

S-drive  
data for  
Sutherland Reservoir

File Name: J:\LIMSUSER\rkf\SUA\_0M\_2000.csv  
 San Diego Water Quality Laboratory  
 WQL

Report By: RKF  
 Report Date: December 18, 2000 1:24 PM

Report Selection Criteria  
 Raw Value IS NOT NULL  
 Reportable(1/0) = 1  
 Sample Date BETWEEN '01-Jan-1996' AND '15-Dec-2000'  
 Source IN ('SUA-0')  
 Test Type IN ('SAMP')

Report Options  
 Equal\_Weight\_Samples=Y  
 Equal\_Weight\_Days=N  
 Apply\_Less\_Than=Y  
 Non\_Detect\_Mdl\_Factor=NULL  
 Concatenate\_Cells\_Calculation=N  
 Quote\_Strings=Y  
 Strip\_Internal=N  
 Print\_Comments=N

Output Specification  
 Source  
 Sample Date  
 Analysis  
 Analyte  
 Avg Units  
 Avg Value Decimal Digits: 3  
 Avg Qualifier

Report Data  
 Number of result records queried: 988  
 Number of summary records found: 920

Source	Sample Date	Analysis	Analyte	Avg Units	Avg Value	Avg Qualifier
SUA-0	7-Dec-98	EPA525.2	13_2ME_2_NITBNZ	UG/L	2.04	
SUA-0	9-Sep-96	EPA524.2	2CL2FLMETHANE	UG/L	0.1	
SUA-0	1-Dec-97	EPA525.2	2ETH_PHTHALATE	UG/L	0.236	
SUA-0	5-Mar-96	EPA525.2	2N_BUTYL_PHTH	UG/L	0.5	
SUA-0	3-Feb-97	EPA525.2	2N_BUTYL_PHTH	UG/L	1.72	
SUA-0	1-Dec-97	EPA525.2	2N_BUTYL_PHTH	UG/L	1.54	
SUA-0	7-Dec-98	EPA525.2	3PHENYL_PO4	UG/L	3050000	
SUA-0	6-Dec-99	EPA555	4_NITROPHENOL	UG/L	10	<
SUA-0	1-Dec-97	EPA525.2	5CHLOROPHENOL	UG/L	0.531	
SUA-0	9-Jul-98	PLANKTON	ACANTHOSPHAERA	STD_U/ML	18	
SUA-0	7-Dec-98	EPA525.2	ACENAPTHENE_D10	UG/L	1040000	
SUA-0	16-Apr-98	PLANKTON	ACTINASTRUM	STD_U/ML	27	
SUA-0	5-Mar-96	CALC	AGGRESSIVE		11.2	

SUA-0	4-Dec-00	PH_ALK_MAN	ALKALINITY_TOT	MG/L	144
SUA-0	2-Jan-96	ICPMS	ALUMINUM	UG/L	50.5
SUA-0	3-Jun-96	ICPMS	ALUMINUM	UG/L	37.2
SUA-0	9-Sep-96	ICPMS	ALUMINUM	UG/L	24.3
SUA-0	3-Mar-97	ICPMS	ALUMINUM	UG/L	150
SUA-0	2-Jun-97	ICPMS	ALUMINUM	UG/L	70.1
SUA-0	2-Sep-97	ICPMS	ALUMINUM	UG/L	13.4
SUA-0	1-Dec-97	ICPMS	ALUMINUM	UG/L	124
SUA-0	2-Mar-98	ICPMS	ALUMINUM	UG/L	1490
SUA-0	7-Dec-98	ICPMS	ALUMINUM	UG/L	177
SUA-0	8-Mar-99	ICPMS_DIG	ALUMINUM	UG/L	50.6
SUA-0	1-Jun-99	ICPMS	ALUMINUM	UG/L	30.9
SUA-0	6-Dec-99	ICPMS_DIG	ALUMINUM	UG/L	38.5
SUA-0	6-Mar-00	ICPMS	ALUMINUM	UG/L	96.3
SUA-0	11-Sep-00	ICPMS_DIG	ALUMINUM	UG/L	32.7
SUA-0	20-May-96	PLANKTON	ANABAENA	STD_U/ML	2160
SUA-0	24-Jun-96	PLANKTON	ANABAENA	STD_U/ML	328
SUA-0	22-Jul-96	PLANKTON	ANABAENA	STD_U/ML	3360
SUA-0	17-Apr-97	PLANKTON	ANABAENA	STD_U/ML	17
SUA-0	2-Jun-97	PLANKTON	ANABAENA	STD_U/ML	3790
SUA-0	14-Aug-97	PLANKTON	ANABAENA	STD_U/ML	172
SUA-0	19-Jul-99	PLANKTON	ANABAENA	STD_U/ML	80
SUA-0	29-Jan-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	78
SUA-0	29-Feb-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	17
SUA-0	18-Mar-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	60
SUA-0	22-Apr-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	9
SUA-0	24-Jun-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	9
SUA-0	22-Jul-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	9
SUA-0	26-Aug-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	17
SUA-0	16-Sep-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	17
SUA-0	25-Nov-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	60
SUA-0	23-Dec-96	PLANKTON	ANKISTRODESMUS	STD_U/ML	17
SUA-0	17-Mar-97	PLANKTON	ANKISTRODESMUS	STD_U/ML	9
SUA-0	17-Apr-97	PLANKTON	ANKISTRODESMUS	STD_U/ML	17
SUA-0	2-Jun-97	PLANKTON	ANKISTRODESMUS	STD_U/ML	86
SUA-0	17-Jul-97	PLANKTON	ANKISTRODESMUS	STD_U/ML	86
SUA-0	2-Sep-97	PLANKTON	ANKISTRODESMUS	STD_U/ML	69
SUA-0	6-Oct-97	PLANKTON	ANKISTRODESMUS	STD_U/ML	17
SUA-0	29-Oct-98	PLANKTON	ANKISTRODESMUS	STD_U/ML	9
SUA-0	8-Mar-99	PLANKTON	ANKISTRODESMUS	STD_U/ML	18
SUA-0	19-Jul-99	PLANKTON	ANKISTRODESMUS	STD_U/ML	9
SUA-0	13-Sep-99	PLANKTON	ANKISTRODESMUS	STD_U/ML	18
SUA-0	9-Sep-96	ICPMS	ANTIMONY	UG/L	0.11
SUA-0	3-Mar-97	ICPMS	ANTIMONY	UG/L	1.03
SUA-0	2-Sep-97	ICPMS	ANTIMONY	UG/L	0.233
SUA-0	5-Jun-00	ICPMS_DIG	ANTIMONY	UG/L	1.13
SUA-0	2-Jun-97	PLANKTON	APHANIZOMENON	STD_U/ML	250
SUA-0	2-Jan-96	ICPMS	ARSENIC	UG/L	1.15
SUA-0	3-Jun-96	ICPMS	ARSENIC	UG/L	1.31
SUA-0	9-Sep-96	ICPMS	ARSENIC	UG/L	2.48
SUA-0	2-Dec-96	ICPMS	ARSENIC	UG/L	1.53
SUA-0	3-Mar-97	ICPMS	ARSENIC	UG/L	1.06

