Table C-11.1 - Applicable Water Quality Guidance for the Protection of Aquatic Life

Water Quality Measurement	California Toxics Rule (CTR) Freshwater dissolved metals H=ln(water hardness in mg/L as $CaCO_3$)	CTR Saltwater Dissolved metals	Ocean Plan Toxic Mat. Limits Total metals	Region 8/9 Basin Plans
Lead ug/L H=ln Hardness	4 day =[1.462-0.146H][exp(1.273H-4.705)] 1 hour =[1.462-0.146H][exp(1.273H-1.460)]	4day = 8.1 1hr = 210	Daily max = 8 Inst. max = 20	
Cadmium ug/L	4 day = [1.107-0.042H][exp(0.7852H-2.715)] 1 hour = [1.137-0.042H][exp(1.128H-3.6867)]	4day = 9.3 1hr =42	Daily max = 4 Inst. max = 10	
Hexavalent Chromium ug/L		4day = 50 1hr = 1100	Daily max = 8 Inst. max = 20	
Nickel ug/L	4 day = 0.997[exp(0.846H+0.0584)] 1 hour = 0.998[exp(0.846H + 2.255)]	4day = 8.2 1hr = 74	Daily max = 50 Inst. max = 20	
Copper ug/L	4 day = 0.96[exp(0.8545H-1.702)] 1 hour = 0.96[exp(0.9422H-1.70)]	4day = 3.1 1hr = 4.8	Daily max = 12 Inst. max = 30	
Silver ug/L	1 hour = 0.85[exp(1.72H-6.52)]	1hr = 1.9	Daily max = 2.8 Inst. max = 7	
Zinc ug/L	4 day = 0.986[exp(0.8473H+0.884)] 1 hour = 0.978[exp(0.8473H+0.884)]	4 day = 81 1 hr = 90	Daily max = 80 Inst. max = 200	
Turbidity				Natural / Max. increase 0-50 NTU / 20% over natural 50-100 NTU / 10 NTU >100 NTU / 10% over natural
pH				6.5 - 8.5 freshwater 7.0 - 9.0 saltwater (SDR) 7.0 - 8.5 saltwater (SAR)
Dissolved Oxygen				>5.0 mg/L MAR & WARM >6.0 mg/L COLD
Unionized Ammonia*				SDR = 0.025 in receiving waters SAR (See below)

* [Unionized Ammonia] = $\frac{[NH_4\text{-}N]+[NH_3\text{-}N]}{1+10^{(pKa-pH)}}$ where $pka = 0.09018 + \frac{2729.92}{T}$

T= degrees Kelvin = C+273.16

SAR Unionized Ammonia (UIA) Criteria for waterbodies designated as WARM

Acute Objective = 0.822[0.87/FT/FPH/2] where

$FT = 10^{0.03(20-T)}$ $0 \le T \le 25^oC$

$FT = 0.7079$ $25 \le T \le 30^oC$

$FHP = [1+10^{(7.4-pH)}]/1.25$ $6.5 \le pH \le 9$

$FHP = 1$ $8 \le pH \le 9$

Chronic Objective = 0.822[0.87/FT/FHP/RATIO] where

$FT = 10^{0.03(20-T)}$ $0 \le T \le 20^oC$

$FT = 1$ $20 \le T \le 30^oC$

$FHP = [1+10^{(7.4-pH)}]/1.25$ $6.5 \le pH \le 8$

$FHP = 1$ $8 \le pH \le 9$

$RATIO = \frac{24[10^{(7.7-pH)}]}{1+10^{(7.4-pH)}}$ $6.5 \le pH \le 7.7$

$RATIO = 13.5$ $7.7 \le pH \le 9$

Table C-11.2 - Applicable Sediment Quality Guidelines for the Protection of Marine Aquatic Life

NOAA's Screening Concentrations

Metals (ppm) dry weight	ER-L	ER-M
Cadmium	1.2	9.6
Chromium	81	370
Copper	34	270
Lead	46.7	218
Mercury	0.15	0.71
Nickel	20.9	51.6
Silver	1.0	3.7
Zinc	150	410
Organics (ppb) dry weight		
Acenaphthene	16	500
Acenaphthylene	44	640
Anthracene	85.3	1100
Fluorene	19	540
2-Methyl naphthalene	70	670
Naphthalene	160	2100
Phenanthrene	240	1500
Low molecular weight PAHs	552	3160
Benzo(a)anthracene	261	1600
Benzo(a)pyrene	430	1600
Chrysene	384	2800
Dibenzo(a,h)anthracene	63.4	260
Fluoranthene	600	5100
Pyrene	665	2600
High molecular weight PAHs	1700	9600
Total PAHs	4022	44792
Chlordane	0.05	6
p,p' –DDD	2	20
p,p' –DDE	2.2	27
p,p' –DDT	1	7
Total DDT	1.58	46.1
Dieldrin	0.02	8.0
Total PCBs	22.7	180

ER-L - Effects Range Low

The ERL represents the concentration corresponding to the 10th percentile in toxicity testing. No effects are likely below the ER-L.

ER-M - Effects Range Median

The ERM represents the concentration corresponding to the 50th percentile or median value. Effects are likely above the ER-M.

SCCWRP Iron Normalization Regression Coefficients

Iron (% dry) Versus	Sample Size	r^2	Slope (m)	Intercept (b)	± 99% Prediction Interval
Cadmium (mg/dry g)	83	0.734	0.0978	0.0055	0.1274
Chromium (mg/dry g)	88	0.882	16.50	-0.021	11.56
Copper (mg/dry g)	96	0.833	7.40	-2.01	6.50
Lead (mg/dry g)	103	0.738	4.350	0.0836	5.199
Nickel (mg/dry g)	110	0.533	9.850	-0.407	19.596
Silver (mg/dry g)	99	0.581	0.0795	-0.0183	0.1426
Zinc (mg/dry g)	88	0.967	31.50	-1.95	15.45

Table C-11.3 - IBI Metrics Used to Characterize Communities

Metric	Description	Response to Impairment
Richness Measures		
Taxa Richness	Total number of individual taxa	Decrease
EPT Taxa	Number of taxa in the Ephemeroptera (mayfly), Plecoptera (stonefly) and Trichoptera (caddisfly) insect orders	Decrease
Ephemeroptera Taxa	Number of taxa in the insect order Ephemeroptera (mayflies)	Decrease
Plecoptera Taxa	Number of taxa in the insect order Plecoptera (stoneflies)	Decrease
Trichoptera Taxa	Number of taxa in the insect order Trichoptera (caddisflies)	Decrease
Composition Measures		
EPT Index	Percent composition of mayfly, stonefly, and caddisfly larvae	Decrease
Sensitive EPT Index	Percent composition of mayfly, stonefly, and caddisfly larvae with tolerance values between 0 and 3	Decrease
Shannon Diversity	General measure of sample diversity that incorporates richness and evenness (Shannon and Weaver 1963)	Decrease
Tolerance/Intolerance Measures		
Tolerance Value	Value between 0 and 10 weighted for abundance of individuals designated as pollution tolerant (higher values) or intolerant (lower values)	Increase
Percent Intolerant Organisms	Percent of organisms in sample that are highly intolerant to impairment as indicated by a tolerance value of 0, 1 or 2	Decrease
Percent Tolerant Organisms	Percent of organisms in sample that are highly tolerant to impairment as indicated by a tolerance value of 8, 9 or 10	Increase
Percent Dominant Taxa	Percent composition of the single most abundant taxon	Increase
Percent Hydropsychidae	Percent of organisms in the caddisfly family Hydropsychidae	Increase
Percent Baetidae	Percent of organisms in the mayfly family Baetidae	Increase
Functional Feeding Groups (FFG)		
Percent Collector	Percent of macrobenthos that collect or gather fine particulate matter	Increase
Percent Filterers	Percent of macrobenthos that filter fine particulate matter	Increase
Percent Grazers	Percent of macrobenthos that graze upon periphyton	Variable
Percent Predators	Percent of macrobenthos that feed on other organisms	Variable
Percent Shredders	Percent of macrobenthos that shreds coarse particulate matter	Decrease
Abundance		
Estimated Abundance	Estimated number of BMIs in sample calculated by extrapolating from the proportion of organisms counted in the subsample	Variable

Table C-11.4 - IBI Scoring Ranges for the Seven Metrics Included in the IBI Values

Metric Scoring Ranges for the Southern California IBI										
Metric Score	**Coleoptera Taxa**	**EPT Taxa**		**Predator Taxa**	**% Collector Individuals**		**% Intolerant Individuals**		**% Non-Insect Taxa**	**% Tolerant Taxa**
	All Sites	**6**	**8**	**All Sites**	**6**	**8**	**6**	**8**	**All Sites**	**All Sites**
10	>5	>17	>18	>12	0-59	0-39	25-100	42-100	0-8	0-4
9		16-17	17-18	12	60-63	40-46	23-24	37-41	9-12	5-8
8	5	15	16	11	64-67	47-52	21-22	32-36	13-17	9-12
7	4	13-14	14-15	10	68-71	53-58	19-20	27-31	18-21	13-16
6		11-12	13	9	72-75	59-64	16-18	23-26	22-25	17-19
5	3	9-10	11-12	8	76-80	65-70	13-15	19-22	26-29	20-22
4	2	7-8	10	7	81-84	71-76	10-12	14-18	30-34	23-25
3		5-6	8-9	6	85-88	77-82	7-9	10-13	35-38	26-29
2	1	4	7	5	89-92	83-88	4-6	6-9	39-42	30-33
1		2-3	5-6	4	93-96	89-94	1-3	2-5	43-46	34-37
0	0	0-1	0-4	0-3	97-100	95-100	0	0-1	47-100	38-100
Cumulative IBI Scores										
Very Poor 0-19		**Poor 20-39**		**Fair 40-59**		**Good 60-79**		**Very Good 80-100**		

6 – Coastal Scrub Oak Habitat
8 – Coastal Mountains

Table C-11.5 - Decision framework for Interpreting Triad Results

	Chemistry	Toxicity	Benthic Alteration	Example Conclusions	Possible Actions or Decisions
1.	Exceedance of water quality objectives	Evidence of toxicity	Indications of alteration	Strong evidence of pollution-induced degradation	Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority
2.	No persistent exceedances of water quality objectives	No evidence of toxicity	No indications of alteration	No evidence of current pollution-induced degradation Potentially harmful pollutants not yet concentrated enough to cause visible impact	No immediate action necessary Conduct periodic broad scans for new and/or potentially harmful pollutants
3.	Exceedance of water quality objectives	No evidence of toxicity	No indications of alteration	Contaminants are not bioavailable Test organisms not sensitive to problem pollutants	TIE would not provide useful information with no evidence of toxicity Continue monitoring for toxic and benthic impacts Initiate upstream source identification as a low priority Consider whether different or additional test organisms should be evaluated
4.	No persistent exceedances of water quality objectives	Evidence of toxicity	No indications of alteration	Unmeasured contaminant(s) or conditions have the potential to cause degradation Pollutant causing toxicity at very low levels	Recheck chemical analyses; verify toxicity test results Consider additional advanced chemical analyses Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a medium priority
5.	No persistent exceedances of water quality objectives	No evidence of toxicity	Indications of alteration	Alteration may not be due to toxic contamination Test organisms not sensitive to problem pollutants	No action necessary due to toxic chemicals Initiate upstream source identification (for physical sources) as a high priority Consider whether different or additional test organisms should be evaluated

	Chemistry	Toxicity	Benthic Alteration	Example Conclusions	Possible Actions or Decisions
6.	Exceedance of water quality objectives	Evidence of toxicity	No indications of alteration	Toxic contaminants are bioavailable, but in situ effects are not demonstrable Benthic analysis not sensitive enough to detect impact Potentially harmful pollutants not yet concentrated enough to change community	Determine if chemical and toxicity tests indicate persistent degradation Recheck benthic analyses; consider additional data analyses If recheck indicates benthic alteration, perform TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority If recheck shows no effect, use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a medium priority
7.	No persistent exceedances of water quality objectives	Evidence of toxicity	Indications of alteration	Unmeasured toxic contaminants are causing degradation Pollutant causing toxicity at very low levels Benthic impact due to habitat disturbance, not toxicity	Recheck chemical analyses and consider additional advanced analyses Use TIE to identify contaminants of concern, based on TIE metric Initiate upstream source identification as a high priority Consider potential role of physical habitat disturbance
8.	Exceedance of water quality objectives	No evidence of toxicity	Indications of alteration	Test organisms not sensitive to problem pollutants Benthic impact due to habitat disturbance, not toxicity	TIE would not provide useful information with no evidence of toxicity Initiate upstream source identification as a high priority Consider whether different or additional test organisms should be evaluated Consider potential role of physical habitat disturbance

Table C-11.6 - Stream Bioassessment Monitoring Sites in SDR

Hydrologic Unit	Station Designation	Location	Station Coordinates	Elevation
San Mateo	CC-CR	Christianitos Creek at Christianitos Road	33° 27.996' 117° 34.085'	240
San Clemente	SD-AP	Segunda Descheca upstream of Avenida Presidio	33° 26.618' 117° 36.918'	110
San Juan Creek	TC-AP	Trabuco Creek at the end of Avery Parkway	33° 32.385' 117° 39.783'	230
	TC-DO	Trabuco Creek at Del Obispo Rd.	33° 29.865' 117° 39.966'	80
	SJC-74	San Juan Creek at Highway 74	33° 31.156' 117° 37.514'	160
	SJC-CC	San Juan Creek between Camino Capistrano and I-5	33° 29.519' 117° 39.774'	70
Dana Point	SC-MB	Salt Creek at Monarch Beach Golf Links	33° 28.991' 117° 43.204'	60
Aliso Creek	AC-CCR	Aliso Creek at Country Club Rd	33° 30.749' 117° 44.959'	15
	ACJ01	Aliso Creek in Aliso/Woods Canyon Park	33° 32.610' 117° 43.950'	75
	AC-PPD	Aliso Creek at Pacific Park Dr.	33° 34.369' 117° 42.984'	195
	EC-MD	English Creek at Madero Dr.	33° 37.650' 117° 40.823'	430
	WC-WCT	Wood Creek in Wood Canyon Park, upstream of mile marker 2.0	33° 34.151' 117° 44.899'	145
Laguna	LC-133	Laguna Canyon Creek along Highway 133	33° 34.421' 117° 45.786'	175
Reference Sites	REF-CS	San Juan Creek at Cold Spring	33° 34.967' 117° 31.409'	605
	REF-BC	Bell Creek in the Starr Ranch Audubon Sanctuary	33° 38.168' 117° 33.349'	1015
	REF-TCAS	Arroyo Trabuco upstream of Alder Spring	33° 40.451' 117° 32.058'	1510

