	2,530	< 0.4	0.9
Jan-05-2012	83	9.1	7.9	2,570	0.7	0.9
Jan-12-2012	82	9.0	8.0	2,640	< 0.4	1.0
Jan-17-2012	100	7.9	7.9	2,190	< 0.4	0.8
Jan-24-2012	156	10.3	8.0	1,700	0.6	0.7
Jan-31-2012	168	12.0	8.0	1,600	0.6	0.6
Feb-07-2012	214	10.7	8.0	1,530	0.6	0.6
Feb-17-2012	284	10.8	8.2	1,500	0.6	0.6
Feb-21-2012	276	12.4	8.3	1,670	0.5	0.7
Feb-28-2012	268	12.6	8.1	1,630	0.8	0.8

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Dec-12-2011	30	.	.	518	0.5	0.2
Dec-19-2011	30	.	.	463	< 0.4	0.2
Dec-27-2011	30	.	.	736	0.9	0.5
Jan-03-2012	30	.	.	666	0.5	0.3
Jan-09-2012	30	.	.	708	0.4	0.3
Jan-17-2012	30	.	.	677	0.5	0.2
Jan-23-2012	30	.	.	706	0.9	0.4 U
Jan-30-2012	30	.	.	783	1.2	0.3
Feb-06-2012	30	.	.	730	1.1	0.3
Feb-13-2012	20	.	.	712	1.1	0.3
Feb-21-2012	20	.	.	840	1.5	0.4
Feb-27-2012	20	.	.	794	1.6	0.4

Table 14. Weekly water quality monitoring at Station K (Agatha Canal).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Dec-05-2011	50	.	.	449	0.9	0.3
Dec-12-2011	50	.	.	421	0.9	0.3
Dec-19-2011	50	.	.	547	2.9	0.4
Dec-27-2011	50	.	.	522	1.8	0.3
Jan-03-2012	50	.	.	589	1.3 U	0.3
Jan-09-2012	70	.	.	665	0.7	0.3
Jan-17-2012	70	.	.	671	0.4	0.2
Jan-23-2012	70	.	.	711	0.7	0.3
Jan-30-2012	55	.	.	750	1.0	0.3
Feb-06-2012	45	.	.	707	0.7	0.2
Feb-13-2012	45	.	.	723	0.7	0.3
Feb-21-2012	45	.	.	799	1.1	0.3
Feb-27-2012	0	.	.	805	1.4 U	0.4

Table 15. Weekly water quality monitoring at Station L2 (San Luis Canal at splits).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Dec-05-2011	NA	.	.	1,280	1.1	1.3
Dec-12-2011	NA	.	.	1,330	1.2	1.5
Dec-19-2011	NA	.	.	1,630	2.0	1.7
Dec-27-2011	NA	.	.	1,390	1.1	1.4
Jan-03-2012	NA	.	.	1,280	1.1	1.3 U
Jan-09-2012	NA	.	.	777	0.5	0.4
Jan-17-2012	NA	.	.	1,400	0.8	1.2
Jan-23-2012	NA	.	.	352	<0.4	0.3
Jan-30-2012	NA	.	.	1,640	1.2	1.6 U
Feb-06-2012	NA	.	.	1,620	1.2	1.3
Feb-13-2012	NA	.	.	1,600	1.3	1.5
Feb-21-2012	NA	.	.	975	1.3	0.5
Feb-27-2012	NA	.	.	1,650	1.5	1.6