SUA-0	2-Mar-98	CALC	BICARBONATE	MG/L	104
SUA-0	1-Jun-98	CALC	BICARBONATE	MG/L	66
SUA-0	8-Sep-98	CALC	BICARBONATE	MG/L	123
SUA-0	7-Dec-98	CALC	BICARBONATE	MG/L	128
SUA-0	8-Mar-99	CALC	BICARBONATE	MG/L	131
SUA-0	1-Jun-99	CALC	BICARBONATE	MG/L	117
SUA-0	13-Sep-99	CALC	BICARBONATE	MG/L	113
SUA-0	6-Dec-99	CALC	BICARBONATE	MG/L	161
SUA-0	6-Mar-00	CALC	BICARBONATE	MG/L	157
SUA-0	5-Jun-00	CALC	BICARBONATE	MG/L	117
SUA-0	11-Sep-00	CALC	BICARBONATE	MG/L	137
SUA-0	5-Mar-96	ANIONS_IC	BROMIDE	MG/L	0.105
SUA-0	3-Jun-96	ANIONS_IC	BROMIDE	MG/L	0.11
SUA-0	9-Sep-96	ANIONS_IC	BROMIDE	MG/L	0.12
SUA-0	3-Mar-97	ANIONS_IC	BROMIDE	MG/L	0.111
SUA-0	2-Jun-97	ANIONS_IC	BROMIDE	MG/L	0.105
SUA-0	2-Sep-97	ANIONS_IC	BROMIDE	MG/L	0.134
SUA-0	7-Dec-98	ANIONS_IC	BROMIDE	MG/L	0.119
SUA-0	13-Sep-99	ANIONS_IC	BROMIDE	MG/L	0.116
SUA-0	6-Dec-99	ANIONS_IC	BROMIDE	MG/L	0.115
SUA-0	6-Mar-00	ANIONS_IC	BROMIDE	MG/L	0.121
SUA-0	5-Jun-00	ANIONS_IC	BROMIDE	MG/L	0.125
SUA-0	11-Sep-00	ANIONS_IC	BROMIDE	MG/L	0.151
SUA-0	4-Dec-00	ANIONS_IC	BROMIDE	MG/L	0.117
SUA-0	1-Dec-97	EPA525.2	BUTBENZYL_PHTH	UG/L	0.105
SUA-0	2-Jan-96	ICPMS	CADMIUM	UG/L	0.378
SUA-0	3-Jun-96	ICPMS	CADMIUM	UG/L	0.457
SUA-0	5-Mar-96	CALC	CALCIUM	MG/L	26
SUA-0	9-Sep-96	CALC	CALCIUM	MG/L	29.6
SUA-0	2-Dec-96	CALC	CALCIUM	MG/L	40.8
SUA-0	3-Mar-97	CALC	CALCIUM	MG/L	30.1
SUA-0	2-Jun-97	CALC	CALCIUM	MG/L	42.4
SUA-0	2-Sep-97	CALC	CALCIUM	MG/L	42.4
SUA-0	1-Dec-97	CALC	CALCIUM	MG/L	45.2
SUA-0	2-Mar-98	CALC	CALCIUM	MG/L	24.3
SUA-0	1-Jun-98	CALC	CALCIUM	MG/L	25.8
SUA-0	8-Sep-98	CALC	CALCIUM	MG/L	25.7
SUA-0	7-Dec-98	CALC	CALCIUM	MG/L	33.9
SUA-0	8-Mar-99	CALC	CALCIUM	MG/L	32.3
SUA-0	1-Jun-99	CALC	CALCIUM	MG/L	31.2
SUA-0	13-Sep-99	CALC	CALCIUM	MG/L	32.8
SUA-0	6-Dec-99	CALC	CALCIUM	MG/L	33.7
SUA-0	6-Mar-00	CALC	CALCIUM	MG/L	38.8
SUA-0	5-Jun-00	CALC	CALCIUM	MG/L	30.6
SUA-0	11-Sep-00	CALC	CALCIUM	MG/L	53.2
SUA-0	5-Mar-96	CALC	CARBONATE	MG/L	0
SUA-0	9-Sep-96	CALC	CARBONATE	MG/L	17.8
SUA-0	2-Dec-96	CALC	CARBONATE	MG/L	0
SUA-0	2-Jun-97	CALC	CARBONATE	MG/L	9.5
SUA-0	2-Sep-97	CALC	CARBONATE	MG/L	0
SUA-0	1-Dec-97	CALC	CARBONATE	MG/L	0
SUA-0	2-Mar-98	CALC	CARBONATE	MG/L	0