Table C-11.7
Aqueous Toxicity during Bioassessment Surveys in the SDR: 2008-09

				Ceriodaphnia			Fathead Minnow			Hyalella azteca	Selenastrum
			Spec Cond	Survival		Reproduction	Survival	Survival	Growth	Survival	Growth
Site	Date	Type	uS	48hr TUa	TUc	TUc	48hr TUa	TUc	TUc	Tua	TUc
AC-CCR	10/23/08 8:20	DT	3410	0	2	> 2	0	1	1	0	1
AC-CCR	4/30/09 10:58	DT	3380	0	2	2	0.31	1	1	0	1
ACJ01	10/22/08 13:30	DT	3490	0	2	2	0	1	1	0.23	1
ACJ01	4/28/09 11:50	DT	3500	0	1	> 2	0.31	1	1	0	1
AC-PPD	10/22/08 14:00	DT	2850	0	1	1	0	1	1	0	1
AC-PPD	4/28/09 10:50	DT	2940	0	1	2	0	1	1	3	1
EC-MD	9/30/08 10:00	DT	2200	0	1	1	0	1	1	3.56	1
EC-MD	4/28/09 10:00	DT	2610	0	1	1	0.41	> 2	1	3.6	1
LC-133	10/1/08 11:10	DT	2080	0	> 2	> 2				0.41	1
LC-133	4/28/09 15:20	DT	2180	0	1	2				3.7	1
REF-BC	4/28/09 9:05	DT	770	0	1	1				3.8	1
REF-CS	10/22/08 8:45	DT	675	0	1	1				0.69	1
REF-CS	4/29/09 9:00	DT	640	0	1	1				0.41	1
REF-TCAS	4/30/09 7:04	DT	636	0	1	1				0.41	1
SC-MB	10/1/08 7:45	DF	3920	0	> 2	> 2				0.91	1
SC-MB	4/28/09 14:15	DT	4600	0	2	> 2				0	1
SD-AP	10/23/08 9:10	DT	5080	0	> 2	> 2				0	1
SD-AP	4/29/09 15:35	DT	5560	0	1	> 2				0	1
SJC-74	4/29/09 12:35	DT	1980	0	1	2				0	1
SJC-CC	10/22/08 12:45	DT	4050	0	1	2				0.69	1
SJC-CC	4/29/09 15:10	DT	3990	0	1	2				0	1
SMC00206	5/18/09 13:19	DT	1400	0	1	1				0	1
SMC00531	5/18/09 7:30	DT	2140	0	1	2					
SMC00873	5/18/09 11:30	DT	1290	0	1	1					
TC-AP	10/23/08 10:00	DT	1540	0	1	> 2				0	1
TC-DO	9/30/08 8:35	DT	2820	0	1	1				0.69	1
TC-DO	4/29/09 14:05	DT	2550	0	1	1				0.41	1
WC-WCT	10/1/08 10:00	DT	1590	0	> 2	1	0	1	1	0.82	1
WC-WCT	4/28/09 12:30	DT	1840	0.59	1	> 2	0.31	1	1	3.8	1

Table C-11.8
Aqueous Chemistry at SDR Urban Stream Bioassessment Sites: 2008-09

Location	Date	Type	Field Measurements				Turbidity	Specific Conductance	pH	Nitrate as NO_3	Ammonia as N	TKN	Total Phosphate as PO_4	ortho phosphate as P	TSS	VSS	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	Hardness as $CaCO_3$
			SC	pH	TEMP	DO																						
			uS		C	mg/L	NTU	uS		mg/L							ng/L				ug/L							mg/L
AC-CCR	10/23/08 8:20	DT	2698	7.89	14.43	10.1	20.2	3410	8.06	5.18	< 0.1	0.49	0.8	0.21	32	7	32	< 10	< 10	< 10	1.4	1.5	3	0.54	20	< 0.5	8.3	1095
AC-CCR	10/23/08 8:20	DF																			< 0.5	< 0.5	1.5	< 0.5	14	< 0.5	5.8	
AC-CCR	4/30/09 10:58	DT					4.2	3380	7.87	5.4	< 0.1	0.73	0.77	0.2	13	< 5	< 10	< 10	< 10	< 10	1.2	< 1	2.4	< 0.5	24	< 1	5.5	1100
AC-CCR	4/30/09 10:58	DF																			< 1	< 1	1.8	< 0.5	24	< 1	5.9	
ACJ01	10/22/08 13:30	DT	3498	7.82	18.44	12.62	8.05	3490	8	9.35	0.15	0.89	0.89	0.22	11	5	< 10	< 10	< 10	< 10	3.3	0.72	2.3	< 0.5	26	< 0.5	14	1165
ACJ01	10/22/08 13:30	DF																			1.1	< 0.5	1.3	< 0.5	25	< 0.5	7.9	
ACJ01	4/28/09 11:50	DT	2917	7.72	17.68	7.74	1.94	3500	7.85	9.95	0.25	0.95	0.94	0.27	< 5	< 5	< 10	< 10	< 10	< 10	2.8	< 0.5	2.9	< 0.5	35	< 0.5	9.9	1150
ACJ01	4/28/09 11:50	DF																			1.8	< 0.5	2	< 0.5	34	< 0.5	8.4	
ACJ01	5/1/09 13:02	DT					2.9	4000	7.89								< 10	< 10	< 10	< 10	2.7	< 0.5	3.5	< 0.5	31	< 0.5	10	1200
ACJ01	5/1/09 13:02	DF																			1.8	< 1	3	< 0.5	35	< 1	10	
AC-PPD	10/22/08 14:00	DT	2828	7.88	19.07	11.13	7.2	2850	8.08	4.9	0.11	0.75	0.7	0.19	10	< 5	< 10	< 10	< 10	< 10	< 0.5	0.67	2.7	< 0.5	4.2	< 0.5	7.7	930
AC-PPD	10/22/08 14:00	DF																			< 0.5	< 0.5	1.5	< 0.5	3.9	< 0.5	4.6	
AC-PPD	4/28/09 10:50	DT	2456	7.72	16.77	9.43	1.71	2940	7.95	5.88	0.92	1.62	1.4	0.41	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	2.9	< 0.5	7.5	< 0.5	4.8	950
AC-PPD	4/28/09 10:50	DF																			< 0.5	< 0.5	2.1	< 0.5	7.7	< 0.5	4.2	
EC-MD	8/20/08 11:29	DT	2062	8.13	23.43	23.06																						670
EC-MD	8/20/08 11:29	DF																			< 0.5	< 0.5	2.3	< 0.5	2	< 0.5	2.6	
EC-MD	9/30/08 10:00	DT	2099	7.92	18.88	11.18	1.14	2200	8.17	< 0.4	0.15	0.6	0.72	0.2	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1.3	< 0.5	5.3	< 0.5	8.8	775
EC-MD	9/30/08 10:00	DF																			< 0.5	< 0.5	1.1	< 0.5	5.3	< 0.5	6.1	
EC-MD	4/28/09 10:00	DT	2181	8.13	15.59	12.09	0.46	2610	8.27	< 0.4	< 0.1	0.6	0.55	0.16	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1.7	< 0.5	7.2	< 0.5	3.3	800
EC-MD	4/28/09 10:00	DF																			< 0.5	< 0.5	1.6	< 0.5	7.8	< 0.5	4.5	
LC-133	10/1/08 11:10	DT	2019	7.23	19.34	5.53	17.7	2080	7.68	< 0.4	< 0.1	0.4	1.22	0.13	34	11	< 10	< 10	< 10	< 10	< 0.5	1.1	2	0.61	4.9	< 0.5	8.2	650
LC-133	10/1/08 11:10	DF																			< 0.5	< 0.5	0.7	< 0.5	4.2	< 0.5	3.7	
LC-133	4/28/09 15:20	DT	1844	7.96	17.59	9.84	0.95	2180	8.04	< 0.4	< 0.1	0.31	0.81	0.24	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	0.71	< 0.5	5.5	< 0.5	< 2	690
LC-133	4/28/09 15:20	DF																			< 0.5	< 0.5	0.69	< 0.5	5.8	< 0.5	< 2	
LC-133	5/1/09 13:01	DT					0.26	2200	8.37								< 10	< 10	< 10	< 10	< 0.5	< 0.5	2.5	< 0.5	4	< 0.5	< 2	670
LC-133	5/1/09 13:01	DF																			< 0.5	< 0.5	2.2	< 0.5	4.3	< 0.5	< 2	
REF-BC	4/28/09 9:05	DT	651	7.83	14.02	10.72	0.29	770	8.1	< 0.4	< 0.1	< 0.2	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1	< 0.5	1.5	< 0.5	< 2	260
REF-BC	4/28/09 9:05	DF																			< 0.5	0.63	17	1.7	2.8	< 0.5	26	
REF-CS	7/10/08 8:30	D					10.2		7.24	0.74	< 0.1	0.41	0.15	0.05	< 5	< 5												
REF-CS	10/22/08 8:45	DT	671	7.85	14.78	10.5	2.46	675	7.98	< 0.4	< 0.1	< 0.2	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1.4	< 0.5	< 0.5	< 0.5	2.4	125
REF-CS	10/22/08 8:45	DF																			< 0.5	< 0.5	1.1	< 0.5	< 0.5	< 0.5	2.5	
REF-CS	4/29/09 9:00	DT	535	8.16	14.78	9.55	1.19	640	7.86	< 0.4	< 0.1	< 0.2	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	0.64	< 0.5	1.1	< 0.5	2.3	190
REF-CS	4/29/09 9:00	DF																			< 0.5	< 0.5	0.54	< 0.5	1.4	< 0.5	2.1	
REF-CS u/s	10/22/08 10:00	DT	673	7.85	14.78	10.5	3.23	658	7.73	< 0.4	< 0.1	< 0.2	0.09	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	0.86	< 0.5	< 0.5	< 0.5	< 2	130
REF-TCAS	4/30/09 7:04	DT	534	7.94	11.99	9.36	0.36	636	7.97	< 0.4	< 0.1	< 0.2	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	0.94	< 0.5	1.5	< 0.5	2	290
REF-TCAS	4/30/09 7:04	DF																			< 0.5	2.8	1.1	< 0.5	2.4	< 0.5	3.8	

Table C-11.8
Aqueous Chemistry at SDR Urban Stream Bioassessment Sites: 2008-09

Location	Date	Type	Field Measurements				Turbidity	Specific Conductance	pH	Nitrate as NO_3	Ammonia as N	TKN	Total Phosphate as PO_4	ortho phosphate as P	TSS	VSS	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	Hardness as $CaCO_3$
			SC	pH	TEMP	DO																						
			uS		C	mg/L	NTU	uS		mg/L							ng/L				ug/L							mg/L
SC-MB	10/1/08 7:45	DT	3684	7.78	18.77	7.41	5.6	3920	8.06	8.02	0.2	1.15	1.61	0.43	12	6	14	< 10	< 10	23								1145
SC-MB	10/1/08 7:45	DF																			< 0.5	1.1	4.5	< 0.5	9.8	< 0.5	25	
SC-MB	4/28/09 14:15	DT	3826	7.7	17.64	6.4	1.58	4600	7.94	9.08	0.16	2.79	1.33	0.4	< 5	< 5	< 10	< 10	< 10	260	0.58	1	3.7	< 0.5	13	< 0.5	9	1400
SC-MB	4/28/09 14:15	DF																			< 0.5	0.62	2.5	< 0.5	13	< 0.5	7	
SD-AP	10/23/08 9:10	DT	3966	7.96	11.13	9.9	1.76	5080	8.06	15	< 0.1	1.28	1.2	0.38	< 5	< 5	< 10	< 10	< 10	< 10	2.5	0.56	3.5	< 0.5	44	< 0.5	9.2	1465
SD-AP	10/23/08 9:10	DF																			0.96	< 0.5	2.6	< 0.5	35	< 0.5	9.7	
SD-AP	4/29/09 15:35	DT	4692	7.66	16.08	11.84	2.45	5560	7.76	15.4	0.16	1.31	0.82	0.22	8	< 5	< 10	< 10	< 10	< 10	2.8	< 1	3	< 1	48	< 1	8.5	1685
SD-AP	4/29/09 15:35	DF																			1.7	< 1	2.9	< 0.5	46	< 1	7.2	
SJC-74	4/29/09 12:35	DT	1667	7.23	17.46	5.33	4.49	1980	7.15	< 0.4	< 0.1	< 0.2	0.13	< 0.02	9	6	< 10	< 10	< 10	< 10	< 0.5	< 0.5	< 0.5	< 0.5	3.9	< 0.5	< 2	625
SJC-74	4/29/09 12:35	DF																			< 0.5	< 0.5	< 0.5	< 0.5	4	< 0.5	< 2	
SJC-CC	10/22/08 12:45	DT	4010	7.29	18.07	10.5	3.9	4050	7.63	3.14	< 0.1	0.73	0.43	0.05	< 5	< 5	< 10	< 10	< 10	< 10	0.84	< 0.5	1.4	< 0.5	15	< 0.5	7.5	125
SJC-CC	10/22/08 12:45	DF																			< 0.5	< 0.5	1.1	< 0.5	15	< 0.5	7.2	
SJC-CC	4/29/09 15:10	DT	3363	7.53	19.56	11.85	2.59	3990	7.35	1.95	< 0.1	0.65	0.19	0.03	< 5	< 5	< 10	< 10	< 10	< 10	< 1	< 1	2.6	< 0.5	18	< 1	< 4	1350
SJC-CC	4/29/09 15:10	DF																			< 1	< 1	1.3	< 0.5	18	< 1	< 4	
SMC00206	5/18/09 13:19	DT					3.1	1400	7.72	< 0.4	< 0.1	0.28	0.37	0.1	8	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	< 0.5	< 0.5	2.7	< 0.5	2.1	500
SMC00206	5/18/09 13:19	DF																			< 0.5	< 0.5	< 0.5	< 0.5	2.6	< 0.5	< 2	
SMC00531	5/18/09 7:30	DT					0.51	2140	8	< 0.4	< 0.1	0.43	0.79	0.24	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1.1	< 0.5	2.7	< 0.5	3.3	700
SMC00531	5/18/09 7:30	DF																			< 0.5	< 0.5	0.69	< 0.5	4.4	< 0.5	< 2	
SMC00873	5/18/09 11:30	DT					0.43	1290	7.4	< 0.4	< 0.1	0.28	0.2	0.05	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1.7	< 0.5	2.1	< 0.5	2.6	380
SMC00873	5/18/09 11:30	DF																			< 0.5	< 0.5	1.2	< 0.5	2.8	< 0.5	4.3	
TC-AP	10/23/08 10:00	DT	1114	7.96	13.27	9.8	1.05	1540	8.1	< 0.4	< 0.1	< 0.4	0.25	0.08	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	0.57	< 0.5	0.99	< 0.5	< 2	510
TC-AP	10/23/08 10:00	DF																			< 0.5	< 0.5	0.65	< 0.5	1.1	< 0.5	2.8	
TC-DO	9/30/08 8:35	DT	2642	7.63	18.81	8.83	2.12	2820	7.8	3.47	0.21	1.96	0.23	< 0.02	< 5	< 5	13	< 10	< 10	46	< 0.5	< 0.5	3.5	< 0.5	13	< 0.5	22	900
TC-DO	9/30/08 8:35	DF																			< 0.5	0.88	3.3	< 0.5	14	< 0.5	20	
TC-DO	4/29/09 14:05	DT	2168	8.32	26.2	16.09	0.49	2550	8.13	< 0.4	< 0.1	0.36	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	1.4	< 0.5	6.6	< 0.5	< 2	815
TC-DO	4/29/09 14:05	DF																			< 0.5	< 0.5	1.4	< 0.5	6.8	< 0.5	< 2	
WC-WCT	10/1/08 10:00	DT	1554	7.82	17.2	8.56	1.24	1590	8.1	9.15	< 0.1	0.77	1.3	0.38	< 5	< 5	< 10	< 10	< 10	< 10	0.65	0.56	2.5	< 0.5	11	< 0.5	6	515
WC-WCT	10/1/08 10:00	DF																			0.56	0.55	2.7	< 0.5	19	< 0.5	12	
WC-WCT	4/28/09 12:30	DT	1538	8.1	13.81	10.92	0.42	1840	8.32	19.1	< 0.1	0.48	1.71	0.52	< 5	< 5	< 10	< 10	< 10	< 10	2	0.58	2.8	< 0.5	13	< 0.5	9.3	610
WC-WCT	4/28/09 12:30	DF																			1.6	0.58	2.5	< 0.5	13	< 0.5	9.4	

Table C-11.9
Correlations of Individual Habitat Scores
with IBI Scores measured from 2002 to 2009

Physical Habitat Variable	R
Sum of Physical Habitat Scores	0.61
Instream Cover	0.54
Channel Alteration	0.53
Sediment Deposition	0.49
Embeddedness	0.48
Riparian Vegetative Zone	0.47
Riffle Frequency	0.45
Vegetation Protection	0.34
Bank Stability	0.33
Velocity / Depth Regimes	0.28
Channel Flow	0.02

Only channel flow did not correlate significantly with IBI score ($p < 0.05$).