Table 16. Weekly water quality monitoring at Station M2 (Santa Fe Canal at weir).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	SLDMWA ^{††}	.	.	Panoche DD	Panoche DD	Panoche DD
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Dec-05-2011	NA	.	.	1,290	0.8	1.6
Dec-12-2011	NA	.	.	1,190	0.8	1.3
Dec-19-2011	NA	.	.	1,240	0.9	1.3
Dec-27-2011	NA	.	.	1,290	1.1	1.4
Jan-03-2012	NA	.	.	1,200	1.1	1.2
Jan-09-2012	NA	.	.	1,250	0.6	1.2
Jan-17-2012	NA	.	.	1,390	0.6	1.3
Jan-23-2012	NA	.	.	1,220	0.7	1.2
Jan-30-2012	NA	.	.	1,320	1.0	1.2
Feb-06-2012	NA	.	.	1,440	1.1	1.3
Feb-13-2012	NA	.	.	1,640	1.3	1.6
Feb-21-2012	NA	.	.	1,650	1.4	1.4
Feb-27-2012	NA	.	.	1,580	1.5	1.5

Table 17. Weekly water quality monitoring at Station H1 (Above Newman WW (previously SJR at Hills Ferry)).

(Collected data intended for use with biological monitoring.)

See Table 28 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
Dec-07-2011	.	.	.	945	0.5	0.6
Dec-21-2011	.	.	.	2,190	1.7	1.4
Dec-28-2011	.	.	.	2,310	1.8	1.4
Jan-04-2012	.	.	.	2,240	1.8	1.4
Jan-11-2012	.	.	.	2,320	1.6	1.5
Jan-18-2012	.	.	.	2,350	1.2	1.5
Feb-01-2012	.	.	.	2,190	1.3	1.4
Feb-08-2012	.	.	.	2,160	1.4	1.4
Feb-15-2012	.	.	.	1,980	1.0	1.2
Feb-22-2012	.	.	.	2,090	1.8	1.5
Feb-29-2012	.	.	.	2,410	2.1	1.7

Table 18. Weekly water quality monitoring at Station H2 (San Joaquin River at Hills Ferry).

(Collected data intended for use with biological monitoring.)

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	.	.	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	usgs	.	.	SLDMWA	SLDMWA	SLDMWA
UNITS	cfs	.	.	µS/cm	µg/L	mg/L
Dec-07-2011	676	.	.	944	0.5	0.6
Dec-21-2011	688	.	.	2,180	1.6	1.4
Dec-28-2011	654	.	.	2,310	1.7	1.4
Jan-04-2012	652	.	.	1,550	1.0	1.0
Jan-11-2012	606	.	.	2,330	1.6	1.5
Jan-18-2012	566	.	.	2,350	1.2	1.5
Feb-01-2012	622	.	.	2,210	1.2	1.4
Feb-08-2012	642	.	.	2,150	1.3	1.4
Feb-15-2012	690	.	.	1,970	1.0	1.2
Feb-22-2012	682	.	.	2,170	1.7	1.5
Feb-29-2012	652	.	.	2,370	2.2	1.7

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

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER	Flow	Temperature	pH	Specific Conductance	Selenium (total)	Boron
DATA SOURCE	USGS	USBR	USBR	USBR	USBR	USBR
UNITS	cfs	°C	°C	°C	µg/L	mg/L
Dec-01-2011	795	10.2	8.0	1,150	0.4	0.6
Dec-08-2011	631	7.9	7.9	1,280	0.7	0.7
Dec-13-2011	624	8.7	7.9	1,320	1.1	0.77
Dec-20-2011	641	7.9	8.1	1,330	1.5	0.9
Dec-29-2011	614	8.1	8.1	1,400	1.0	0.8
Jan-05-2012	590	9.5	8.1	1,380	0.9	0.8
Jan-12-2012	534	9.3	8.1	1,550	1.3	0.8
Jan-17-2012	510	7.8	8.1	1,540	0.7	0.9
Jan-24-2012	686	10.6	8.0	1,350	1.0	0.8
Jan-31-2012	616	12.2	7.8	1,480	0.9	0.8
Feb-07-2012	600	11.4	7.9	1,570	0.8	0.8
Feb-17-2012	700	11.3	8.0	1,430	0.7	0.8
Feb-21-2012	662	12.8	8.0	1,590	1.0	0.9
Feb-28-2012	629	12.8	8.0	1,750	1.4	1.0

Table 20. Weekly water quality monitoring at Central California Irrigation District Main Canal at Russell Avenue (MER510).