SUA-0	26-Aug-96	PLANKTON	CILIATE	STD_U/ML	35
SUA-0	16-Sep-96	PLANKTON	CILIATE	STD_U/ML	52
SUA-0	17-Apr-97	PLANKTON	CILIATE	STD_U/ML	43
SUA-0	5-May-97	PLANKTON	CILIATE	STD_U/ML	103
SUA-0	2-Jun-97	PLANKTON	CILIATE	STD_U/ML	517
SUA-0	5-Mar-96	PH_MANUAL	COLOR	COLOR	26
SUA-0	3-Jun-96	COLOR	COLOR	COLOR	34
SUA-0	9-Sep-96	CONDUCTIVITY	COLOR	COLOR	28
SUA-0	2-Dec-96	PH_MANUAL	COLOR	COLOR	30
SUA-0	3-Mar-97	COLOR	COLOR	COLOR	31
SUA-0	2-Jun-97	COLOR	COLOR	COLOR	36
SUA-0	2-Sep-97	PH_MANUAL	COLOR	COLOR	33
SUA-0	1-Dec-97	TURBIDITY	COLOR	COLOR	22.5
SUA-0	2-Mar-98	COLOR	COLOR	COLOR	117
SUA-0	1-Jun-98	TURBIDITY	COLOR	COLOR	34
SUA-0	8-Sep-98	TURBIDITY	COLOR	COLOR	21
SUA-0	7-Dec-98	COLOR	COLOR	COLOR	31
SUA-0	8-Mar-99	COLOR	COLOR	COLOR	23
SUA-0	1-Jun-99	COLOR	COLOR	COLOR	21
SUA-0	13-Sep-99	COLOR	COLOR	COLOR	23
SUA-0	6-Dec-99	COLOR	COLOR	COLOR	29
SUA-0	6-Mar-00	COLOR	COLOR	COLOR	26
SUA-0	5-Jun-00	COLOR	COLOR	COLOR	27
SUA-0	11-Sep-00	COLOR	COLOR	COLOR	19
SUA-0	7-Nov-00	COLOR	COLOR	COLOR	30
SUA-0	4-Dec-00	COLOR	COLOR	COLOR	18
SUA-0	5-Mar-96	TURBIDITY	CONDUCTIVITY	US/CM	317
SUA-0	3-Jun-96	CONDUCTIVITY	CONDUCTIVITY	US/CM	344
SUA-0	9-Sep-96	CONDUCTIVITY	CONDUCTIVITY	US/CM	362
SUA-0	2-Dec-96	CONDUCTIVITY	CONDUCTIVITY	US/CM	358
SUA-0	3-Mar-97	CONDUCTIVITY	CONDUCTIVITY	US/CM	357
SUA-0	2-Jun-97	CONDUCTIVITY	CONDUCTIVITY	US/CM	402
SUA-0	2-Sep-97	PH_MANUAL	CONDUCTIVITY	US/CM	450
SUA-0	1-Dec-97	CONDUCTIVITY	CONDUCTIVITY	US/CM	454
SUA-0	2-Mar-98	CONDUCTIVITY	CONDUCTIVITY	US/CM	294
SUA-0	1-Jun-98	CONDUCTIVITY	CONDUCTIVITY	US/CM	283
SUA-0	8-Sep-98	CONDUCTIVITY	CONDUCTIVITY	US/CM	336
SUA-0	7-Dec-98	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	342
SUA-0	8-Mar-99	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	341
SUA-0	1-Jun-99	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	350
SUA-0	13-Sep-99	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	377
SUA-0	6-Dec-99	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	405
SUA-0	6-Mar-00	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	387
SUA-0	5-Jun-00	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	395
SUA-0	11-Sep-00	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	419
SUA-0	7-Nov-00	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	456
SUA-0	4-Dec-00	CONDUCTIVITY	CONDUCTIVITY	UMHO/CM	447
SUA-0	2-Jan-96	ICPMS	COPPER	UG/L	1.22
SUA-0	3-Jun-96	ICPMS	COPPER	UG/L	4.29
SUA-0	9-Sep-96	ICPMS	COPPER	UG/L	4.41
SUA-0	2-Dec-96	ICPMS	COPPER	UG/L	1.14
SUA-0	2-Jun-97	ICPMS	COPPER	UG/L	1.15

SUA-0	2-Sep-97	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	152
SUA-0	1-Dec-97	HARD_CA_MAN	HARDNESS_TOTAL	MG/L	152
SUA-0	2-Mar-98	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	94.7
SUA-0	1-Jun-98	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	88.4
SUA-0	8-Sep-98	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	104
SUA-0	7-Dec-98	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	120
SUA-0	8-Mar-99	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	118
SUA-0	1-Jun-99	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	120
SUA-0	13-Sep-99	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	129
SUA-0	6-Dec-99	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	133
SUA-0	6-Mar-00	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	127
SUA-0	5-Jun-00	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	128
SUA-0	11-Sep-00	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	128
SUA-0	4-Dec-00	HARD_TOT_MAN	HARDNESS_TOTAL	MG/L	136
SUA-0	2-Jan-96	AA_FL_IRON	IRON	UG/L	165
SUA-0	3-Jun-96	AA_FL_IRON	IRON	UG/L	55.6
SUA-0	2-Dec-96	AA_FL_IRON	IRON	UG/L	101
SUA-0	3-Mar-97	AA_FL_IRON	IRON	UG/L	186
SUA-0	2-Sep-97	AA_FL_DIG_FE	IRON	UG/L	120
SUA-0	1-Dec-97	AA_FL_IRON	IRON	UG/L	140
SUA-0	2-Mar-98	AA_FL_IRON	IRON	UG/L	1200
SUA-0	1-Jun-98	AA_FL_IRON	IRON	UG/L	70.1
SUA-0	8-Sep-98	AA_FL_IRON	IRON	UG/L	67.1
SUA-0	7-Dec-98	AA_FL_IRON	IRON	UG/L	115
SUA-0	8-Mar-99	AA_FL_DIG_FE	IRON	UG/L	72.4
SUA-0	13-Sep-99	AA_FL_DIG_FE	IRON	UG/L	52.9
SUA-0	6-Dec-99	AA_FL_DIG_FE	IRON	UG/L	260
SUA-0	6-Mar-00	AA_FL_IRON	IRON	UG/L	270
SUA-0	4-Dec-00	AA_FL_DIG_FE	IRON	UG/L	198
SUA-0	5-Mar-96	CALC	LANGLIER	.	-0.624
SUA-0	9-Sep-96	CALC	LANGLIER	.	0.912
SUA-0	2-Dec-96	CALC	LANGLIER	.	0.117
SUA-0	2-Jun-97	CALC	LANGLIER	.	0.825
SUA-0	2-Sep-97	CALC	LANGLIER	.	0.73
SUA-0	1-Dec-97	CALC	LANGLIER	.	0.01
SUA-0	2-Mar-98	CALC	LANGLIER	.	-0.48
SUA-0	1-Jun-98	CALC	LANGLIER	.	0.8
SUA-0	8-Sep-98	CALC	LANGLIER	.	0.15
SUA-0	7-Dec-98	CALC	LANGLIER	.	-0.27
SUA-0	1-Jun-99	CALC	LANGLIER	.	1.02
SUA-0	13-Sep-99	CALC	LANGLIER	.	1.15
SUA-0	6-Dec-99	CALC	LANGLIER	.	0.09
SUA-0	5-Jun-00	CALC	LANGLIER	.	1.06
SUA-0	11-Sep-00	CALC	LANGLIER	.	1.06
SUA-0	2-Jan-96	ICPMS	LEAD	UG/L	1.7
SUA-0	3-Jun-96	ICPMS	LEAD	UG/L	3.96
SUA-0	9-Sep-96	ICPMS	LEAD	UG/L	2.45
SUA-0	2-Mar-98	ICPMS	LEAD	UG/L	0.548
SUA-0	5-Mar-96	CALC	MAGNESIUM	MG/L	11.3
SUA-0	9-Sep-96	CALC	MAGNESIUM	MG/L	18.2
SUA-0	2-Dec-96	CALC	MAGNESIUM	MG/L	6.24
SUA-0	3-Mar-97	CALC	MAGNESIUM	MG/L	11