Table C-11.10
Mass Loads from Sampled Storms: 2008-09 SDR

Station	Period	Volume Sampled	Type	Nitrate As NO_3	NH_3 as N	TKN	Total Phos. as PO_4	Ortho Phos. as P	TSS	VSS	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as $CaCO_3$
		ac-ft		Tons							lbs									Tons
LCWI02	Nov 25-30, 2008	1	Total	0.005	0.000	0.003	0.004	0.000	0.28	0.04	0.002	0.04	0.06	0.02	0.03	0.001	0.19	0.01	0.002	0.47
			Dissolved								0.001	0.001	0.02	0.001	0.01	0.001	0.03	0.01	0.002	
PDCM01	Nov 25-29, 2008	72	Total	1.2	0.01	0.21	0.16	0.03	7.2	1.3	0.27	0.26	0.78	0.11	2.2	0.01	4.0	0.13	0.25	114
			Dissolved								0.68	0.16	1.7	0.05	6.2	0.05	4.3	0.38	1.2	
	Feb 13-18, 2009	21	Total	0.22	0.007	0.05	0.04	0.005	8.6	0.89	0.54	0.69	1.0	0.13	5.7	0.02	9.8	0.17	0.38	38
			Dissolved								0.43	0.05	0.49	0.02	4.8	0.02	4.8	0.08	0.35	
SDCM02	Nov 25-29, 2008	590	Total	4.5	0.20	1.9	2.1	0.27	242	37	8.1	15	32	6.2	67	0.40	157	5.8	6.1	269
			Dissolved								1.1	1.3	9.2	0.40	32	0.40	25	3.4	5.4	
	Feb 13-18, 2009	132	Total	1.0	0.01	0.17	0.15	0.04	8.0	1.6	0.80	1.1	4.1	0.29	12	0.09	11	0.82	2.4	112
			Dissolved								0.61	0.33	3.1	0.09	11	0.09	4.9	0.73	2.5	
SJNL01	Nov 25-28, 2008	68	Total	0.43	0.02	0.29	0.34	0.02	50	6.8	0.43	3.7	4.2	1.0	4.8	0.05	16	1.1	0.47	48
			Dissolved								0.05	0.05	1.1	0.05	1.6	0.05	1.1	0.41	0.44	
	Feb 14-18, 2009	123	Total	0.37	0.01	0.08	0.15	0.03	11	2.0	0.08	1.1	2.4	0.35	1.9	0.08	4.3	1.6	0.44	63
			Dissolved								0.08	0.08	1.4	0.08	1.2	0.08	1.1	1.3	0.41	
TCOL02	Nov 25-30, 2008	1174	Total	5.8	0.11	3.6	6.1	0.35	992	130	10	81	108	35	81	0.80	387	34	9.4	425
			Dissolved								0.84	0.80	12	0.80	16	0.80	20	10	6.7	
	Feb 13-18, 2009	918	Total	3.7	0.18	1.4	3.3	0.20	914	86	4.2	51	64	17	49	0.86	210	20	7.9	393
			Dissolved								1.6	1.5	12	0.62	13	0.62	30	6.5	6.2	

Table C-11.11
Event Mean Concentrations from Sampled Storms: 2008-09 SDR

Station	Period	Volume Sampled	Type	Nitrate as NO_3	NH_3 as N	TKN	Total Phos. as PO_4	Ortho Phos. as P	TSS	VSS	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as $CaCO_3$
		ac-ft		mg/L							ug/L									mg/L
LCWI02	Nov 25-30, 2008	1	Total	3.8	0.18	1.8	2.7	0.36	207	31	0.74	14	22	7.7	12	0.37	68	3.3	0.74	31
			Dissolved								0.37	0.37	7.7	0.37	3.3	0.37	12	3.3	0.74	
PDCM01	Nov 25-29, 2008	72	Total	12	0.15	2.2	1.6	0.33	73	13	1.4	1.3	4.0	0.55	11	0.07	20	0.65	1.3	13
			Dissolved								3.5	0.81	8.5	0.25	32	0.25	22	1.9	6.0	
	Feb 13-18, 2009	21	Total	7.7	0.25	1.8	1.4	0.17	301	31	9.4	12	18	2.2	99	0.26	171	3.0	6.6	31
			Dissolved								7.5	0.82	8.6	0.26	85	0.26	84	1.4	6.1	
SDCM02	Nov 25-29, 2008	590	Total	5.6	0.25	2.3	2.6	0.34	301	46	5.1	9.1	20	3.9	42	0.25	98	3.6	3.8	46
			Dissolved								0.68	0.79	5.8	0.25	20	0.25	16	2.1	3.4	
	Feb 13-18, 2009	132	Total	5.7	0.08	1.0	0.86	0.20	44	9.0	2.2	3.0	11	0.82	33	0.25	29	2.3	6.8	9.0
			Dissolved								1.7	0.91	8.7	0.25	30	0.25	14	2.0	6.9	
SJNL01	Nov 25-28, 2008	68	Total	4.6	0.18	3.1	3.7	0.26	545	74	2.3	20	23	5.2	26	0.25	86	5.8	2.6	74
			Dissolved								0.25	0.25	6.0	0.25	8.8	0.25	6.0	2.2	2.4	
	Feb 14-18, 2009	123	Total	2.2	0.08	0.46	0.90	0.15	69	12	0.25	3.2	7.3	1.1	5.7	0.25	13	4.9	1.3	12
			Dissolved								0.25	0.25	4.2	0.25	3.6	0.25	3.4	3.8	1.2	
TCOL02	Nov 25-30, 2008	1174	Total	3.6	0.07	2.3	3.8	0.22	622	82	3.3	25	34	11	25	0.25	121	11	2.9	82
			Dissolved								0.26	0.25	3.8	0.25	5.1	0.25	6.2	3.2	2.1	
	Feb 13-18, 2009	918	Total	2.9	0.14	1.1	2.7	0.16	733	69	1.7	20	26	6.9	19	0.35	84	7.9	3.2	69
			Dissolved								0.65	0.61	4.7	0.25	5.4	0.25	12	2.6	2.5	

Table C-11.12
Aqueous Chemistry at SDR Long-Term Mass Loading Sites : 2008-09

Site	Composite Time		Samples		FieldMeasurements				Turbidity	Specific Conductance	pH	Ammonia as N	Nitrate as NO3	TKN	Total Phosphate as PO4	ortho phosphate as P	TSS	VSS	Total Organic Carbon	Dissolved Organic Carbon	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as CaCO3
	Begin	End	Type	#	SC	pH	TEMP	DO																										
					uS		C	mg/L	NTU	uS		mg/L									ng/L				ug/L									mg/L
ACJ01	11/4/08 8:30		ST	1	1011	7.77	16.57	8.35	574	1170	7.4	1.3	11.8	7.14	3.4	0.11	1440	595	31		< 50	< 50	< 50	< 50	45	25	59	17	120	< 0.5	320	12	3.2	362
ACJ01	11/4/08 8:30		SF	1																30					1.4	0.62	**4.9**	< 0.5	38	< 0.5	16	3.5	1.9	
ACJ01	11/26/08 1:05	11/26 2:05	ST	6					483	1150	7.44	1.07	3.2	8.94	6.81	0.11	1890	266	24		< 100	< 100	< 100	450	58	54	110	41	190	0.57	580	22	4.5	350
ACJ01	11/26/08 1:05	11/26 2:05	SF	6																23					0.59	< 0.5	3.4	< 0.5	19	< 0.5	8.1	2.9	2.2	
ACJ01	11/26/08 8:20		SVC		1435	7.89	15.15	10.82																										
ACJ01	11/26/08 4:05	11/27 2:05	ST	12					410	1690	7.56	0.36	2.65	4.17	4.22	0.22	1170	139	11		< 50	< 50	< 50	140	4.8	26	40	22	39	< 0.5	170	15	2.3	580
ACJ01	11/26/08 4:05	11/27 2:05	SF	12																					< 0.5	< 0.5	2.7	< 0.5	11	< 0.5	4.4	3.1	1.7	
ACJ01	11/28/08 8:01		SVC		1799	7.74	16.42	9.66																										
ACJ01	11/27/08 4:05	11/28 8:05	ST	15					127	1780	7.44	0.21	3.65	1.86	1.83	0.23	195	32			< 10	< 10	< 10	< 10	2	6.2	12	5.1	19	< 0.5	49	5.2	1.9	510
ACJ01	11/27/08 4:05	11/28 8:05	SF	15																					< 0.5	< 0.5	2.8	< 0.5	12	< 0.5	8.1	3.1	1.7	
ACJ01	11/28/08 8:55		SVC		2173	7.87	15.61	10.49																										
ACJ01	11/28/08 10:05	11/30 2:05	ST	21					18.4	2750	7.89	< 0.1	4.03	0.95	0.97	0.21	17	7			< 10	< 10	< 10	50	1.6	0.94	4.7	0.62	27	< 0.5	13	4.2	3.7	830
ACJ01	11/28/08 10:05	11/30 2:05	SF	21																					0.76	< 0.5	2	< 0.5	24	< 0.5	6.6	3.9	3.6	
ACJ01	11/30/08 9:08		SVC		2728	8.05	14.98	12.25																										
ACJ01	2/13/09 15:28	2/13 16:28	ST	6					5.32	2760	8.07	0.11	6.25	0.74	0.46	0.13	5	< 5	7.1		< 10	< 10	< 10	< 10	4.1	0.82	5.3	< 0.5	50	< 0.5	19	2.8	7	1315
ACJ01	2/13/09 15:28	2/13 16:28	SF	6																					2.2	0.54	4.6	< 0.5	52	< 0.5	22	2.6	7.7	
ACJ01	2/14/09 9:26		SVC		1335	7.99	11.37	12.56																										
ACJ01	2/13/09 18:28	2/14 16:28	ST	12					34.6	1220	7.76	0.18	2.31	0.78	0.97	0.16	100	18	5.4		< 10	< 10	< 10	12	2.1	4.5	12	2.6	18	< 0.5	39	3.1	2.2	390
ACJ01	2/13/09 18:28	2/14 16:28	SF	12																					0.84	1.3	**5.2**	< 0.5	14	< 0.5	8.7	1.9	2.2	
ACJ01	2/15/09 10:00		SVC		2317	7.85	10.81	12.25																										
ACJ01	2/14/09 18:28	2/16 8:28	ST	20					4.34	2310	8.03	< 0.1	4.38	0.67	0.68	0.17	12	< 5	5.9		< 10	< 10	< 10	< 10	2.3	0.91	5.7	< 0.5	32	< 0.5	16		4.8	665
ACJ01	2/14/09 18:28	2/16 8:28	SF	20																5.6					1.5	< 0.5	4	< 0.5	31	< 0.5	11	2.5	4.9	
ACJ01	2/16/09 10:28	2/17 8:28	ST	12					169	950	7.9	0.17	2.84	1.14	1.75	0.2	338	50	6		< 20	< 20	< 20	< 20	2.2	12	21	6.5	22	< 0.5	65		2.3	305
ACJ01	2/16/09 10:28	2/17 8:28	SF	12																5.6					< 0.5	0.5	**4.9**	< 0.5	9.9	< 0.5	5.2	2.3	1.7	
ACJ01	2/17/09 9:31		DT	1	1500	8.09	11.22	11.3																										
ACJ01	2/17/09 10:28	2/17 14:28	ST	3					214	1060	7.53	0.25	1.27	1.85	2.77	0.17	472	61																
ACJ01	2/19/09 8:42		SVC		2345	7.79	10.82	10.7																										
LCWI02	11/4/08 7:55		ST	1	711	8.05	15.83	10.51	38.8	932	7.58	0.91	9.53	3.33	3.3	0.63	48	13	43		< 50	< 50	< 50	< 50	< 0.5	4.6	54	6.3	8.7	< 0.5	150	3.5	0.52	221
LCWI02	11/4/08 7:55		SF	1																39					< 0.5	1.7	**38**	1.6	6.6	< 0.5	85	2.9	0.55	
LCWI02	11/4/08 7:55		SVC		711	8.05	15.83	10.51																										
LCWI02	11/25/08 23:29	11/26 0:29	ST	6					147	425	7.43	1.06	10	7.12	4.92	0.37	439	118	43		< 10	< 10	< 10	< 10	1.5	18	120	49	19	< 0.5	530	5.1	0.67	90
LCWI02	11/25/08 23:29	11/26 0:29	SF	6																40					< 0.5	1.5	**43**	2.1	6.2	< 0.5	84	1.8	< 0.5	
LCWI02	11/26/08 9:15		SVC		642	7.92	14.67	11.86																										
LCWI02	11/26/08 1:29	11/26 23:29	ST	12					166	742	7.92	0.22	4.61	2.3	3.88	0.46	347	46	15		< 50	< 50	< 50	110	0.82	23	25	10	18	< 0.5	77	5.5	0.78	240
LCWI02	11/26/08 1:29	11/26 23:29	SF	12																					< 0.5	< 0.5	**6.7**	< 0.5	2.9	< 0.5	7.9	3	0.6	
LCWI02	11/28/08 7:16		SVC		744	7.98	15.05	10.77																										
LCWI02	11/27/08 1:29	11/27 11:29	ST	6					18	1150	7.91	<0.1	3.58	1.01	1.2	0.28	25	9			< 10	< 10	< 10	< 10	< 0.5	2.5	16	3.5	4	< 0.5	38		0.52	285
LCWI02	11/27/08 1:29	11/27 11:29	SF	6																					< 0.5	0.53	**11**	< 0.5	3.3	< 0.5	18	3.2	0.52	
LCWI02	11/28/08 9:25		SVC		1763	8.37	15.41	12.59																										
LCWI02	11/27/08 13:29	11/30 1:29	ST	24					1.96	1980	8.14	< 0.1	1.34	0.55	0.69	0.18	< 5	< 5			10	< 10	< 10	< 10	< 0.5	< 0.5	4.2	< 0.5	3.2	< 0.5	4.6		0.76	550
LCWI02	11/27/08 13:29	11/30 1:29	SF	24																					< 0.5	< 0.5	2.4	< 0.5	3.3	< 0.5	4.5	3.8	0.71	
LCWI02	11/30/08 10:00		SVC		1848	8.52	15.12	12.41																										
LCWI02	2/16/09 9:31	2/16 10:31	ST	6					716	328	7.37	0.26	< 0.4	2.35	1.39	0.17	1890	160	4.7		< 20	< 20	< 20	< 20	1.5	97	64	27	69	< 1	220	8.1	1.3	110