See Table 28 for explanation of footnotes and agency abbreviations.

PARAMETER				Specific Conductance	Selenium (total)	Boron
DATA SOURCE	.	.	.	USBR	USBR	USBR
UNITS	.	.	.	µS/cm	µg/L	mg/L
Dec-05-2011	.	.	.	381	1.3	0.2
Dec-12-2011	.	.	.	545	1.6	0.4
Dec-19-2011	.	.	.	522	2.5	0.4
Dec-27-2011	.	.	.	491	1.9	0.3
Jan-03-2012	.	.	.	531	2.3 U	0.4
Jan-09-2012	.	.	.	574	2.5 U	0.4
Jan-17-2012	.	.	.	638	2.1 U	0.4
Jan-23-2012	.	.	.	803	0.9	0.4
Jan-30-2012	.	.	.	780	1.0	0.3
Feb-06-2012	.	.	.	694	0.8	0.2
Feb-13-2012	.	.	.	632	0.8	0.2
Feb-21-2012	.	.	.	837	1.3	0.4
Feb-27-2012	.	.	.	628	1.2	0.3

Table 21. Summary of fathead minnow (*Pimephales promelas*) larvae survival in 7-day tests using water samples collected from March 2011 to February 2012. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 28 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	%	%	%	%	%	%
Mar-2011	100	100	98	88	98	100
Apr-2011	93	95	88	60	63†	93
May-2011	95	83	95	78	80	95
Jun-2011	95	98	98	93	93	95
Jul-2011	33*	100	95	100	98	90
Aug-2011	90	88	95	93	70	90
Sep-2011	79*	88	90	95	95	95
Oct-2011	90	98	98	100	98	100
Nov-2011	100	93	98	93	100	100
Dec-2011	100	98	98	95	95	98
Jan-2012	85	75	78	80	78	85
Feb-2012	98	90	100	100	98	98

Table 22. Summary of fathead minnow (*Pimephales promelas*) larvae growth in 7-day tests using water samples collected from March 2011 to February 2012. Each value is the mean of 4 replicates with 10 fish in each replicate.

See Table 28 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
Mar-2011	0.36	0.40	0.37	0.38	0.37	0.35
Apr-2011	0.37	0.40	0.40	0.33	0.22	0.29
May-2011	0.48	0.48	0.50	0.40	0.38	0.43
Jun-2011	0.36	0.34	0.36	0.36	0.33	0.33
Jul-2011	0.06*	0.26	0.25	0.28	0.27	0.26
Aug-2011	0.26	0.25	0.26	0.28	0.25	0.29
Sep-2011	0.28	0.30	0.33	0.34	0.32	0.32
Oct-2011	0.45	0.34	0.41	0.42	0.37	0.38
Nov-2011	0.50	0.47	0.47	0.46	0.48	0.44
Dec-2011	0.42	0.38	0.44	0.39	0.37	0.36
Jan-2012	0.37	0.33	0.33	0.33	0.34	0.35
Feb-2012	0.38	0.33	0.36	0.38	0.35	0.39

Table 23. Summary of *Daphnia magna* survival in 7-day tests using water samples collected from March 2011 to February 2012. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 28 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	%	%	%	%	%	%
Mar-2011	90	80	90	80	80	90
Apr-2011	100	100	80	100	100	100
May-2011	70	80	70	60	10†	80
Jun-2011	100	100	100	80	90	90
Jul-2011	90	80	100	90	100	100
Aug-2011	90	90	90	100	90	90
Sep-2011	100	90	70	100	90	90
Oct-2011	90	60	100	90	100	100
Nov-2011	100	100	100	100	100	100
Dec-2011	90	80	80	70	80	90
Jan-2012	90	100	100	90	100	100
Feb-2012	100	90	100	90	100	100

Table 24. Summary of *Daphnia magna* reproduction in 7-day tests using water samples collected from March 2011 to February 2012. Each value is the mean of 10 replicates with 1 animal in each replicate.