SUA-0	8-Feb-99	EPA524.2	MP_XYLENES	UG/L	0.298
SUA-0	3-May-99	EPA524.2	MP_XYLENES	UG/L	0.391
SUA-0	3-Jun-96	EPA524.2	MTBE	UG/L	17.1
SUA-0	9-Sep-96	EPA524.2	MTBE	UG/L	0.54
SUA-0	5-Jun-97	EPA524.2	MTBE	UG/L	1.71
SUA-0	2-Sep-97	EPA524.2	MTBE	UG/L	1.48
SUA-0	1-Dec-97	EPA524.2	MTBE	UG/L	0.42
SUA-0	13-Aug-98	EPA524.2	MTBE	UG/L	0.507
SUA-0	2-Nov-98	EPA524.2	MTBE	UG/L	1.12
SUA-0	8-Feb-99	EPA524.2	MTBE	UG/L	5.06
SUA-0	3-May-99	EPA524.2	MTBE	UG/L	4.92
SUA-0	9-Aug-99	EPA524.2	MTBE	UG/L	3.37
SUA-0	1-Nov-99	EPA524.2	MTBE	UG/L	1.27
SUA-0	7-Feb-00	EPA524.2	MTBE	UG/L	0.749
SUA-0	1-May-00	EPA524.2	MTBE	UG/L	4.17
SUA-0	7-Aug-00	EPA524.2	MTBE	UG/L	0.263
SUA-0	6-Nov-00	EPA524.2	MTBE	UG/L	1.12
SUA-0	29-Jan-96	PLANKTON	NAVICULA	STD_U/ML	9
SUA-0	20-May-96	PLANKTON	NAVICULA	STD_U/ML	69
SUA-0	24-Jun-96	PLANKTON	NAVICULA	STD_U/ML	17
SUA-0	26-Aug-96	PLANKTON	NAVICULA	STD_U/ML	17
SUA-0	21-Oct-96	PLANKTON	NAVICULA	STD_U/ML	35
SUA-0	25-Nov-96	PLANKTON	NAVICULA	STD_U/ML	26
SUA-0	17-Apr-97	PLANKTON	NAVICULA	STD_U/ML	69
SUA-0	2-Jun-97	PLANKTON	NAVICULA	STD_U/ML	17
SUA-0	6-Oct-97	PLANKTON	NAVICULA	STD_U/ML	9
SUA-0	23-Jan-98	PLANKTON	NAVICULA	STD_U/ML	9
SUA-0	14-May-98	PLANKTON	NAVICULA	STD_U/ML	9
SUA-0	9-Jul-98	PLANKTON	NAVICULA	STD_U/ML	18
SUA-0	8-Sep-98	PLANKTON	NAVICULA	STD_U/ML	27
SUA-0	4-Jan-99	PLANKTON	NAVICULA	STD_U/ML	9
SUA-0	9-Aug-99	PLANKTON	NAVICULA	STD_U/ML	27
SUA-0	13-Sep-99	PLANKTON	NAVICULA	STD_U/ML	9
SUA-0	3-Jun-96	ICPMS	NICKEL	UG/L	1.16
SUA-0	2-Dec-96	ICPMS	NICKEL	UG/L	1.02
SUA-0	2-Sep-97	ICPMS	NICKEL	UG/L	1.33
SUA-0	1-Jun-99	ICPMS	NICKEL	UG/L	1.56
SUA-0	6-Mar-00	ICPMS	NICKEL	UG/L	1.33
SUA-0	2-Mar-98	ANIONS_IC	NITRATE	MG/L	1.17
SUA-0	5-Mar-96	CALC	NON_CARB_HARD	MG/L	2
SUA-0	9-Sep-96	CALC	NON_CARB_HARD	MG/L	36
SUA-0	2-Dec-96	CALC	NON_CARB_HARD	MG/L	13
SUA-0	2-Jun-97	CALC	NON_CARB_HARD	MG/L	17
SUA-0	2-Sep-97	CALC	NON_CARB_HARD	MG/L	9
SUA-0	1-Dec-97	CALC	NON_CARB_HARD	MG/L	6
SUA-0	2-Mar-98	CALC	NON_CARB_HARD	MG/L	9.3
SUA-0	1-Jun-98	CALC	NON_CARB_HARD	MG/L	1.7
SUA-0	8-Sep-98	CALC	NON_CARB_HARD	MG/L	3
SUA-0	7-Dec-98	CALC	NON_CARB_HARD	MG/L	15
SUA-0	8-Mar-99	CALC	NON_CARB_HARD	MG/L	10
SUA-0	1-Jun-99	CALC	NON_CARB_HARD	MG/L	7.5
SUA-0	13-Sep-99	CALC	NON_CARB_HARD	MG/L	7