Table C-11.12
Aqueous Chemistry at SDR Long-Term Mass Loading Sites : 2008-09

Site	Composite Time		Samples		FieldMeasurements				Turbidity	Specific Conductance	pH	Ammonia as N	Nitrate as NO3	TKN	Total Phosphate as PO4	ortho phosphate as P	TSS	VSS	Total Organic Carbon	Dissolved Organic Carbon	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as CaCO3
	Begin	End	Type	#	SC	pH	TEMP	DO																										
					uS		C	mg/L	NTU	uS		mg/L									ng/L				ug/L									mg/L
LCWI02	2/16/09 9:31	2/16 10:31	SF	6																					< 0.5	0.73	3.8	< 0.5	1.7	< 0.5	5.7	1.2	< 0.5	
LCWI02	2/17/09 10:40		ST	1	804	8.34	10.36	12.59	46	620	8	< 0.1	1.17	0.59	1.09	0.23	87	15	9.2		< 20	< 20	< 20	< 20	< 0.5	48	8.6	2.5	4.6	< 0.5	37	3.5	1	190
LCWI02	2/17/09 10:40		SF	1																7.9					< 0.5	< 0.5	4.8	< 0.5	2.1	< 0.5	16	2.8	0.62	
LCWI02	2/17/09 12:31	2/17 22:31	ST	6					9.24	894	7.9	< 0.1	0.97	0.54	0.67	0.19	9	5	7.4		< 10	< 10	< 10	< 10	< 0.5	0.94	5.9	0.64	2.6	< 0.5	8.9	3	1.3	255
LCWI02	2/17/09 12:31	2/17 22:31	SF	6																7.4					2.7	< 0.5	**5.5**	< 0.5	2.6	< 0.5	5.1	2.7	0.88	
LCWI02	2/18/09 0:51	2/19 8:31	ST	17					1.23	1370	8.33	< 0.1	< 0.4	< 0.4	0.61	0.17	< 5	< 5	7.4		< 10	< 10	< 10	< 10	< 0.5	< 0.5	4.5	< 0.5	3.4	< 0.5	4		1.2	170
LCWI02	2/18/09 0:51	2/19 8:31	SF	17																8.2					< 0.5	< 0.5	4.5	< 0.5	3.7	< 0.5	3.8	3.2	1.1	
LCWI02	2/19/09 9:11		SVC		1584	8.34	9.23	13.01																										
LCWI02	2/19/09 10:31	2/20 14:31	ST	15					0.57	1690	8.22	< 0.1	< 0.4	0.46	0.5	0.15	< 5	< 5	8		< 10	< 10	< 10	< 10	< 0.5	< 0.5	4	< 0.5	3.4	< 0.5	< 2		1.3	520
LCWI02	2/19/09 10:31	2/20 14:31	SF	15																7.4					< 0.5	< 0.5	3.8	< 0.5	3.8	< 0.5	2.1	2.9	1.2	
LCWI02	2/20/09 10:25		SVC		1755	8.6	10.95	13.84																										
PDCM01	11/4/08 9:30		ST	1	2026	7.94	17.01	12.71	14.5	2920	7.64	0.56	12.6	2.06	1.62	0.38	11	< 5	24		< 50	< 50	< 50	< 50	3	1.8	15	0.81	28	< 0.5	54	2.5	3.9	742
PDCM01	11/4/08 9:30		SF	1																19					2	0.97	**12**	< 0.5	27	< 0.5	40	2.4	4.1	
PDCM01	11/25/08 22:06	11/25 23:06	ST	4					254	1450	7.24	1.45	6.83	12.1	9.26	0.09	788	200	38		12	< 10	< 10	< 10										350
PDCM01	11/25/08 22:06	11/25 23:06	SF	4																37					1.1	0.9	**12**	< 0.5	31	< 0.5	45	1.5	1.9	
PDCM01	11/26/09 7:45		SVC		3462	7.63	15.84																											
PDCM01	11/26/08 1:06	11/26 23:06	ST	8					39	4470	8.12	0.12	13	2.18	1.74	0.37	54	10	15		< 10	< 10	< 10	100										1300
PDCM01	11/26/08 1:06	11/26 23:06	SF	8																					3.5	0.83	**8.3**	< 0.5	31	< 0.5	18	2	6.6	
PDCM01	11/28/08 7:00		SVC		973	7.65	16.13	10.72																										
PDCM01	11/27/08 1:06	11/28 5:06	ST	15					35	3170	7.45	0.21	9.5	1.89	1.26	0.23	115	17			10	< 10	< 10	< 10	5.1	5	15	2.1	41	< 0.5	76	2.4	4.6	945
PDCM01	11/27/08 1:06	11/28 5:06	SF	15																					3.4	0.78	**9.1**	< 0.5	33	< 0.5	30	1.7	4.6	
PDCM01	11/28/08 7:30		SVC		4526	7.59	15.87	11.48																										
PDCM01	11/28/08 7:06	11/29 23:06	ST	21					2.23	3070	7.53	< 0.1	5.76	1.53	0.55	0.06	< 5	< 5			< 10	< 10	< 10	< 10	5	0.65	7.6	< 0.5	43	< 0.5	52	1.8	5.2	930
PDCM01	11/28/08 7:06	11/29 23:06	SF	21																					4.6	0.54	**6.8**	< 0.5	41	< 0.5	46	1.7	4.8	
PDCM01	11/30/08 8:50		SVC		2755	7.47	14.68	10.54																										
PDCM01	2/13/09 16:16	2/13 17:16	ST	6					190	1940	7.57	0.3	3.55	3.24	2.87	0.1	564	134	13		< 20	< 20	< 20	< 20	12	17	39	6.4	84	< 0.5	290	4.5	3.6	1000
PDCM01	2/13/09 16:16	2/13 17:16	SF	6																					2.7	1	**7.6**	< 0.5	36	< 0.5	17	1.3	2.8	
PDCM01	2/14/09 8:36		SVC		4380	7.84	11.37	11.81																										
PDCM01	2/13/09 19:16	2/14 17:16	ST	12					180	2960	7.72	0.25	5.74	2.19	2.36	0.25	615	53	13		< 20	< 20	< 20	< 20	7.2	24	23	4.1	81	< 0.5	220	4.3	4.5	960
PDCM01	2/13/09 19:16	2/14 17:16	SF	12																					4.1	0.83	**6.5**	< 0.5	57	< 0.5	67	1.4	4.2	
PDCM01	2/15/09 7:45		SVC		7901	7.8	10.99	9.56																										
PDCM01	2/14/09 19:16	2/16 1:16	ST	16					2.32	7900	8.13	0.12	13.5	1.39	0.34	0.08	< 5	< 5	15		< 10	< 10	< 10	< 10	17	0.79	8.5	< 0.5	180	< 0.5	59	1.5	14	2350
PDCM01	2/14/09 19:16	2/16 1:16	SF	16																15					17	0.57	**8.8**	< 0.5	**170**	< 0.5	45	1.5	13	
PDCM01	2/16/09 3:16	2/17 1:16	ST	12					16.2	4510	8.12	0.24	8.54	1.18	0.69	0.13	30	7	13		< 10	< 10	< 10	< 10	9.4	2.3	12	< 0.5	98	< 0.5	160	1.8	6.9	1365
PDCM01	2/16/09 3:16	2/17 1:16	SF	12																12					8.9	0.98	**11**	< 0.5	**96**	< 0.5	**140**	1.4	6.3	
PDCM01	2/17/09 9:30		SVC		2223	7.75	11.2	11.46																										
PDCM01	2/17/09 3:16	2/17 7:16	ST	3					3.85	6480	7.88	0.21	11.8	1.38	0.5	0.11	< 5	< 5							13	0.73	11	< 0.5	130	< 0.5	45	2.3	11	2180
PDCM01	2/17/09 3:16	2/17 7:16	SF	3																					13	0.62	**9.6**	< 0.5	**130**	< 0.5	39	2.2	9.9	
PDCM01	2/17/09 9:16	2/18 7:16	ST	12					43.6	3210	7.68	0.39	5.64	1.75	0.74	0.08	84	14	15		< 20	< 20	< 20	< 20	6.4	4.6	16	0.95	67	< 0.5	110	2	5	1020
PDCM01	2/17/09 9:16	2/18 7:16	SF	12																14					5.5	0.57	**9.1**	< 0.5	61	< 0.5	71	1.2	4.9	
PDCM01	2/19/09 6:43		SVC		7476	7.86	9.25																											
SDCM02	11/4/08 10:05		ST	1	624	7.75	16.02	13	56	733	7.88	0.64	6.1	1.65	1.69	0.41	65	8	23		< 50	< 50	< 50	< 50	4.1	3.8	18	2	23	< 0.5	79	2.6	1.7	155
SDCM02	11/4/08 10:05		SF	1																19					1.5	0.8	**8.5**	< 0.5	16	< 0.5	33	2	1.4	

Table C-11.12
Aqueous Chemistry at SDR Long-Term Mass Loading Sites : 2008-09

Site	Composite Time		Samples		FieldMeasurements				Turbidity	Specific Conductance	pH	Ammonia as N	Nitrate as NO3	TKN	Total Phosphate as PO4	ortho phosphate as P	TSS	VSS	Total Organic Carbon	Dissolved Organic Carbon	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as CaCO3
	Begin	End	Type	#	SC	pH	TEMP	DO																										
					uS		C	mg/L	NTU	uS		mg/L									ng/L				ug/L									mg/L
SDCM02	11/25/08 22:08	11/25 23:08	ST	4					146	1560	7.08	0.81	13.1	9.82	6.38	0.24	676	228	49		16	< 10	< 10	< 10										370
SDCM02	11/25/08 22:08	11/25 23:08	SF	4																47					0.89	1.2	**20**	< 0.5	25	< 0.5	**100**	1.6	2.9	
SDCM02	11/26/08 6:45		SVC		1783	8.05	15.1																											
SDCM02	11/26/08 1:08	11/26 23:08	ST	12					152	1170	7.51	0.29	5.52	2.62	2.93	0.34	382	57	14		< 50	< 50	< 50	120	6.2	11	24	4.8	49	< 0.5	120	3.8	3.7	320
SDCM02	11/26/08 1:08	11/26 23:08	SF	12																					0.57	0.72	**5.6**	< 0.5	20	< 0.5	16	2	3.1	
SDCM02	11/28/08 6:30		SVC		1744	8.2	15.95	10.53																										
SDCM02	11/27/08 1:08	11/28 7:08	ST	15					43.8	1500	7.84	0.12	5.53	1.5	1.53	0.35	63	13			< 10	< 10	< 10	< 10	1.6	3.7	7.9	1.2	20	< 0.5	33	3	3.7	405
SDCM02	11/27/08 1:08	11/28 7:08	SF	15																					0.84	1	**6**	< 0.5	18	< 0.5	14	2.5	3.9	
SDCM02	11/28/08 8:00		SVC		2266	7.96	14.58	12.17																										
SDCM02	11/28/08 7:08	11/29 11:08	ST	15					4.21	3320	7.98	< 0.1	8.4	1	1.12	0.32	< 5	< 5			< 10	< 10	< 10	23	2.8	0.96	8.7	0.5	39	< 0.5	20	3.4	8.3	920
SDCM02	11/28/08 7:08	11/29 11:08	SF	15																					3.1	0.77	**7.8**	< 0.5	37	< 0.5	16	3.2	8.3	
SDCM02	11/30/08 8:30		SVC		4656	7.1	13.79	12.13																										
SDCM02	2/13/09 16:37	2/13 17:37	ST	6					32.2	3220	7.94	0.27	7.18	1.97	1.13	0.18	53	20	16		< 10	< 10	< 10	< 10	2.3	3	16	1.8	39	< 0.5	76	2.3	8.5	985
SDCM02	2/13/09 16:37	2/13 17:37	SF	6																					1.5	0.95	**9.7**	< 0.5	33	< 0.5	22	1.8	7.6	
SDCM02	2/14/09 9:08		SVC		1305	7.99	9.48	11.7																										
SDCM02	2/13/09 19:37	2/14 17:37	ST	12					46.2	1190	7.95	0.12	3.44	1.44	1.09	0.2	100	15	8.4		< 10	< 10	< 10	< 10	2	5.8	12	1.4	24	< 0.5	35	2.5	3.9	330
SDCM02	2/13/09 19:37	2/14 17:37	SF	12																					0.94	0.82	**6.2**	< 0.5	18	< 0.5	9.4	1.9	4	
SDCM02	2/15/09 8:40		SVC		2558	8.05	10.09	11.57																										
SDCM02	2/15/09 15:33	2/16 7:37	ST	9					3.67	3720	8.13	< 0.1	8.63	0.82	0.71	0.19	9	5	13		< 10	< 10	< 10	< 10	2.9	1.2	15	0.63	49	< 0.5	37	2.2	11	1075
SDCM02	2/15/09 15:33	2/16 7:37	SF	9																13					2.8	0.78	**14**	< 0.5	46	< 0.5	19	2.2	11	
SDCM02	2/16/09 9:37	2/17 7:37	ST	12					5.86	2390	8.14	< 0.1	6.69	0.64	0.76	0.21	8	5	10		< 10	< 10	< 10	< 10	2.1	1.3	8.5	< 0.5	34	< 0.5	15	2.3	7.7	685
SDCM02	2/16/09 9:37	2/17 7:37	SF	12																9.2					1.7	0.89	**7.7**	< 0.5	34	< 0.5	12	2.2	8	
SDCM02	2/17/09 9:01		SVC	1	2319	8.05	10.09	11.97																										
SDCM02	2/17/09 9:37	2/18 1:37	ST	9					20.8	1930	7.65	< 0.1	4.29	0.67	0.74	0.17	40	8	9		< 10	< 10	< 10	< 10	2	2.8	10	0.8	28	< 0.5	30	2	5.6	560
SDCM02	2/17/09 9:37	2/18 1:37	SF	9																8.8					1.8	1.4	**8.8**	< 0.5	27	< 0.5	19	1.8	5.1	
SDCM02	2/19/09 6:13		SVC	1	4603	7.79	8.36																											
SJNL01	11/25/08 22:19	11/25 23:19	ST	6					153	1500	7.41	1.2	6.57	6.06	2.25	0.16	464	114	34		< 10	< 10	< 10	< 10	3.2	15	63	12	32	< 0.5	230	4.1	1.3	320
SJNL01	11/25/08 22:19	11/25 23:19	SF	6																34					< 0.5	0.65	**10**	< 0.5	11	< 0.5	29	1.8	0.67	
SJNL01	11/26/08 9:00		SVC		1014	7.71	14.93																											
SJNL01	11/26/08 1:20	11/26 23:20	ST	12					298	1860	7.2	0.25	6.06	4.26	4.13	0.25	590	82	16		< 50	< 50	< 50	120	3.1	21	28	6.2	34	< 0.5	110	6.2	3.2	580
SJNL01	11/26/08 1:20	11/26 23:20	SF	12																					< 0.5	< 0.5	**5.9**	< 0.5	11	< 0.5	7.6	2.2	2.6	
SJNL01	11/28/08 7:30		SVC		430	7.78	15.04	10.77																										
SJNL01	11/27/08 1:20	11/28 5:20	ST	15					345	1530	7.76	0.13	3.58	2.36	3.34	0.27	510	67			< 100	< 100	< 100	< 100	1.8	19	19	4.5	20	< 0.5	69	5.4	2.1	520
SJNL01	11/27/08 1:20	11/28 5:20	SF	15																					< 0.5	< 0.5	**6**	< 0.5	7.2	< 0.5	4.8	2.2	2.2	
SJNL01	11/28/08 6:30		SVC		4347	7.43	13.6	12.68																										
SJNL01	2/14/09 2:53	2/14 3:53	ST	6					53.4	1540	7.98	0.1	5.87	0.64	1.03	0.15	86	15	6.9		< 20	< 20	< 20	< 20	< 0.5	3.1	7.7	1	6.5	< 0.5	22	6.4	1.5	500
SJNL01	2/14/09 2:53	2/14 3:53	SF	6																					< 0.5	< 0.5	4.4	< 0.5	4.8	< 0.5	3.5	4.7	1.5	
SJNL01	2/14/09 8:20		SVC		1250	7.97	9.81	13.65																										
SJNL01	2/14/09 5:53	2/15 3:53	ST	12					17.2	1380	7.87	<0.1	2.03	0.37	0.57	0.14	25	7	5.9		< 10	< 10	< 10	< 10	< 0.5	1.2	5.2	0.57	3.6	< 0.5	5.9	4.7	1.1	420
SJNL01	2/14/09 5:53	2/15 3:53	SF	12																					< 0.5	< 0.5	4.3	< 0.5	3.9	< 0.5	6.8	3.9	1.1	
SJNL01	2/15/09 9:53	2/17 7:53	ST	21					30.2	1400	7.97	< 0.1	2.64	0.4	0.65	0.11	51	10	5.4		< 20	< 20	< 20	< 20	< 0.5	1.9	6.2	0.79	4.9	< 0.5	9.9	4.1	1.5	400
SJNL01	2/15/09 9:53	2/17 7:53	SF	21																5.5					< 0.5	< 0.5	3.8	< 0.5	3.6	< 0.5	2.4	3.1	1.3	
SJNL01	2/17/09 8:40		SVC		1093	8.7	9.5	11.87																										