See Table 28 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
Mar-2011	53.1	39.1	59.1	41.3	29.8	49.9
Apr-2011	28.6	23.1	25.4	29.9	28.6	29.2
May-2011	44.8	36.6	45.7	24.8	22.9	37.9
Jun-2011	66.0	58.0	62.8	38.9*	50.3	42.2
Jul-2011	31.7	43.8	40.9	21.7	30.5	25.3
Aug-2011	38.1	32.8	40.4	31.4	31.0	34.3
Sep-2011	41.3	33.1	37.2	35.0	28.4	29.6
Oct-2011	26.9	13.2*	29.9	20.8	24.2	27.1
Nov-2011	51.9	46.8	48.1	39.3	44.6	27.0
Dec-2011	24.3	32.1	36.7	24.0	28.0	34.1
Jan-2012	34.1	41.4	35.7	29.2	33.9	28.5
Feb-2012	58.0	48.9	63.8	54.9	58.6	52.0

Table 25. Summary of *Selenastrum capricornutum* growth in 4-day tests using water samples collected from March 2011 to February 2012. Each value is the mean of 4 replicates.

See Table 28 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
Mar-2011	2.9*	18.0	9.8*	10.3*	21.5	19.6
Apr-2011	22.3	33.6	33.2	30.4	20.5	21.2
May-2011	23.7	27.7	22.9	24.5	10.0	23.6
Jun-2011	20.4	31.2	29.1	32.4	23.8	19.9
Jul-2011	20.8	26.0	18.2	20.3	22.8	19.1
Aug-2011	20.4*	23.5	23.2	24.3	27.4	19.0
Sep-2011	7.1*	24.9	3.3*	29.2	17.8	2.0††††
Oct-2011	20.1	26.6	33.3	25.9	22.9	18.8
Nov-2011	14.7*	32.5	30.7	26.7	22.2	26.3
Dec-2011	17.4	36.6	36.0	35.6	25.1	2.9††††
Jan-2012	25.1	33.6	37.5	32.9	27.8	28.5
Feb-2012	25.0	36.4	34.9	4.9*	29.8	23.5

Table 26. Summary of selenium concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, December 2011 to February 2012.

See Table 28 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
Dec-12-2011	29	< 0.4	6.2	< 0.4	< 0.4
Dec-14-2011	27	< 0.4	7.1	< 0.4	< 0.4
Dec-16-2011	42	< 0.4	5.8	< 0.4	< 0.4
Jan-09-2012	31	< 0.4	3.1	< 0.4	< 0.4
Jan-11-2012	28	< 0.4	3.4	< 0.4	< 0.4
Jan-13-2012	21	< 0.4	3.0	< 0.4	< 0.4
Feb-06-2012	15	< 0.4	3.3	0.8	< 0.4
Feb-08-2012	13	< 0.4	2.6	0.5	< 0.4
Feb-10-2012	11	< 0.4	2.2	0.5	< 0.4

Table 27. Summary of total suspended solids concentrations in grab water samples collected at study stations for use in laboratory toxicity tests, December 2011 to February 2012.

See Table 28 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
Dec-12-2011	17	23	19	19	5
Dec-14-2011	39	21	24	30	4
Dec-16-2011	30	23	21	29	5
Jan-09-2012	23	24	31	29	0
Jan-11-2012	27	14	16	27	1
Jan-13-2012	29	27	39	25	2
Feb-06-2012	50	40	43	75	14
Feb-08-2012	47	32	35	52	12
Feb-10-2012	46	24	26	63	6

Table 28. 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.
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 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
PPD	Panoche Drainage District
U	results are determined to be an outlier at the time of data validation