SUA-0	2-Mar-98 ANIONS_IC	PHOSPHATE_O	MG/L	0.21
SUA-0	5-Mar-96 CALC	PHOSPHATE_POLY	MG/L	0.411
SUA-0	9-Sep-96 CALC	PHOSPHATE_POLY	MG/L	0.484
SUA-0	2-Dec-96 CALC	PHOSPHATE_POLY	MG/L	0.548
SUA-0	3-Mar-97 CALC	PHOSPHATE_POLY	MG/L	0.335
SUA-0	2-Jun-97 CALC	PHOSPHATE_POLY	MG/L	0.378
SUA-0	2-Sep-97 CALC	PHOSPHATE_POLY	MG/L	0.267
SUA-0	1-Dec-97 CALC	PHOSPHATE_POLY	MG/L	0
SUA-0	2-Mar-98 CALC	PHOSPHATE_POLY	MG/L	0.384
SUA-0	1-Jun-98 CALC	PHOSPHATE_POLY	MG/L	0
SUA-0	8-Sep-98 CALC	PHOSPHATE_POLY	MG/L	0.049
SUA-0	8-Mar-99 CALC	PHOSPHATE_POLY	MG/L	0
SUA-0	1-Jun-99 CALC	PHOSPHATE_POLY	MG/L	0.041
SUA-0	13-Sep-99 CALC	PHOSPHATE_POLY	MG/L	0.026
SUA-0	6-Dec-99 CALC	PHOSPHATE_POLY	MG/L	0.266
SUA-0	6-Mar-00 CALC	PHOSPHATE_POLY	MG/L	0.084
SUA-0	5-Jun-00 CALC	PHOSPHATE_POLY	MG/L	0.041
SUA-0	11-Sep-00 CALC	PHOSPHATE_POLY	MG/L	0.052
SUA-0	5-Mar-96 CALC	PHS	PH	7.95
SUA-0	9-Sep-96 CALC	PHS	PH	7.89
SUA-0	2-Dec-96 CALC	PHS	PH	7.74
SUA-0	2-Jun-97 CALC	PHS	PH	7.7
SUA-0	2-Sep-97 CALC	PHS	PH	7.64
SUA-0	1-Dec-97 CALC	PHS	PH	7.6
SUA-0	2-Mar-98 CALC	PHS	PH	8.09
SUA-0	1-Jun-98 CALC	PHS	PH	8.05
SUA-0	8-Sep-98 CALC	PHS	PH	7.99
SUA-0	7-Dec-98 CALC	PHS	PH	7.85
SUA-0	1-Jun-99 CALC	PHS	PH	7.87
SUA-0	13-Sep-99 CALC	PHS	PH	7.81
SUA-0	6-Dec-99 CALC	PHS	PH	7.76
SUA-0	6-Mar-00 CALC	PHS	PH	7.78
SUA-0	5-Jun-00 CALC	PHS	PH	7.83
SUA-0	11-Sep-00 CALC	PHS	PH	7.53
SUA-0	7-Dec-98 EPA555	PICLORAM	UG/L	5 <
SUA-0	6-Dec-99 EPA555	PICLORAM	UG/L	5 <
SUA-0	5-Jun-00 EPA555	PICLORAM	UG/L	5 <
SUA-0	29-Jan-96 PLANKTON	PLK_AM	STD_U/ML	2370
SUA-0	29-Feb-96 PLANKTON	PLK_AM	STD_U/ML	3790
SUA-0	18-Mar-96 PLANKTON	PLK_AM	STD_U/ML	1210
SUA-0	22-Apr-96 PLANKTON	PLK_AM	STD_U/ML	733
SUA-0	20-May-96 PLANKTON	PLK_AM	STD_U/ML	1340
SUA-0	24-Jun-96 PLANKTON	PLK_AM	STD_U/ML	1550
SUA-0	22-Jul-96 PLANKTON	PLK_AM	STD_U/ML	1470
SUA-0	26-Aug-96 PLANKTON	PLK_AM	STD_U/ML	3190
SUA-0	16-Sep-96 PLANKTON	PLK_AM	STD_U/ML	1810
SUA-0	21-Oct-96 PLANKTON	PLK_AM	STD_U/ML	1420
SUA-0	25-Nov-96 PLANKTON	PLK_AM	STD_U/ML	1850
SUA-0	23-Dec-96 PLANKTON	PLK_AM	STD_U/ML	2240
SUA-0	17-Mar-97 PLANKTON	PLK_AM	STD_U/ML	1290
SUA-0	17-Apr-97 PLANKTON	PLK_AM	STD_U/ML	1810
SUA-0	5-May-97 PLANKTON	PLK_AM	STD_U/ML	2200



SUA-0	3-Mar-97	AA_FL_POTASSIUM	POTASSIUM	MG/L	4.09
SUA-0	2-Jun-97	AA_FL_POTASSIUM	POTASSIUM	MG/L	4.59
SUA-0	2-Sep-97	AA_FL_DIG_K	POTASSIUM	MG/L	5.73
SUA-0	1-Dec-97	AA_FL_POTASSIUM	POTASSIUM	MG/L	5.5
SUA-0	2-Mar-98	AA_FL_POTASSIUM	POTASSIUM	MG/L	3.54
SUA-0	1-Jun-98	AA_FL_POTASSIUM	POTASSIUM	MG/L	2.76
SUA-0	8-Sep-98	AA_FL_POTASSIUM	POTASSIUM	MG/L	3.46
SUA-0	7-Dec-98	AA_FL_POTASSIUM	POTASSIUM	MG/L	4.46
SUA-0	8-Mar-99	AA_FL_DIG_K	POTASSIUM	MG/L	2.88
SUA-0	1-Jun-99	AA_FL_POTASSIUM	POTASSIUM	MG/L	3.06
SUA-0	13-Sep-99	AA_FL_DIG_K	POTASSIUM	MG/L	3.38
SUA-0	6-Dec-99	AA_FL_DIG_K	POTASSIUM	MG/L	3.65
SUA-0	6-Mar-00	AA_FL_POTASSIUM	POTASSIUM	MG/L	3.83
SUA-0	5-Jun-00	AA_FL_DIG_K	POTASSIUM	MG/L	3.6
SUA-0	11-Sep-00	AA_FL_DIG_K	POTASSIUM	MG/L	4.17
SUA-0	4-Dec-00	AA_FL_DIG_K	POTASSIUM	MG/L	1.86
SUA-0	2-Jun-97	PLANKTON	PSEUDANABAENA	STD_U/ML	164
SUA-0	14-Aug-97	PLANKTON	PSEUDANABAENA	STD_U/ML	9
SUA-0	2-Sep-97	PLANKTON	PSEUDANABAENA	STD_U/ML	26
SUA-0	6-Oct-97	PLANKTON	PSEUDANABAENA	STD_U/ML	60
SUA-0	16-Apr-98	PLANKTON	PSEUDANABAENA	STD_U/ML	195
SUA-0	14-May-98	PLANKTON	PSEUDANABAENA	STD_U/ML	133
SUA-0	4-Jan-99	PLANKTON	PSEUDANABAENA	STD_U/ML	89
SUA-0	19-Jul-99	PLANKTON	PSEUDANABAENA	STD_U/ML	35
SUA-0	13-Sep-99	PLANKTON	PSEUDANABAENA	STD_U/ML	27
SUA-0	7-Dec-98	EPA525.2	PYRENE_D10	UG/L	1950000
SUA-0	22-Apr-96	PLANKTON	RHIZOLENIA	STD_U/ML	138
SUA-0	24-Jun-96	PLANKTON	RHIZOLENIA	STD_U/ML	35
SUA-0	22-Jul-96	PLANKTON	RHIZOLENIA	STD_U/ML	26
SUA-0	17-Apr-97	PLANKTON	RHIZOLENIA	STD_U/ML	17
SUA-0	2-Jun-97	PLANKTON	RHIZOLENIA	STD_U/ML	17
SUA-0	8-Sep-98	PLANKTON	RHIZOLENIA	STD_U/ML	9
SUA-0	19-Jul-99	PLANKTON	RHIZOLENIA	STD_U/ML	18
SUA-0	29-Jan-96	PLANKTON	ROTIFER	STD_U/ML	690
SUA-0	22-Apr-96	PLANKTON	ROTIFER	STD_U/ML	603
SUA-0	20-May-96	PLANKTON	ROTIFER	STD_U/ML	647
SUA-0	24-Jun-96	PLANKTON	ROTIFER	STD_U/ML	345
SUA-0	22-Jul-96	PLANKTON	ROTIFER	STD_U/ML	259
SUA-0	16-Sep-96	PLANKTON	ROTIFER	STD_U/ML	86
SUA-0	21-Oct-96	PLANKTON	ROTIFER	STD_U/ML	474
SUA-0	23-Dec-96	PLANKTON	ROTIFER	STD_U/ML	517
SUA-0	17-Mar-97	PLANKTON	ROTIFER	STD_U/ML	259
SUA-0	17-Apr-97	PLANKTON	ROTIFER	STD_U/ML	1470
SUA-0	5-May-97	PLANKTON	ROTIFER	STD_U/ML	259
SUA-0	17-Jul-97	PLANKTON	ROTIFER	STD_U/ML	259
SUA-0	14-Aug-97	PLANKTON	ROTIFER	STD_U/ML	690
SUA-0	23-Jan-98	PLANKTON	ROTIFER	STD_U/ML	690
SUA-0	16-Apr-98	PLANKTON	ROTIFER	STD_U/ML	177
SUA-0	29-Oct-98	PLANKTON	ROTIFER	STD_U/ML	177
SUA-0	5-Mar-96	CALC	RYZNER	.	8.58
SUA-0	9-Sep-96	CALC	RYZNER	.	6.98
SUA-0	2-Dec-96	CALC	RYZNER	.	7.63