Table C-11.12
Aqueous Chemistry at SDR Long-Term Mass Loading Sites : 2008-09

Site	Composite Time		Samples		FieldMeasurements				Turbidity	Specific Conductance	pH	Ammonia as N	Nitrate as NO3	TKN	Total Phosphate as PO4	ortho phosphate as P	TSS	VSS	Total Organic Carbon	Dissolved Organic Carbon	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as CaCO3
	Begin	End	Type	#	SC	pH	TEMP	DO																										
					uS		C	mg/L	NTU	uS		mg/L									ng/L				ug/L									mg/L
SJNL01	2/17/09 9:53	2/18 7:53	ST	12					89	1100	7.62	0.13	1.55	0.58	1.44	0.22	118	18	6.5		< 20	< 20	< 20	< 20	< 0.5	6.3	10	1.7	7.9	< 0.5	21	6	1.2	320
SJNL01	2/17/09 9:53	2/18 7:53	SF	12																6.3					< 0.5	< 0.5	4.7	< 0.5	3.4	< 0.5	2.6	4.7	1.2	
SJNL01	2/18/09 7:27		SVC		1430	8.02	7.77	3.69																										
TCOL02	11/4/08 8:55		ST	1	968	7.97	17.47	10.43	18.2	1450	7.65	0.35	4.3	1	0.73	0.08	12	< 5	20		< 50	< 50	< 50	< 50	< 0.5	1.5	13	4.2	6.4	< 0.5	45	3.2	1.2	410
TCOL02	11/4/08 8:55		SF	1																19					< 0.5	0.74	**7.9**	0.73	5.7	< 0.5	27	2.9	1.1	
TCOL02	11/4/08 8:55		SVC		968	7.97	17.47	10.43																										
TCOL02	11/25/08 23:53	11/26 0:53	ST	5					76	609	7.36	0.65	3.65	2.88	2.33	0.19	263	63	15		< 10	< 10	< 10	< 10	0.61	7	29	9.6	7.8	< 0.5	140	3.6	0.76	140
TCOL02	11/25/08 23:53	11/26 0:53	SF	5																15					< 0.5	0.57	**8.2**	0.62	3	< 0.5	33	1.8	0.56	
TCOL02	11/26/08 9:00		SVC		673	7.93	15.47																											
TCOL02	11/26/08 2:53	11/27 0:53	ST	11					356	897	7.9	<0.1	4.05	2.33	4.04	0.22	592	78	11		< 50	< 50	< 50	120	3.8	28	37	11	28	< 0.5	130	12	3.5	350
TCOL02	11/26/08 2:53	11/27 0:53	SF	11																					< 0.5	< 0.5	3.8	< 0.5	5.5	< 0.5	5.2	3.2	2.4	
TCOL02	11/28/08 8:31		SVC		587	8.09	15.33	10.82																										
TCOL02	11/27/08 1:53	11/27 17:53	ST	9					486	706	7.78	0.12	2.5	2.44	3.93	0.24	851	109			< 10	< 10	< 10	< 10	2.6	25	33	13	24	< 0.5	120	10	1.7	260
TCOL02	11/27/08 1:53	11/27 17:53	SF	9																					< 0.5	< 0.5	3.8	< 0.5	4.1	< 0.5	4.5	3	1.4	
TCOL02	11/28/08 8:15		SVC		1199	8.11	14.59	10.68																										
TCOL02	11/27/08 19:53	11/29 3:53	ST	17					18	1280	7.97	< 0.1	3.7	0.67	0.76	0.15	24	8			< 10	< 10	< 10	45	< 0.5	1.2	5.7	< 0.5	4.9	< 0.5	36		1.9	410
TCOL02	11/27/08 19:53	11/29 3:53	SF	17																					< 0.5	< 0.5	4	< 0.5	4.4	< 0.5	26	3.4	2	
TCOL02	11/29/08 5:53	11/30 3:53	ST	12					1.84	1590	7.97	< 0.1	2.55	0.5	0.46	0.1	< 5	< 5			< 10	< 10	< 10	14	< 0.5	< 0.5	2.4	< 0.5	6	< 0.5	3.6	3.7	1.9	540
TCOL02	11/29/08 5:53	11/30 3:53	SF	12																					1.3	< 0.5	2.6	< 0.5	4.4	< 0.5	6.8	3.9	1.9	
TCOL02	11/30/08 8:30		SVC		1489	8.34	13.24	12.16																										
TCOL02	2/13/09 17:28	2/13 18:28	ST	6					444	1810	8.06	< 0.1	2.46	1.93	4.39	0.16	1660	127	6.4		< 20	< 20	< 20	< 20	2.7	35	42	8	36	< 0.5	130	10	5.6	1100
TCOL02	2/13/09 17:28	2/13 18:28	SF	6																					< 0.5	< 0.5	4.4	< 0.5	8.4	< 0.5	3.8	3.1	5	
TCOL02	2/14/09 8:37		SVC		730	8.36	10.04	13.41																										
TCOL02	2/13/09 19:28	2/14 7:28	ST	7					120	1040	7.71	<0.1	3.5	0.92	1.72	0.12	391	43	4.5		< 20	< 20	< 20	< 20	1.9	14	18	4.6	14	< 0.5	86	6	3.7	380
TCOL02	2/13/09 19:28	2/14 7:28	SF	7																					< 0.5	< 0.5	4.3	< 0.5	4.6	< 0.5	11	2.6	3.4	
TCOL02	2/15/09 8:45		SVC		1283	8.25	9.83	13.85																										
TCOL02	2/15/09 8:28	2/16 12:28	ST	15					7.86	1410	8.21	< 0.1	4.02	0.35	0.44	0.12	13	< 5	4.1		< 10	< 10	< 10	< 10	0.65	0.89	4.6	< 0.5	6.2	< 0.5	6.4	3	3.3	460
TCOL02	2/15/09 8:28	2/16 12:28	SF	15																3.8					1.2	< 0.5	3.8	< 0.5	5.9	< 0.5	3.4	3	3.2	
TCOL02	2/16/09 14:28	2/17 1:16	ST	9					488	706	7.87	0.2	2.53	1.58	3.66	0.18	1220	111	4.5		< 20	< 20	< 20	< 20	2.3	37	41	11	30	< 1	130	12	3.1	245
TCOL02	2/16/09 14:28	2/17 1:16	SF	9																4.5					0.75	1.2	**5.4**	< 0.5	6	< 0.5	23	2.2	1.6	
TCOL02	2/17/09 10:00		SVC		1050	8.13	11.07	12.33																										
TCOL02	2/17/09 10:28	2/18 2:28	ST	10					362	793	7.56	0.21	2.17	1.33	3.81	0.19	834	81	6.3		< 20	< 20	< 20	< 20	1.5	16	26	8.3	18	< 0.5	80	7.2	2.6	195
TCOL02	2/17/09 10:28	2/18 2:28	SF	10																5.1					< 0.5	< 0.5	4.7	< 0.5	4.3	< 0.5	3.2	2.8	2.5	
TCOL02	2/19/09 8:04		SVC		1139	8.26	10.17	11.3																										

Table C-11.13
Comparison of Mass Emissions Data to CTR Criteria

			Exceeded Criteria							
			Freshwater		Saltwater					
	Sample Size		Acute	Chronic	Acute			Chronic		
Station	Acute	Chronic	Cu	Cd	Cu	Ni	Zn	Cd	Cu	Ni
ACJ01	9	2			2				1	2
LCWI02	10	1	2		5				1	
PDCM01	11	2		1	11	3	1	1	2	2
SDCM02	10	2			10		1		2	2
SJNL01	7	1			3				1	
TCOL02	11	2			2				2	
Totals	58	10	2	1	33	3	2		9	6

Table C-11.14
Results of Toxicity Testing at SDR Long-Term Mass Loading Sites: 2008-09

					Sea Urchin		Americamysis bahia		
			Samples		Fertilization	Development	Survival		Growth
Site	Begin	End	Type	#	TUc	TUc	TUa	TUc	TUc
ACJ01	11/4/08 8:30		ST	1	4	1	0	4	1
LCWI02	11/4/08 7:55		ST	1	>16	2	0.77	1	1
LCWI02	2/17/09 10:40		ST	1	1	1	0	1	1
PDCM01	11/4/08 9:30		ST	1	4	1	0.85	2	1
SDCM02	11/4/08 10:05		ST	1	16	1	0.65	2	1
TCOL02	11/4/08 8:55		ST	1	16	1	0.65	2	1
ACJ01	11/26/08 4:05	11/27/08 2:05	ST	12	1	1	0.59	4	1
ACJ01	2/13/09 18:28	2/14/09 16:28	ST	12	1	1	0	1	1
LCWI02	11/26/08 1:29	11/26/08 23:29	ST	12	2	1	0.51	2	1
PDCM01	11/26/08 1:06	11/26/08 23:06	ST	8	1	1	0.97	> 16	4
PDCM01	2/13/09 19:16	2/14/09 17:16	ST	12	1	1	0	1	1
SDCM02	11/26/08 1:08	11/26/08 23:08	ST	12	1	1	1	4	2
SDCM02	2/13/09 19:37	2/14/09 17:37	ST	12	1	1	0.23	1	1
SJNL01	11/26/08 1:20	11/26/08 23:20	ST	12	2	1	0.82	4	2
SJNL01	2/14/09 5:53	2/15/09 3:53	ST	12	1	1	0.51	1	1
TCOL02	11/26/08 2:53	11/27/08 0:53	ST	11	1	1	0	2	1
TCOL02	2/13/09 19:28	2/14/09 7:28	ST	7	1	1	0	1	1

Table C-11.14a
Additional Analyses at SDR Long-Term Mass Loading Sites

		Site	ACJ01	ACJ01	ACJ01	ACJ01	ACJ01	LCWI02	LCWI02	LCWI02	LCWI02	LCWI02
		Date	11/4/08	11/26/08	11/26/08	2/13/09	2/14/09	11/4/08	11/25/08	11/26/08	2/16/09	2/17/09
		Start Time	8:30	1:05	4:05	15:28	18:28	7:55	23:29	1:29	9:31	10:40
		Type	grab	1hr	24hr	1hr	24hr	grab	24hr	24hr	1hr	grab
Cd	ug/L		45	58	4.8	4.1	2.1	< 0.5	1.5	0.82	1.5	< 0.5
Cd (Dissolved)	ug/L		1.4	0.59	< 0.5	2.2	0.84	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cr	ug/L		25	54	26	0.82	4.5	4.6	18	23	97	48
Cr (Dissolved)	ug/L		0.62	< 0.5	< 0.5	0.54	1.3	1.7	1.5	< 0.5	0.73	< 0.5
Cu	ug/L		59	110	40	5.3	12	54	120	25	64	8.6
Cu (Dissolved)	ug/L		4.9	3.4	2.7	4.6	5.2	38	43	6.7	3.8	4.8
Ni	ug/L		120	190	39	50	18	8.7	19	18	69	4.6
Ni (Dissolved)	ug/L		38	19	11	52	14	6.6	6.2	2.9	1.7	2.1
Pb	ug/L		17	41	22	< 0.5	2.6	6.3	49	10	27	2.5
Pb (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	1.6	2.1	< 0.5	< 0.5	< 0.5
As	ug/L		12	22	15	2.8	3.1	3.5	5.1	5.5	8.1	3.5
As (Dissolved)	ug/L		3.5	2.9	3.1	2.6	1.9	2.9	1.8	3	1.2	2.8
Se	ug/L		3.2	4.5	2.3	7	2.2	0.52	0.67	0.78	1.3	1
Se (Dissolved)	ug/L		1.9	2.2	1.7	7.7	2.2	0.55	< 0.5	0.6	< 0.5	0.62
Ag	ug/L		< 0.5	0.57	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 0.5
Ag (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zn	ug/L		320	580	170	19	39	150	530	77	220	37
Zn (Dissolved)	ug/L		16	8.1	4.4	22	8.7	85	84	7.9	5.7	16
Hg	ug/L		< 0.05					< 0.05				
Hg (Dissolved)	ug/L		< 0.05					< 0.05				
Be	ug/L		2					< 0.1				
Be (Dissolved)	ug/L		< 0.1					< 0.1				
Sb	ug/L		2					2.3				
Sb (Dissolved)	ug/L		2.3					1.4				
Tl	ug/L		0.52					< 0.2				
Tl (Dissolved)	ug/L		< 0.2					< 0.2				
Cyanide	mg/L		< 5					< 5				
Pyrethroid Pesticides												
Allethrin	ng/L		< 50	< 50	< 50	< 10	< 11	< 50	< 50	< 50	< 10	< 10
Bifenthrin	ng/L		< 50	< 50	< 50	< 10	< 11	< 50	< 50	< 50	< 10	< 10
Cyfluthrin	ng/L		72	< 50	< 50	< 10	< 11	66	< 50	< 50	< 10	< 10
Cypermethrin	ng/L		77	< 50	< 50	< 10	< 11	63	< 50	< 50	< 10	< 10
Deltamethrin	ng/L		< 50	< 50	< 50	< 10	< 11	< 50	< 50	< 50	< 10	< 10
L-Cyhalothrin	ng/L		< 50	< 50	< 50	< 10	< 11	< 50	< 50	< 50	< 10	< 10
Permethrin	ng/L		< 50	< 50	< 50	< 10	< 11	< 50	< 50	< 50	< 10	< 10
Prallethrin	ng/L		< 50	< 50	< 50	< 10	< 11	< 50	< 50	< 50	< 10	< 10
Organochlorine Pesticides and PCB Arochlors												
4,4'-DDD	ng/L		< 10					< 10				
4,4'-DDE	ng/L		< 10					< 10				
4,4'-DDT	ng/L		< 10					< 10				
Aldrin	ng/L		< 10					< 10				
Dieldrin	ng/L		< 10					< 10				
Endrin	ng/L		< 10					< 10				
Endrin Aldehyde	ng/L		< 10					< 10				
Heptachlor	ng/L		< 10					< 10				
Heptachlor Epoxide	ng/L		< 10					< 10				
Toxaphene	ng/L		< 1000					< 1000				
PCB-1016	ng/L		< 100					< 100				
PCB-1221	ng/L		< 100					< 100				
PCB-1232	ng/L		< 100					< 100				
PCB-1242	ng/L		< 100					< 100				
PCB-1248	ng/L		< 100					< 100				
PCB-1254	ng/L		< 100					< 100				
PCB-1260	ng/L		< 100					< 100				

Table C-11.14a
Additional Analyses at SDR Long-Term Mass Loading Sites

Site		ACJ01	ACJ01	ACJ01	ACJ01	ACJ01	LCWI02	LCWI02	LCWI02	LCWI02	LCWI02
Date		11/4/08	11/26/08	11/26/08	2/13/09	2/14/09	11/4/08	11/25/08	11/26/08	2/16/09	2/17/09
Start Time		8:30	1:05	4:05	15:28	18:28	7:55	23:29	1:29	9:31	10:40
Type		grab	1hr	24hr	1hr	24hr	grab	24hr	24hr	1hr	grab
Acid Extractable Compounds											
2,4-Dinitrophenol	ng/L	< 5000	<100000	< 25000	< 5000	< 27000	< 25000	<100000	< 5000	< 20000	< 20000
2-chlorophenol	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
2-Nitrophenol	ng/L	< 10000	< 200000	< 50000	< 5000	< 13000	< 50000	< 200000	< 10000	< 10000	< 10000
Pentachlorophenol	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Phenol	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Base/Neutral Extractable Compounds											
1,2,4-Trichlorobenzene	ng/L	< 5000	<100000	< 25000	< 5000	6700				< 5000	< 5000
1,2-Dichlorobenzene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
1,3-Dichlorobenzene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
1,4-Dichlorobenzene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
2,4-Dinitrotoluene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
2,6-Dinitrotoluene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
2-Chloronaphthalene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
3,3'-dichlorobenzidine	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
4-Nitrophenol	ng/L	< 10000	< 200000	< 50000	< 5000	< 13000	< 50000	< 200000	< 10000	< 10000	< 10000
Benzidine	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
bis(2-Chloroethoxy)methane	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
bis(2-Chloroethyl)ether	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
bis(2-Chloroisopropyl)ether	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
bis(2-Ethylhexyl) Phthalate	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Diethyl Phthalate	ng/L	< 5000	<100000	< 25000	< 5000	26000	< 25000	<100000	< 5000	< 5000	< 5000
Dimethyl Phthalate	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Di-n-butyl Phthalate	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Di-n-octyl Phthalate	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Hexachlorobenzene	ng/L	< 10000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Hexachlorobutadiene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Hexachlorocyclopentadiene	ng/L	< 50000	< 200000	< 50000	< 5000	< 13000	< 50000	< 200000	< 10000	< 10000	< 10000
Hexachloroethane	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Isophorone	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Nitrobenzene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
N-Nitrosodi-n-propylamine	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
N-Nitrosodiphenylamine	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Acenaphthylene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Anthracene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Fluorene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Naphthalene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Phenanthrene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Chrysene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Fluoranthene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Indeno[1,2,3-c,d]pyrene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000
Pyrene	ng/L	< 5000	<100000	< 25000	< 5000	< 6700	< 25000	<100000	< 5000	< 5000	< 5000