SUA-0	1-Jun-98	AA_FL_SODIUM	SODIUM	MG/L	20.3
SUA-0	8-Sep-98	AA_FL_SODIUM	SODIUM	MG/L	24.6
SUA-0	7-Dec-98	AA_FL_SODIUM	SODIUM	MG/L	24.2
SUA-0	8-Mar-99	AA_FL_DIG_NA	SODIUM	MG/L	17.6
SUA-0	1-Jun-99	AA_FL_SODIUM	SODIUM	MG/L	25.1
SUA-0	13-Sep-99	AA_FL_DIG_NA	SODIUM	MG/L	27.4
SUA-0	6-Dec-99	AA_FL_DIG_NA	SODIUM	MG/L	32.4
SUA-0	6-Mar-00	AA_FL_SODIUM	SODIUM	MG/L	29.5
SUA-0	5-Jun-00	AA_FL_DIG_NA	SODIUM	MG/L	31.6
SUA-0	11-Sep-00	AA_FL_DIG_NA	SODIUM	MG/L	33.7
SUA-0	4-Dec-00	AA_FL_DIG_NA	SODIUM	MG/L	36
SUA-0	5-Mar-96	ANIONS_IC	SULFATE	MG/L	18.9
SUA-0	3-Jun-96	ANIONS_IC	SULFATE	MG/L	20.6
SUA-0	9-Sep-96	ANIONS_IC	SULFATE	MG/L	21.3
SUA-0	2-Dec-96	ANIONS_IC	SULFATE	MG/L	17.7
SUA-0	3-Mar-97	ANIONS_IC	SULFATE	MG/L	26
SUA-0	2-Jun-97	ANIONS_IC	SULFATE	MG/L	25
SUA-0	2-Sep-97	ANIONS_IC	SULFATE	MG/L	32
SUA-0	1-Dec-97	ANIONS_IC	SULFATE	MG/L	28
SUA-0	2-Mar-98	ANIONS_IC	SULFATE	MG/L	32
SUA-0	1-Jun-98	ANIONS_IC	SULFATE	MG/L	28.7
SUA-0	8-Sep-98	ANIONS_IC	SULFATE	MG/L	31
SUA-0	7-Dec-98	ANIONS_IC	SULFATE	MG/L	30.4
SUA-0	8-Mar-99	ANIONS_IC	SULFATE	MG/L	26.1
SUA-0	1-Jun-99	ANIONS_IC	SULFATE	MG/L	30.3
SUA-0	13-Sep-99	ANIONS_IC	SULFATE	MG/L	31.7
SUA-0	6-Dec-99	ANIONS_IC	SULFATE	MG/L	23.7
SUA-0	6-Mar-00	ANIONS_IC	SULFATE	MG/L	27.4
SUA-0	5-Jun-00	ANIONS_IC	SULFATE	MG/L	28.6
SUA-0	11-Sep-00	ANIONS_IC	SULFATE	MG/L	28.3
SUA-0	4-Dec-00	ANIONS_IC	SULFATE	MG/L	27.1
SUA-0	29-Jan-96	PLANKTON	SYNEDRA	STD_U/ML	43
SUA-0	29-Feb-96	PLANKTON	SYNEDRA	STD_U/ML	922
SUA-0	18-Mar-96	PLANKTON	SYNEDRA	STD_U/ML	52
SUA-0	22-Apr-96	PLANKTON	SYNEDRA	STD_U/ML	655
SUA-0	20-May-96	PLANKTON	SYNEDRA	STD_U/ML	69
SUA-0	24-Jun-96	PLANKTON	SYNEDRA	STD_U/ML	103
SUA-0	22-Jul-96	PLANKTON	SYNEDRA	STD_U/ML	345
SUA-0	16-Sep-96	PLANKTON	SYNEDRA	STD_U/ML	112
SUA-0	21-Oct-96	PLANKTON	SYNEDRA	STD_U/ML	9
SUA-0	25-Nov-96	PLANKTON	SYNEDRA	STD_U/ML	655
SUA-0	23-Dec-96	PLANKTON	SYNEDRA	STD_U/ML	69
SUA-0	17-Apr-97	PLANKTON	SYNEDRA	STD_U/ML	569
SUA-0	5-May-97	PLANKTON	SYNEDRA	STD_U/ML	26
SUA-0	2-Jun-97	PLANKTON	SYNEDRA	STD_U/ML	190
SUA-0	17-Jul-97	PLANKTON	SYNEDRA	STD_U/ML	43
SUA-0	14-Aug-97	PLANKTON	SYNEDRA	STD_U/ML	17
SUA-0	16-Apr-98	PLANKTON	SYNEDRA	STD_U/ML	27
SUA-0	14-May-98	PLANKTON	SYNEDRA	STD_U/ML	1020
SUA-0	9-Jul-98	PLANKTON	SYNEDRA	STD_U/ML	27
SUA-0	7-Dec-98	PLANKTON	SYNEDRA	STD_U/ML	44
SUA-0	4-Jan-99	PLANKTON	SYNEDRA	STD_U/ML	18