Table C-11.14a
Additional Analyses at SDR Long-Term Mass Loading Sites

		Site	PDCM01	PDCM01	PDCM01	PDCM01	PDCM01	SDCM02	SDCM02	SDCM02	SDCM02	SDCM02
		Date	11/4/08	11/25/08	11/26/08	2/13/09	2/13/09	11/4/08	11/25/08	11/26/08	2/13/09	2/13/09
		Start Time	9:30	22:06	1:06	16:16	19:16	10:05	22:08	1:08	16:37	19:37
		Type	grab	1hr	24hr	1hr	24hr	grab	1hr	24hr	1hr	24hr
Cd	ug/L		3			12	7.2	4.1		6.2	2.3	2
Cd (Dissolved)	ug/L		2	1.1	3.5	2.7	4.1	1.5	0.89	0.57	1.5	0.94
Cr	ug/L		1.8			17	24	3.8		11	3	5.8
Cr (Dissolved)	ug/L		0.97	0.9	0.83	1	0.83	0.8	1.2	0.72	0.95	0.82
Cu	ug/L		15			39	23	18		24	16	12
Cu (Dissolved)	ug/L		12	12	8.3	7.6	6.5	8.5	20	5.6	9.7	6.2
Ni	ug/L		28			84	81	23		49	39	24
Ni (Dissolved)	ug/L		27	31	31	36	57	16	25	20	33	18
Pb	ug/L		0.81			6.4	4.1	2		4.8	1.8	1.4
Pb (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
As	ug/L		2.5			4.5	4.3	2.6		3.8	2.3	2.5
As (Dissolved)	ug/L		2.4	1.5	2	1.3	1.4	2	1.6	2	1.8	1.9
Se	ug/L		3.9			3.6	4.5	1.7		3.7	8.5	3.9
Se (Dissolved)	ug/L		4.1	1.9	6.6	2.8	4.2	1.4	2.9	3.1	7.6	4
Ag	ug/L		< 0.5			< 0.5	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5
Ag (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zn	ug/L		54			290	220	79		120	76	35
Zn (Dissolved)	ug/L		40	45	18	17	67	33	100	16	22	9.4
Hg	ug/L		< 0.05					< 0.05				
Hg (Dissolved)	ug/L		< 0.05					< 0.05				
Be	ug/L		< 0.1					0.12				
Be (Dissolved)	ug/L		< 0.1					< 0.1				
Sb	ug/L		1.3					1.4				
Sb (Dissolved)	ug/L		1.2					0.87				
Tl	ug/L		< 0.2					< 0.2				
Tl (Dissolved)	ug/L		< 0.2					< 0.2				
Cyanide	mg/L		< 5					< 5				
Pyrethroid Pesticides												
Allethrin	ng/L		< 50	< 100	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
Bifenthrin	ng/L		< 50	410	< 50	33	< 10	< 50	170	< 50	98	< 10
Cyfluthrin	ng/L		< 50	< 100	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
Cypermethrin	ng/L		< 50	< 100	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
Deltamethrin	ng/L		< 50	< 100	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
L-Cyhalothrin	ng/L		< 50	2500	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
Permethrin	ng/L		< 50	< 100	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
Prallethrin	ng/L		< 50	< 100	< 50	< 10	< 10	< 50	< 50	< 50	< 10	< 10
Organochlorine Pesticides and PCB Arc												
4,4'-DDD	ng/L		< 10					< 10				
4,4'-DDE	ng/L		< 10					< 10				
4,4'-DDT	ng/L		< 10					< 10				
Aldrin	ng/L		< 10					< 10				
Dieldrin	ng/L		< 10					< 10				
Endrin	ng/L		< 10					< 10				
Endrin Aldehyde	ng/L		< 10					< 10				
Heptachlor	ng/L		< 10					< 10				
Heptachlor Epoxide	ng/L		< 10					< 10				
Toxaphene	ng/L		< 1000					< 1000				
PCB-1016	ng/L		< 100					< 100				
PCB-1221	ng/L		< 100					< 100				
PCB-1232	ng/L		< 100					< 100				
PCB-1242	ng/L		< 100					< 100				
PCB-1248	ng/L		< 100					< 100				
PCB-1254	ng/L		< 100					< 100				
PCB-1260	ng/L		< 100					< 100				

Table C-11.14a
Additional Analyses at SDR Long-Term Mass Loading Sites

Site		PDCM01	PDCM01	PDCM01	PDCM01	PDCM01	SDCM02	SDCM02	SDCM02	SDCM02	SDCM02
Date		11/4/08	11/25/08	11/26/08	2/13/09	2/13/09	11/4/08	11/25/08	11/26/08	2/13/09	2/13/09
Start Time		9:30	22:06	1:06	16:16	19:16	10:05	22:08	1:08	16:37	19:37
Type		grab	1hr	24hr	1hr	24hr	grab	1hr	24hr	1hr	24hr
Acid Extractable Compounds											
2,4-Dinitrophenol	ng/L	< 5000	< 50000	< 7100	< 5000	< 27000	< 9100	< 380000	< 25000	< 5000	< 27000
2-chlorophenol	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
2-Nitrophenol	ng/L	< 10000	< 100000	< 14000	< 5000	< 13000	< 18000	< 770000	< 50000	< 5000	< 13000
Pentachlorophenol	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Phenol	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Base/Neutral Extractable Compounds											
1,2,4-Trichlorobenzene	ng/L	< 5000	< 50000	< 7100	< 5000	6700	< 9100	< 380000	< 25000	< 5000	6700
1,2-Dichlorobenzene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
1,3-Dichlorobenzene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
1,4-Dichlorobenzene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
2,4-Dinitrotoluene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
2,6-Dinitrotoluene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
2-Chloronaphthalene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
3,3'-dichlorobenzidine	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
4-Nitrophenol	ng/L	< 10000	< 100000	< 14000	< 5000	< 13000	< 18000	< 770000	< 50000	< 5000	< 13000
Benzidine	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
bis(2-Chloroethoxy)methane	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
bis(2-Chloroethyl)ether	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
bis(2-Chloroisopropyl)ether	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
bis(2-Ethylhexyl) Phthalate	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Diethyl Phthalate	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	13000
Dimethyl Phthalate	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Di-n-butyl Phthalate	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Di-n-octyl Phthalate	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Hexachlorobenzene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 10000	< 380000	< 25000	< 5000	< 6700
Hexachlorobutadiene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Hexachlorocyclopentadiene	ng/L	< 5000	< 100000	< 14000	< 5000	< 13000	< 50000	< 770000	< 50000	< 5000	< 13000
Hexachloroethane	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Isophorone	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Nitrobenzene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
N-Nitrosodi-n-propylamine	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
N-Nitrosodiphenylamine	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Acenaphthylene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Anthracene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Fluorene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Naphthalene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Phenanthrene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Chrysene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Fluoranthene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Indeno[1,2,3-c,d]pyrene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700
Pyrene	ng/L	< 5000	< 50000	< 7100	< 5000	< 6700	< 9100	< 380000	< 25000	< 5000	< 6700

Table C-11.14a
Additional Analyses at SDR Long-Term Mass Loading Sites

		Site	SJNL01	SJNL01	SJNL01	SJNL01	TCOL02	TCOL02	TCOL02	TCOL02	TCOL02
		Date	11/25/08	11/26/08	2/14/09	2/14/09	11/4/08	11/25/08	11/26/08	2/13/09	2/13/09
		Start Time	22:19	1:20	2:53	5:53	8:55	23:53	2:53	17:28	19:28
		Type	1hr	24hr	12hr	24hr	grab	1hr	24hr	1hr	14hr
Cd	ug/L		3.2	3.1	< 0.5	< 0.5	< 0.5	0.61	3.8	2.7	1.9
Cd (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cr	ug/L		15	21	3.1	1.2	1.5	7	28	35	14
Cr (Dissolved)	ug/L		0.65	< 0.5	< 0.5	< 0.5	0.74	0.57	< 0.5	< 0.5	< 0.5
Cu	ug/L		63	28	7.7	5.2	13	29	37	42	18
Cu (Dissolved)	ug/L		10	5.9	4.4	4.3	7.9	8.2	3.8	4.4	4.3
Ni	ug/L		32	34	6.5	3.6	6.4	7.8	28	36	14
Ni (Dissolved)	ug/L		11	11	4.8	3.9	5.7	3	5.5	8.4	4.6
Pb	ug/L		12	6.2	1	0.57	4.2	9.6	11	8	4.6
Pb (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	0.73	0.62	< 0.5	< 0.5	< 0.5
As	ug/L		4.1	6.2	6.4	4.7	3.2	3.6	12	10	6
As (Dissolved)	ug/L		1.8	2.2	4.7	3.9	2.9	1.8	3.2	3.1	2.6
Se	ug/L		1.3	3.2	1.5	1.1	1.2	0.76	3.5	5.6	3.7
Se (Dissolved)	ug/L		0.67	2.6	1.5	1.1	1.1	0.56	2.4	5	3.4
Ag	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ag (Dissolved)	ug/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zn	ug/L		230	110	22	5.9	45	140	130	130	86
Zn (Dissolved)	ug/L		29	7.6	3.5	6.8	27	33	5.2	3.8	11
Hg	ug/L						< 0.05				
Hg (Dissolved)	ug/L						< 0.05				
Be	ug/L						< 0.1				
Be (Dissolved)	ug/L						< 0.1				
Sb	ug/L						1.5				
Sb (Dissolved)	ug/L						1.2				
Tl	ug/L						< 0.2				
Tl (Dissolved)	ug/L						< 0.2				
Cyanide	mg/L						< 5				
Pyrethroid Pesticides											
Allethrin	ng/L		< 50	< 50	< 10	< 10	< 50	< 67	< 50	< 10	< 10
Bifenthrin	ng/L		< 50	< 50	< 10	< 10	< 50	< 67	< 50	< 10	< 10
Cyfluthrin	ng/L		< 50	< 50	< 10	< 10	71	< 67	< 50	< 10	< 10
Cypermethrin	ng/L		< 50	< 50	< 10	< 10	67	< 67	< 50	< 10	< 10
Deltamethrin	ng/L		< 50	< 50	< 10	< 10	< 50	< 67	< 50	< 10	< 10
L-Cyhalothrin	ng/L		< 50	< 50	< 10	< 10	< 50	< 67	< 50	< 10	< 10
Permethrin	ng/L		< 50	< 50	< 10	< 10	< 50	< 67	< 50	< 10	< 10
Prallethrin	ng/L		< 50	< 50	< 10	< 10	< 50	< 67	< 50	< 10	< 10
Organochlorine Pesticides and PCB Arc											
4,4'-DDD	ng/L						< 10				
4,4'-DDE	ng/L						< 10				
4,4'-DDT	ng/L						< 10				
Aldrin	ng/L						< 10				
Dieldrin	ng/L						< 10				
Endrin	ng/L						< 10				
Endrin Aldehyde	ng/L						< 10				
Heptachlor	ng/L						< 10				
Heptachlor Epoxide	ng/L						< 10				
Toxaphene	ng/L						< 1000				
PCB-1016	ng/L						< 100				
PCB-1221	ng/L						< 100				
PCB-1232	ng/L						< 100				
PCB-1242	ng/L						< 100				
PCB-1248	ng/L						< 100				
PCB-1254	ng/L						< 100				
PCB-1260	ng/L						< 100				

Table C-11.14a
Additional Analyses at SDR Long-Term Mass Loading Sites

Site		SJNL01	SJNL01	SJNL01	SJNL01	TCOL02	TCOL02	TCOL02	TCOL02	TCOL02
Date		11/25/08	11/26/08	2/14/09	2/14/09	11/4/08	11/25/08	11/26/08	2/13/09	2/13/09
Start Time		22:19	1:20	2:53	5:53	8:55	23:53	2:53	17:28	19:28
Type		1hr	24hr	12hr	24hr	grab	1hr	24hr	1hr	14hr
Acid Extractable Compounds										
2,4-Dinitrophenol	ng/L	< 420000	< 5000	< 5000	< 27000	< 5000	< 5000	< 5000	< 5000	< 27000
2-chlorophenol	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
2-Nitrophenol	ng/L	< 830000	< 10000	< 5000	< 13000	< 10000	< 10000	< 10000	< 5000	< 13000
Pentachlorophenol	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Phenol	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Base/Neutral Extractable Compounds										
1,2,4-Trichlorobenzene	ng/L	< 420000	< 5000	< 5000	6700	< 5000	< 5000	< 5000	< 5000	6700
1,2-Dichlorobenzene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
1,3-Dichlorobenzene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
1,4-Dichlorobenzene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
2,4-Dinitrotoluene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
2,6-Dinitrotoluene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
2-Chloronaphthalene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
3,3'-dichlorobenzidine	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
4-Nitrophenol	ng/L	< 830000	< 10000	< 5000	< 13000	< 10000	< 10000	< 10000	< 5000	< 13000
Benzidine	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
bis(2-Chloroethoxy)methane	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
bis(2-Chloroethyl)ether	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
bis(2-Chloroisopropyl)ether	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
bis(2-Ethylhexyl) Phthalate	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Diethyl Phthalate	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Dimethyl Phthalate	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Di-n-butyl Phthalate	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Di-n-octyl Phthalate	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Hexachlorobenzene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Hexachlorobutadiene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Hexachlorocyclopentadiene	ng/L	< 830000	< 10000	< 5000	< 13000	< 50000	< 10000	< 10000	< 5000	< 13000
Hexachloroethane	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Isophorone	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Nitrobenzene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
N-Nitrosodi-n-propylamine	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
N-Nitrosodiphenylamine	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Acenaphthylene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Anthracene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Fluorene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Naphthalene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Phenanthrene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Chrysene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Fluoranthene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Indeno[1,2,3-c,d]pyrene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700
Pyrene	ng/L	< 420000	< 5000	< 5000	< 6700	< 5000	< 5000	< 5000	< 5000	< 6700

Table C-11.15a
Proportion of All Samples Exceeding AB411 Standards Near Coastal Stormdrains