SUA-0	2-Jun-97	COLOR	TURBIDITY	NTU	5.06
SUA-0	2-Sep-97	PH_MANUAL	TURBIDITY	NTU	5.45
SUA-0	1-Dec-97	TURBIDITY	TURBIDITY	NTU	3.47
SUA-0	2-Mar-98	COLOR	TURBIDITY	NTU	27
SUA-0	1-Jun-98	TURBIDITY	TURBIDITY	NTU	2.76
SUA-0	8-Sep-98	TURBIDITY	TURBIDITY	NTU	2.11
SUA-0	7-Dec-98	TURBIDITY	TURBIDITY	NTU	3.58
SUA-0	8-Mar-99	TURBIDITY	TURBIDITY	NTU	1.96
SUA-0	1-Jun-99	TURBIDITY	TURBIDITY	NTU	2
SUA-0	13-Sep-99	TURBIDITY	TURBIDITY	NTU	2.44
SUA-0	6-Dec-99	TURBIDITY	TURBIDITY	NTU	4.25
SUA-0	6-Mar-00	TURBIDITY	TURBIDITY	NTU	5.01
SUA-0	5-Jun-00	TURBIDITY	TURBIDITY	NTU	2.9
SUA-0	11-Sep-00	TURBIDITY	TURBIDITY	NTU	1.61
SUA-0	7-Nov-00	TURBIDITY	TURBIDITY	NTU	4.2
SUA-0	4-Dec-00	TURBIDITY	TURBIDITY	NTU	2.03
SUA-0	14-May-98	PLANKTON	ULOTHRIX	STD_U/ML	2260
SUA-0	2-Jan-96	ICPMS	ZINC	UG/L	3.46
SUA-0	3-Jun-96	ICPMS	ZINC	UG/L	4.05
SUA-0	9-Sep-96	ICPMS	ZINC	UG/L	9.19
SUA-0	2-Dec-96	ICPMS	ZINC	UG/L	9.16
SUA-0	2-Mar-98	ICPMS	ZINC	UG/L	3.11
SUA-0	8-Mar-99	ICPMS_DIG	ZINC	UG/L	9.98

Sutherland phos data

			as PO4	as P
SUA-0	5-Mar-96	PHOSPH_ PHOSPHA MG/L	0.411	0.126074
SUA-0	3-Jun-96	PHOSPH_ PHOSPHA MG/L	0.486	0.14908
SUA-0	9-Sep-96	PHOSPH_ PHOSPHA MG/L	0.484	0.148466
SUA-0	2-Dec-96	PHOSPH_ PHOSPHA MG/L	0.548	0.168098
SUA-0	3-Mar-97	PHOSPH_ PHOSPHA MG/L	0.335	0.102761
SUA-0	2-Jun-97	PHOSPH_ PHOSPHA MG/L	0.378	0.115951
SUA-0	2-Sep-97	PHOSPH_ PHOSPHA MG/L	0.267	0.081902
SUA-0	2-Mar-98	PHOSPH_ PHOSPHA MG/L	0.594	0.182209
SUA-0	1-Jun-98	PHOSPH_ PHOSPHA MG/L	0.06	0.018405
SUA-0	8-Sep-98	PHOSPH_ PHOSPHA MG/L	0.049	0.015031
SUA-0	7-Dec-98	PHOSPH_ PHOSPHA MG/L	0.082	0.025153
SUA-0	1-Jun-99	PHOSPH_ PHOSPHA MG/L	0.041	0.012577
SUA-0	13-Sep-99	PHOSPH_ PHOSPHA MG/L	0.026	0.007975
SUA-0	6-Dec-99	PHOSPH_ PHOSPHA MG/L	0.266	0.081595
SUA-0	6-Mar-00	PHOSPH_ PHOSPHA MG/L	0.084	0.025767
SUA-0	5-Jun-00	PHOSPH_ PHOSPHA MG/L	0.041	0.012577
SUA-0	11-Sep-00	PHOSPH_ PHOSPHA MG/L	0.052	0.015951
SUA-0	2-Mar-98	ANIONS_I PHOSPHA MG/L	0.21	0.064417
SUA-0	5-Mar-96	CALC PHOSPHA MG/L	0.411	0.126074
SUA-0	9-Sep-96	CALC PHOSPHA MG/L	0.484	0.148466
SUA-0	2-Dec-96	CALC PHOSPHA MG/L	0.548	0.168098
SUA-0	3-Mar-97	CALC PHOSPHA MG/L	0.335	0.102761
SUA-0	2-Jun-97	CALC PHOSPHA MG/L	0.378	0.115951
SUA-0	2-Sep-97	CALC PHOSPHA MG/L	0.267	0.081902
SUA-0	1-Dec-97	CALC PHOSPHA MG/L	0	
SUA-0	2-Mar-98	CALC PHOSPHA MG/L	0.384	0.117791
SUA-0	1-Jun-98	CALC PHOSPHA MG/L	0	0
SUA-0	8-Sep-98	CALC PHOSPHA MG/L	0.049	0.015031
SUA-0	8-Mar-99	CALC PHOSPHA MG/L	0	0
SUA-0	1-Jun-99	CALC PHOSPHA MG/L	0.041	0.012577
SUA-0	13-Sep-99	CALC PHOSPHA MG/L	0.026	0.007975
SUA-0	6-Dec-99	CALC PHOSPHA MG/L	0.266	0.081595
SUA-0	6-Mar-00	CALC PHOSPHA MG/L	0.084	0.025767
SUA-0	5-Jun-00	CALC PHOSPHA MG/L	0.041	0.012577
SUA-0	11-Sep-00	CALC PHOSPHA MG/L	0.052	0.015951