Entire Year					AB411 Season				
Rank	**Station**	**# days**	**# samples**	**Avg Hits**	**Rank**	**Station**	**# days**	**# samples**	**Avg Hits**
1	POCHE	45	90	0.219	1	POCHE	30	60	0.289
2	DSB5	47	86	0.213	2	DSB5	32	59	0.156
3	SJC1	50	96	0.2	3	SCM1	32	64	0.12
4	SCM1	47	94	0.135	4	SJC1	30	56	0.078
5	DSB4	45	45	0.119	5	PIER	30	60	0.067
6	DSB1	45	81	0.089	6	PICO	30	53	0.061
7	CSBMP1	45	89	0.074	7	DSB4	30	30	0.056
8	PICO	45	79	0.07	8	CSBBR1	30	59	0.039
9	PIER	45	90	0.056	9	CSBMP1	30	60	0.033
10	CSBBR1	45	88	0.044	10	DUMOND	32	46	0.021
11	SCCS17	45	59	0.015	11	DSB1	30	53	0.011
12	CLEO	47	92	0.014	11	SCCS17	30	33	0.011
12	DUMOND	47	75	0.014	11	SCCS52	30	42	0.011
13	ACM1	45	88	0.011	12	CLEO	32	62	0.01
13	MAINBC	47	67	0.011	13	ACM1	30	59	0.006
13	RIVERA	45	77	0.011	13	BLULGN	26	47	0.006
14	SCCS52	45	69	0.007	14	BLUBRD	32	39	0
15	BLULGN	41	76	0.004	14	ELMORO	30	42	0
16	BLUBRD	47	68	0	14	EMRLD	32	40	0
16	ELMORO	45	67	0	14	HEISLR	32	37	0
16	EMRLD	47	65	0	14	LADERA	30	59	0
16	HEISLR	47	55	0	14	LINDAL	30	59	0
16	LADERA	45	88	0	14	MAINBC	32	38	0
16	LINDAL	45	89	0	14	MARIPO	30	60	0
16	MARIPO	45	89	0	14	PEARL	29	56	0
16	PEARL	44	85	0	14	RIVERA	30	49	0
16	TRFCYN	45	88	0	14	TRFCYN	30	59	0
16	VICTRA	47	83	0	14	VICTRA	32	53	0
16	WEST	47	93	0	14	WEST	32	63	0

[1]Exceedance proportion or "hits" calculated as #AB411 exceedance / #total tests. Total tests per day of sampling = 2 samples (upcoast & downcoast) X indicators = 6

Table C-11.15b
Proportion of All Samples Exceeding AB411 Standards Near Coastal Stormdrain when Drain Flows to the Ocean

Entire Year					AB411 Season				
Rank	**Station**	**# days**	**# samples**	**Avg Hits**	**Rank**	**Station**	**# days**	**# samples**	**Avg Hits**
1	DSB5	2	4	0.5	1	DSB5	1	2	0.5
1	SJC1	9	18	0.5	2	POCHE	24	48	0.347
2	POCHE	39	78	0.244	3	SCM1	27	54	0.13
3	SCM1	42	84	0.143	4	PICO	17	34	0.108
4	PICO	29	56	0.098	5	PIER	3	6	0.056
5	SCCS17	2	4	0.083	6	ACM1	20	39	0.008
6	CLEO	9	18	0.037	7	BLUBRD	3	6	0
7	MAINBC	16	32	0.031	7	BLULGN	5	10	0
8	PIER	6	12	0.028	7	CLEO	2	4	0
9	ACM1	31	60	0.016	7	CSBBR1	3	6	0
10	BLUBRD	14	28	0	7	MAINBC	3	6	0
10	BLULGN	12	24	0	7	PEARL	1	2	0
10	CSBBR1	5	10	0					
10	EMRLD	1	2	0					
10	LINDAL	2	4	0					
10	MARIPO	1	2	0					
10	PEARL	3	6	0					
10	SCCS52	2	4	0					
10	TRFCYN	1	2	0					

[1]Exceedance proportion or "hits" calculated as #AB411 exceedance / #total tests. Total tests per day of sampling = 2 samples (upcoast & downcoast) X indicators = 6

Table C-11.16
Number of AB411 Exceedances in the Surfzone for Each Monitoring Condition

Season	All Samples				Flows to Ocean			
	n	ENT	FC	TC	n	ENT	FC	TC
Entire year	2311	223	53	61	448	101	20	32
AB411 Season	1497	105	31	32	217	55	14	18

n is the number of samples

Table C-11.17
Average Flowrate at Coastal Stormdrain Sites

Station	Ave Estimated Discharge Rate (cfs)	Relative Flow Rate
ACM1	7.6	High
BLUBRD	0.127	Low
BLULGN	0.016	Low
CLEO	0.015	Low
CSBBR1	0.011	Low
CSBMP1	0.145	Low
DSB1	0.015	Low
DSB5	0.113	Low
DUMOND	0.022	Low
ELMORO	0.020	Low
EMRLD	0.012	Low
HEISLR	0.001	Low
LADERA	0.015	Low
LINDAL	0.012	Low
MAINBC	2.02	Medium
MARIPO	0.011	Low
PEARL	0.011	Low
PICO	1.34	Medium
PIER	0.009	Low
POCHE	1.49	Medium
RIVERA	0.008	Low
SCCS17	0.012	Low
SCCS52	0.006	Low
SCM1	3.56	Medium
SJC1	13.0	High
TRFCYN	0.246	Low
VICTRA	0.010	Low
WEST	0.012	Low

** Discharge average calculated from the days that the pipes were flowing (not ponded) as opposed to total days sampled.*

Flow	Category
< 1	Low
1 - 3.99	Medium
> 4	High

Table C-11.18a
Coastal Stormdrain Sites Ranked in Terms of Significance of Regression Slopes
for All Bacterial Indicators, Based on Data from the Entire Year

Based on data from the entire monitoring year (7/1/2008 - 6/30/2009)

		Enterococcus			Fecal Coliform			Total Coliform		
n	nFTO	Rank	Station	P-Value	Rank	Station	P-Value	Rank	Station	P-Value
45	30	15	ACM1	0.3151	10	ACM1	0.0306	10	ACM1	0.0157
47	14	13	BLUBRD	0.2274	26	BLUBRD	1	20	BLUBRD	1
41	12	8	BLULGN	0.005	11	BLULGN	0.0323	1	BLULGN	< 0.0001
47	9	16	CLEO	1	23	CLEO	0.357	15	CLEO	0.2817
45	5	10	CSBBR1	0.1167	14	CSBBR1	0.0617	13	CSBBR1	0.136
45	0	16	CSBMP1	1	18	CSBMP1	0.1644	19	CSBMP1	0.4894
45	0	16	DSB1	1	26	DSB1	1	20	DSB1	1
47	0	1	DSB5	< 0.0001	5	DSB5	0.011	8	DSB5	0.0064
47	0	12	DUMOND	0.2236	7	DUMOND	0.017	6	DUMOND	0.0039
45	0	16	ELMORO	1	21	ELMORO	0.2983	11	ELMORO	0.0987
47	1	16	EMRLD	1	25	EMRLD	0.4839	17	EMRLD	0.4762
47	0	16	HEISLR	1	13	HEISLR	0.0525	7	HEISLR	0.004
45	0	16	LADERA	1	26	LADERA	1	20	LADERA	1
45	2	16	LINDAL	1	24	LINDAL	0.4345	12	LINDAL	0.1242
47	16	2	MAINBC	0.0001	3	MAINBC	0.0011	4	MAINBC	0.0011
45	1	11	MARIPO	0.1913	15	MARIPO	0.0907	3	MARIPO	0.0008
44	3	7	PEARL	0.0024	19	PEARL	0.169	3	PEARL	0.0008
45	29	5	PICO	0.0018	4	PICO	0.0016	2	PICO	0.0001
45	6	4	PIER	0.0016	12	PIER	0.0356	9	PIER	0.0149
45	39	1	POCHE	< 0.0001	1	POCHE	< 0.0001	1	POCHE	< 0.0001
45	0	9	RIVERA	0.1063	8	RIVERA	0.0242	20	RIVERA	1
45	2	16	SCCS17	1	20	SCCS17	0.295	20	SCCS17	1
45	3	6	SCCS52	0.0021	9	SCCS52	0.0285	16	SCCS52	0.4711
47	42	1	SCM1	< 0.0001	2	SCM1	0.0002	1	SCM1	< 0.0001
50	9	2	SJC1	0.0001	6	SJC1	0.0156	5	SJC1	0.0037
45	1	3	TRFCYN	0.0004	17	TRFCYN	0.1448	2	TRFCYN	0.0001
47	0	15	VICTRA	0.3151	22	VICTRA	0.3448	14	VICTRA	0.1965
47	0	14	WEST	0.278	16	WEST	0.1178	18	WEST	0.4812

Greater P values - less likelihood that concentrations in surfzone and stormdrain are related

P value less than 0.05 FTO - Flowed to ocean at time of sampling

Table C-11.18b
Coastal Stormdrain Sites Ranked in Terms of Significance of Regression Slopes
for All Bacterial Indicators, Based on Data from the AB411 Season

Based on data from the AB411 Season Only (Apr. 1 - Oct. 30)

		Enterococcus			Fecal Coliform			Total Coliform		
n	nFTO	Rank	Station	P-Value	Rank	Station	P-Value	Rank	Station	P-Value
34	20	12	ACM1	0.1627	11	ACM1	0.1843	14	ACM1	0.1019
36	3	19	BLUBRD	1	20	BLUBRD	1	15	BLUBRD	0.1182
30	5	7	BLULGN	0.0089	3	BLULGN	0.0002	1	BLULGN	< 0.0001
36	2	19	CLEO	1	12	CLEO	0.1976	23	CLEO	1
35	3	8	CSBBR1	0.0174	5	CSBBR1	0.007	5	CSBBR1	0.0035
35	0	19	CSBMP1	1	8	CSBMP1	0.1181	16	CSBMP1	0.1274
35	0	19	DSB1	1	20	DSB1	1	23	DSB1	1
36	0	2	DSB5	0.0001	6	DSB5	0.0326	7	DSB5	0.0095
36	0	11	DUMOND	0.0742	9	DUMOND	0.1341	9	DUMOND	0.0254
34	0	19	ELMORO	1	20	ELMORO	1	18	ELMORO	0.2024
36	0	17	EMRLD	0.4292	14	EMRLD	0.2326	23	EMRLD	1
36	0	19	HEISLR	1	20	HEISLR	1	10	HEISLR	0.038
35	0	16	LADERA	0.3951	20	LADERA	1	23	LADERA	1
35	0	18	LINDAL	0.4675	19	LINDAL	0.3948	8	LINDAL	0.0179
36	3	19	MAINBC	1	13	MAINBC	0.2139	17	MAINBC	0.144
35	0	10	MARIPO	0.0696	16	MARIPO	0.2494	11	MARIPO	0.0439
33	1	3	PEARL	0.0005	17	PEARL	0.2629	19	PEARL	0.2386
35	17	5	PICO	0.0008	2	PICO	0.0001	2	PICO	0.0001
35	3	6	PIER	0.0078	7	PIER	0.0912	13	PIER	0.086
35	24	9	POCHE	0.0248	1	POCHE	< 0.0001	3	POCHE	0.0003
35	0	19	RIVERA	1	20	RIVERA	1	20	RIVERA	0.3909
35	0	19	SCCS17	1	20	SCCS17	1	23	SCCS17	1
35	1	13	SCCS52	0.1889	20	SCCS52	1	23	SCCS52	1
36	27	1	SCM1	< 0.0001	4	SCM1	0.0037	4	SCM1	0.0007
35	0	19	SJC1	1	18	SJC1	0.2635	22	SJC1	0.4492
35	0	4	TRFCYN	0.0006	15	TRFCYN	0.2438	6	TRFCYN	0.0075
36	0	14	VICTRA	0.2797	20	VICTRA	1	21	VICTRA	0.4296
36	0	15	WEST	0.2873	10	WEST	0.1689	12	WEST	0.0794

Greater P values - less likelihood that concentrations in surfzone and stormdrain are related

P-value < 0.05 FTO - Flowed to ocean at time of sampling

Table C-11.18c

Coastal Stormdrain Sites Ranked in Terms of Significance of Regression Slopes for All Bacterial Indicators, Based on Data from the Entire Year for Drains Flowing to the Ocean

Based on data from the entire year for discharges from drains reaching the ocean

	Enterococcus			Fecal Coliform			Total Coliform		
nFTO	Rank	Station	P-Value	Rank	Station	P-Value	Rank	Station	P-Value
30	6	ACM1	0.0581	4	ACM1	0.0053	4	ACM1	0.0111
14	10	BLUBRD	1	11	BLUBRD	1	9	BLUBRD	0.4272
12	10	BLULGN	1	11	BLULGN	1	1	BLULGN	< 0.0001
9	10	CLEO	1	9	CLEO	0.1565	3	CLEO	0.0102
5	7	CSBBR1	0.0694	8	CSBBR1	0.1112	10	CSBBR1	1
0	9	DSB5	0.2516	10	DSB5	0.4638	10	DSB5	1
2	10	LINDAL	1	11	LINDAL	1	8	LINDAL	0.3457
16	3	MAINBC	0.0002	3	MAINBC	0.0047	2	MAINBC	0.0013
3	4	PEARL	0.0041	6	PEARL	0.089	6	PEARL	0.1173
29	5	PICO	0.0258	5	PICO	0.0099	5	PICO	0.025
6	10	PIER	1	7	PIER	0.1031	10	PIER	1
39	1	POCHE	< 0.0001	1	POCHE	< 0.0001	1	POCHE	< 0.0001
2	8	SCCS17	0.2113	11	SCCS17	1	10	SCCS17	1
3	10	SCCS52	1	11	SCCS52	1	7	SCCS52	0.2113
42	1	SCM1	< 0.0001	1	SCM1	< 0.0001	1	SCM1	< 0.0001
9	2	SJC1	0.0001	2	SJC1	0.0007	1	SJC1	< 0.0001

Greater P values - less likelihood that concentrations in surfzone and stormdrain are related

P-value < 0.05 FTO - Flowed to ocean at time of sampling

Table C-11.18d

Coastal Stormdrain Sites Ranked in Terms of Significance of Regression Slopes for All Bacterial Indicators Based on Data from the AB411 Season for Drains Flowing to the Ocean

Based on data from the AB411 Season for discharges from drains reaching the ocean

	Enterococcus			Fecal Coliform			Total Coliform		
nFTO	**Rank**	**Station**	**P-Value**	**Rank**	**Station**	**P-Value**	**Rank**	**Station**	**P-Value**
20	5	ACM1	0.1281	7	ACM1	0.2249	6	ACM1	0.2335
3	6	BLUBRD	1	8	BLUBRD	1	7	BLUBRD	0.2927
5	6	BLULGN	1	8	BLULGN	1	2	BLULGN	0.0015
2	6	CLEO	1	8	CLEO	1	8	CLEO	1
3	2	CSBBR1	0.0049	4	CSBBR1	0.1293	8	CSBBR1	1
3	6	MAINBC	1	5	MAINBC	0.1366	5	MAINBC	0.0509
17	3	PICO	0.0184	2	PICO	0.0008	3	PICO	0.0125
3	6	PIER	1	6	PIER	0.2113	8	PIER	1
24	4	POCHE	0.1112	1	POCHE	0.0004	4	POCHE	0.0281
27	1	SCM1	< 0.0001	3	SCM1	0.0009	1	SCM1	0.0003

Greater P values - less likelihood that concentrations in surfzone and stormdrain are related

P-value < 0.05 FTO - Flowed to ocean at time of sampling

Table C-11.19
Conditions at Drains of Highest Concern

Drain	Exceedances (proportion)				Regression (p value)				Characteristics of Flow & Features at Mouth of Drain	Features in the Watershed
	All Data		Flows to Ocean		All Data		When Drain Flows to Ocean			
	Year	AB411	Year	AB411	Year	AB411	Year	AB411		
Avenida Pico & Hwy1 PICO	0.070	0.061	0.098	0.108	0.0018 E 0.0016 F 0.0001 T	0.0008 E 0.0001 F 0.0001 T	0.0258 E 0.0099 F 0.025 T	0.0184 E 0.0008 F 0.0125 T	5th highest flowrate. Discharge occassionally pools behind and seeps through a large porous rock/sand berm on beach. High tides can dilute and increase salinity of the sample from the outlet.	Commercial & Residential; Urban contribution has expanded with Talega development.
San Clemente PIER	0.056	0.067	0.028	0.056	0.0016 E 0.0356 F 0.0149 T	0.0078 E 0.0912 F 0.086 T	1 E 0.1031 F 1 T	1 E 0.2113 F 1 T	Outlet discharges into sand; flow occassionally reaches ocean during high tide.	Commercial & Residential; Restaurant and Municipal Pier above outlet
Poche Bch POCHE	0.219	0.289	0.244	0.347	< 0.0001 E < 0.0001 F < 0.0001 T	0.0248 E < 0.0001 F 0.0003 T	< 0.0001 E < 0.0001 F < 0.0001 T	0.1112 E 0.0004 F 0.0281 T	Discharge from drain collects in a large stagnant scour pond on the beach. The outflow from the pond regularly reaches the surfzone	Residential area and golf course immediately above outlet, Prima Deshecha landfill upstream
Salt Crk SCM1	0.135	0.120	0.143	0.130	< 0.0001 E 0.0002 F < 0.0001 T	< 0.0001 E 0.0037 F 0.0007 T	< 0.0001 E < 0.0001 F < 0.0001 T	< 0.0001 E 0.0009 F 0.0003 T	3rd highest flowrate. Underground drain discharges to concrete apron; flow from apron passes through rocky area before reaching beach to form a large stagnant scour pond. Many birds have been observed during each sampling. Inlet and outflow from ozone tr	Primarily residential/commercial; Golf course immediately above mouth.
San Juan Crk SJC1	0.449	0.425	0.500		0.0001 E 0.0156 F 0.0037 T	1 E 2635 F 0.4492 T	0.0001 E 0.0007 F < 0.0001 T		Highest estimated flowrate. Flow to ocean occassionally blocked by sand berms in the summer. Impacts to the surfzone may be influenced by other drains in the immediate area (Doheny State Beach).	Large watershed extending into the Cleveland National Forest. Mixed landuses. Sewage Treatment Plants u/s mouth. Bird refuge at the mouth with as many as 2000 observed during any one sampling.
Aliso Crk ACM1	0.011	0.006	0.016	0.008	0.3151 E 0.0306 F 0.0157 T	0.1627 E 0.1843 F 0.1019 T	0.0581 E 0.0053 F 0.0111 T	0.1281 E 0.2249 F 0.2335 T	2nd highest estimated flowrate. Flow to ocean occassionally blocked by sand berm.	Aliso/Wood Canyon wilderness park at lower end of watershed. Sewage treatment plant at lower end of the park. Golf course and sewer pump station immediately upstream of the mouth.