Sutherland Reservoir

Source Desc	Sample Date	Ammonia-N	Chloride	Nitrate	Nitrite (NO2)	Ortho phosphates	Sulfate	Total Kjeldahl Nitrogen	Units
SU STATION A Surface	3-Mar-97		28.7	ND		ND	26	0.77	mg/L
SU STATION A Surface	2-Jun-97		30.3				25	0.91	mg/L
SU STATION A Surface	2-Sep-97		35.3	ND		ND	32	1.04	mg/L
SU STATION A Surface	1-Dec-97		29.4	ND		ND	28	1.4	mg/L
SU STATION A Surface	2-Mar-98		27.6	1.17		0.21	32		mg/L
SU STATION A Surface	1-Jun-98		26.8	ND		ND	28.7	0.94	mg/L
SU STATION A Surface	8-Sep-98		29.8	ND		ND	31	0.75	mg/L
SU STATION A Surface	7-Dec-98		27.2				30.4	0.73	mg/L
SU STATION A Surface	8-Mar-99		22.9	ND		ND	26.1	0.81	mg/L
SU STATION A Surface	1-Jun-99		30.6	ND		ND	30.3	0.81	mg/L
SU STATION A Surface	13-Sep-99		31.9	ND		ND	31.7	0.89	mg/L
SU STATION A Surface	6-Dec-99		26.2	ND		ND	23.7	0.91	mg/L
SU STATION A Surface	6-Mar-00		29.4	ND		ND	27.4	0.82	mg/L
SU STATION A Surface	5-Jun-00		31.4	ND		ND	28.6	0.78	mg/L
SU STATION A Surface	11-Sep-00		32.1	ND		ND	28.3	0.76	mg/L
SU STATION A Surface	4-Dec-00		35.6	ND		ND	27.1	0.95	mg/L
SU STATION A Surface	5-Mar-01		34.4	ND		ND	31.8	0.88	mg/L
SU STATION A Surface	4-Jun-01		32.5	ND	ND	ND	33	0.56	mg/L
SU STATION A Surface	9-Jul-01	ND		ND	ND	ND		0.63	mg/L

The following files were submitted by the City of San Diego along with other data files for use in the 303(d) assessment. These files, however, were not used in the assessment, as they do not contain pertinent water quality data. Instead they contain count numbers, documenting the number of times a particular constituent was tested for by the laboratory doing the water quality analyses. These files are all located on the S-drive under the water bodies name, in the City of San Diego folder, located in the 303dlist file folder. For Sutherland Reservoir, these files are:

SUA\_AN2000  
SUA\_MET2000  
SUA\_ORG2000  
SUA\_ORG22000  
SUA\_SOLIDS2000  
SUA\_TOC2000  
SUA\_TOC1

**From:** "Ronald Coss" <RJC@sdcity.sannet.gov>  
**To:** <303dlist@rb9.swrcb.ca.gov>  
**Date:** Wed, May 16, 2001 1:08 PM  
**Subject:** Water Quality data for 303d list of Impaired Water Bodies forMurray, Miramar and Sutherland Reserv

Attached are the data files for the Murray, Miramar and Sutherland Reservoirs, covering the Water Quality monitoring performed by the City of San Diego Water Quality Laboratory for the years 1995-2001.

Please refer to the individual data sheets (they are in Excel) for the sample dates and locations. If you have any questions please contact Jeffery Pasek, Senior Biologist at 619-668-3240 or at jyp@sdcity.sannet.gov .

Ron Coss  
Source Water Biologist III  
City of San Diego, Water Quality Laboratory  
619-668-3241 office  
619-980-9810 cell phone

**CC:** "John Chaffin" <JEC@sdcity.sannet.gov>, "Jeffery Pasek" <JYP@sdcity.sannet.gov>, "Kent Floro" <KLF@sdcity.sannet.gov>

See for e-tub?

**From:** "Jeffery Pasek" <JYP@sdcity.sannet.gov>  
**To:** <olewk@rb9.swrcb.ca.gov>  
**Date:** 8/16/01 4:35PM  
**Subject:** Re: Hodges and Sutherland watersheds

Kyle Olewnik -

I appologize for the slow response to your inquiry. I've been out-of-town and out-of-communication since mid-July, and just returned this week.

Sutherland Reservoir is a surface water supply to the City of San Diego's municipal water system. Hodges Reservoir is not currently connected to our water supply system, but in the near future it will be.

From our perspective (i.e., from the perspective of a municipal water agency) there are two consistent water quality problems with these reservoirs: 1) bad taste & odors and 2) disinfection by-products. The ultimate cause of these two problems is excessive nutrient loading.

Here's how it works -

1) Bad tastes and odors are the result of agal productivity in the reservoir. Certain taxa of algae produce metabolic by-products which impart objectionable odors or tastes to the water; generally these are moldy or musty odors / tastes. At the same time, algal biomass decomposes in the deep water of the reservoirs; this process yields anoxic "rotten egg" odors. Algal production, of course, is fueled by nutrients ..... so "too much" algae is the result of "too much" nutrients.

2) Disinfection by-products are an unintended consequence of the water treatment process. We use chlorine to inactivate coliform bacteria, viruses, and other pathogens. However, chlorine reacts with naturally occurring organic material in the water to produce a suite of toxic organohalides (e.g. trihalomethanes) ..... many of these are carcinogenic; some cause birth defects; etc. The best way to reduce disinfection by-products in treated water is by limiting the the amount of organic material in the raw source waters. For the most part, most of the organic material in our source water reservoirs results from algal production. So, again, the key for us is limiting nutrient loading into the reservoirs.

Primary production (=algal production) in all of our reservoirs may be either nitrogen-limited or phosphorous-limited ..... it varies seasonally and from one year to the next. So, the specific constituents of concern are nitrate, ammonia, orthophosphate, and maybe nitrite. I don't believe that the monitoring data show these specific constituents exceed Basin Plan numerical standards; but, they are often a problem for our reservoirs at concentrations much lower than Basin Plan standards. I think there is a narrative water quality objective in the Basin Plan something like "..... nutrients sufficient to cause noxious algal growth....." Would this standard apply to the processes I described above?

In a more straight forward case ..... I believe the monitoring data show that coliform bacteria in Hodges Reservoir often exceed the Basin Plan standards for recreational contact.

.....JP

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>>> "Kyle Olewnik" <olewk@rb9.swrcb.ca.gov> 07/26/2001 >>>  
Hi Jeffrey,



I am currently reviewing water sampling data that Ron Cross had electronically submitted to our Regional Board office in May for Hodges and Sutherland watersheds. We appreciate the information provided to us. I will be reviewing the data to look for any notable water quality problems, but I wanted to check with you if you felt there are any known water quality problems in these watersheds, or if there were any particular pollutants you'd like us to pay more attention to.

We will look at all of the data, but I just wanted to see if you had any specific concerns in case I overlook something.

Thank you,

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