[1] Exceedance proportion calculated as #AB411 exceedances / # total tests. Totals tests per day of sampling = 2 samples (upcoast & downcoast) x 3 indicators = 6.

Flow ranks are relative and refer only to this group of six drains. E,F, and T in the Regression column refer, respectively, to Entercoccus, Fecal coliforms and Total coliforms.

Table C-11.20a - Aqueous Chemistry at Ambient Coastal Receiving Waters Sites

Location	Date	Type	Depth	FieldMeasurements				Turbidity	Specific Conductance	pH	Nitrate as NO_3	Ammonia as N	TKN	Total Phosphate as PO_4	ortho phosphate as P	TSS	VSS	Diazinon	Chlorpyrifos	Dimethoate	Malathion	Cd	Cr	Cu	Pb	Ni	Ag	Zn	As	Se	Hardness as $CaCO_3$
				EC	pH	TEMP	DO	NTU	uS		mg/L							ng/L				ug/L										mg/L
ACM-1d	10/1/08 10:25	DT	S	51272	8.02	17	8.7	1.25	51100	8.2	0.45	< 0.1	0.28	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.2	< 0.3	0.49	0.062	< 0.5	< 0.05	< 3	0.92	< 0.1	
ACM-1d	10/1/08 10:25	DF	S																			< 0.2	< 0.3	0.44	< 0.05	< 0.5	< 0.05	< 3	0.88	< 0.1	
ACM-1d	12/15/08 13:30	ST	S	54230	7.89	14.81	11.72	9.22	50800	7.86	< 0.4	< 0.1	0.1	0.15	0.02	18	5	< 10	< 10	< 10	< 10	0.23	1.3	1.2	0.28	1.9	< 0.05	3.4	1	< 0.1	
ACM-1d	12/15/08 13:30	SF	S																			< 0.2	< 0.6	< 0.6	< 0.1	< 1	< 0.05	< 6	1	< 0.1	
ACM-1d	4/30/09 11:15	DT	S	49883	8	18.36	10.03	1.3	50500	8.16	0.69	< 0.1	< 0.2	0.08	0.02	< 5	< 5	< 10	< 10	< 10	< 10	0.14	< 0.6	0.94	0.051	1.2	< 0.05	1.7	1.1	< 0.1	
ACM-1d	4/30/09 11:15	DF	S																			0.2	< 0.6	1.2	0.028	1.4	< 0.05	2	1.2	< 0.1	
DAPTEB	9/25/08 10:18	DT	S	51824	7.49	20.11																									
DSB-1	10/2/08 12:20	DT	S	9788	8.03	22.56	9.14	5.46	9250	8.21	6.05	0.11	2	1.44	0.24	33	12	22	< 10	< 10	< 10	< 1	1.1	14	< 0.5	58	< 1	20		2.3	2065
DSB-1	10/2/08 12:20	DF	S																			3.4	1.1	**14**	< 0.5	57	< 1	18	1.6	2.3	
DSB-1d	12/15/08 9:30	ST	S	47251	7.82	14.22	13.69	33.5	48200	7.86	< 0.4	< 0.1	0.5	0.38	0.03	74	14	< 10	< 10	< 10	30	0.32	2.3	3.2	0.75	2.8	< 0.05	7.4	1.1	< 0.1	
DSB-1d	12/15/08 9:30	SF	S																			0.23	< 0.6	1.1	< 0.1	1.1	< 0.05	< 6	0.88	< 0.1	
DSB-3	10/2/08 11:55	DT	S	13259	7.98	25.49	12.18	12.8	12000	8.01	19.7	0.29	1.8	1.96	0.24	53	23	< 10	< 10	< 10	< 10	5.4	2.6	24	1.9	39	< 1	76	3.1	19	2365
DSB-3	10/2/08 11:55	DF	S																			2	< 2	**6.9**	< 0.5	30	< 2	11	3.2	19	
DSB-5	10/2/08 11:25	DT	S	5496	7.77	22.18	11.46	13.4	4830	7.71	15.9	0.69	1.41	1.03	< 0.02	51	15	< 10	< 10	< 10	12	34	1.6	21	2.9	230	< 0.5	140	1.8	8.8	1220
DSB-5	10/2/08 11:25	DF	S																			30	< 0.5	**13**	< 0.5	**220**	< 0.5	78	1.3	8.4	
DSB-5d	12/15/08 9:58	ST	S	52616	8	14.11	12.38	28.5	50000	7.79	< 0.4	< 0.1	0.37	0.23	0.03	46	8	< 10	< 10	< 10	19	0.53	2	2.7	0.7	3.2	< 0.05	6.6	1.2	< 0.1	
DSB-5d	12/15/08 9:58	SF	S																			0.37	< 0.6	1	< 0.1	1.5	< 0.05	< 6	0.93	< 0.1	
LB-2	10/2/08 9:00	DT	S	5241	8.13	22.51	8.09	3.45	2760	7.82	1.15	0.62	1.51	4.83	0.58	11	7	< 10	70	< 10	60	< 0.5	1.4	6.9	0.94	5.8	< 0.5	17	2.8	3.3	500
LB-2	10/2/08 9:00	DF	S																			< 0.5	1.1	3.4	< 0.5	5.6	< 0.5	9.9	2.6	3.2	
LB-2d	10/2/08 9:15	DT	S	54908	7.98	19.61	8.09	0.54	52000	8.12	< 0.4	< 0.1	< 0.2	< 0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.2	0.31	0.63	0.12	< 0.5	< 0.05	< 3	1.1	< 0.1	
LB-2d	10/2/08 9:15	DF	S																			< 0.2	< 0.3	0.55	0.05	0.56	< 0.05	4.4	1	< 0.1	
LB-4	10/2/08 10:10	DT	S	3960	7.8	21.9	7.83	13.5	3090	7.7	4.77	1.83	3.16	2.19	0.39	20	8	< 10	< 10	< 10	310	< 0.5	1.9	20	1.4	5.6	< 0.5	33	2.5	5.8	890
LB-4	10/2/08 10:10	DF	S																			< 0.5	0.6	**5.6**	< 0.5	4.9	< 0.5	12	2.2	5.1	
LB-4d	12/15/08 14:20	ST	S	55476	8	14.55	11.82	8.35	50800	7.87	< 0.4	< 0.1	0.38	0.15	0.03	16	< 5	< 10	< 10	< 10	< 10	0.15	1.3	1.5	0.32	1.6	< 0.05	3.7	0.78	< 0.1	
LB-4d	12/15/08 14:20	SF	S		80																	0.2	< 0.6	0.88	< 0.05	1.4	< 0.05	< 3	0.77	< 0.1	
NI-1	9/30/08 12:49	DT	S	5841	7.9	22.14	9.82	0.94	6400	8.12	3.15	0.3	1.6	0.73	0.07	12	< 5	110	< 10	< 10	730	9.4	0.64	5.7	< 0.5	110	< 0.5	33	1.5	1.9	1965
NI-1	9/30/08 12:49	DF	S																			8.3	< 0.5	3.4	< 0.5	**110**	< 0.5	26	1.1	1.9	
NI-1d	9/30/08 13:30	DT	S	48833	7.53	18.07	10.52	1.76	51700	8.13	< 0.44	< 0.1	0.29	0.07	0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.2	0.43	0.89	0.11	0.52	< 0.05	< 3	0.86	< 0.1	4700
NI-1d	9/30/08 13:30	DF	S																			0.32	< 0.3	1	0.054	0.69	< 0.05	< 3	0.93	< 0.1	
NI-1d	12/15/08 11:30	ST	S	51644	7.99	14.39	12.19	12	47000	7.8	< 0.4	< 0.1	0.38	0.27	0.05	17	< 5	< 10	< 10	< 10	21	0.39	1.4	3	0.49	2.9	< 0.05	6.5	0.96	< 0.1	
NI-1d	12/15/08 11:30	SF	S																			0.33	< 0.6	1.2	< 0.05	1.4	< 0.05	3.7	0.8	< 0.1	
NI-1d	4/30/09 10:30	DT	S	48290	7.81	17.57	8.65	2.83	52800	8.21	0.72	< 0.1	< 0.2	0.11	0.02	< 5	< 5	< 10	< 10	< 10	< 10	0.11	0.64	1.6	0.16	0.42	< 0.05	2.7	0.99	< 0.1	
NI-1d	4/30/09 10:30	DF	S																			0.15	< 0.6	1.7	0.078	0.46	< 0.05	4.3	0.86	< 0.1	
SCM-1d	10/1/08 10:02	DT	S	54322	8.02	17.51	8.74	1.42	51200	8.21	0.46	< 0.1	0.33	0.06	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.2	< 0.3	0.84	0.083	< 0.5	< 0.05	< 3	0.95	< 0.1	
SCM-1d	10/1/08 10:02	DF	S																			< 0.2	< 0.3	0.53	0.066	< 0.5	< 0.05	< 3	0.96	< 0.1	
SCM-1d	12/15/08 12:45	ST	S	9090	8.56	12.98	13.28	26.5	5210	7.68	3.6	0.16	1.35	2.06	0.52	43	10	< 10	< 10	< 10	100	0.29	2.6	7.7	0.73	5.7	< 0.05	15	1	0.11	
SCM-1d	12/15/08 12:45	SF	S																			0.28	0.83	3.9	0.092	3.3	< 0.05	8.3	1.1	0.11	
SCM-1d	4/28/09 14:45	DT	S	42409	8.13	19.54	8.54	1.82	51300	7.71	0.66	< 0.1	0.24	0.13	< 0.02	6	< 5	< 10	< 10	< 10	< 10	0.24	0.62	0.65	0.093	1.5	< 0.05	2.3	0.97	< 0.1	
SCM-1d	4/28/09 14:45	DF	S																			0.23	< 0.6	0.57	0.034	1.6	< 0.05	2.7	0.9	< 0.1	
SJC-1	9/30/08 11:40	DT	S	3763	8	28.17	12.56	0.93	3290	8.07	1.4	< 0.1	0.99	0.18	< 0.02	< 5	< 5	< 10	< 10	< 10	< 10	< 0.5	< 0.5	3	< 0.5	6.2	< 0.5	3		3.9	1045
SJC-1	9/30/08 11:40	DF	S																			< 0.5	< 0.5	2.9	< 0.5	6.5	< 0.5	4.4	1.8	3.9	

Table C-11.20b
Additional Analyses of Stormwater at ACRW Sites

Site	ACM-1d	DSB-1d	DSB-5d	LB-4d	NI-1d	SCM-1d
Date	12/15/08	12/15/08	12/15/08	12/15/08	12/15/08	12/15/08
Time	13:30	9:30	9:58	14:20	11:30	12:45
Metals						
Ag	ug/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ag (Dissolved)	ug/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
As	ug/L	1	1.1	1.2	0.78	0.96	1
As (Dissolved)	ug/L	1	0.88	0.93	0.77	0.8	1.1
Be	ug/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Be (Dissolved)	ug/L	< 0.5	< 0.5	< 0.5	< 0.1	< 0.1	< 0.1
Cd	ug/L	0.23	0.32	0.53	0.15	0.39	0.29
Cd (Dissolved)	ug/L	< 0.2	0.23	0.37	0.2	0.33	0.28
Cr	ug/L	1.3	2.3	2	1.3	1.4	2.6
Cr (Dissolved)	ug/L	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	0.83
Cu	ug/L	1.2	3.2	2.7	1.5	3	7.7
Cu (Dissolved)	ug/L	< 0.6	1.1	1	0.88	1.2	3.9
Hg	ng/L	0.82	1.8	1.4	1.1	2.8	6
Hg (Dissolved)	ng/L	0.28	0.26	0.56	0.38	1.1	1.6
Ni	ug/L	1.9	2.8	3.2	1.6	2.9	5.7
Ni (Dissolved)	ug/L	< 1	1.1	1.5	1.4	1.4	3.3
Pb	ug/L	0.28	0.75	0.7	0.32	0.49	0.73
Pb (Dissolved)	ug/L	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	0.092
Sb	ug/L	< 0.2	< 0.2	< 0.4	< 0.2	< 0.2	< 0.2
Sb (Dissolved)	ug/L	1.2	0.9	0.8	< 0.2	< 0.2	0.31
Se	ug/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.11
Se (Dissolved)	ug/L	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.11
Tl	ug/L	< 0.05	< 0.05	< 0.1	< 0.05	< 0.05	< 0.05
Tl (Dissolved)	ug/L	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	< 0.05
Zn	ug/L	3.4	7.4	6.6	3.7	6.5	15
Zn (Dissolved)	ug/L	< 6	< 6	< 6	< 3	3.7	8.3
Acid Extractable Compounds							
2,4-Dinitrophenol	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
2-chlorophenol	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
2-Nitrophenol	ng/L	< 10000	< 10000	< 10000	< 10000	< 10000	< 10000
4-Nitrophenol	ng/L	< 10000	< 10000	< 10000	< 10000	< 10000	< 10000
Pentachlorophenol	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Phenol	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000

Table C-11.20b
Additional Analyses of Stormwater at ACRW Sites

	Site	ACM-1d	DSB-1d	DSB-5d	LB-4d	NI-1d	SCM-1d
	Date	12/15/08	12/15/08	12/15/08	12/15/08	12/15/08	12/15/08
	Time	13:30	9:30	9:58	14:20	11:30	12:45
Base/Neutral Extractable Compounds							
1,2,4-Trichlorobenzene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
1,2-Dichlorobenzene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
1,3-Dichlorobenzene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
1,4-Dichlorobenzene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
2,4-Dinitrotoluene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
2,6-Dinitrotoluene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
2-Chloronaphthalene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
3,3'-dichlorobenzidine	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Benzidine	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
bis(2-Chloroethoxy)methane	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
bis(2-Chloroethyl)ether	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
bis(2-Chloroisopropyl)ether	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
bis(2-Ethylhexyl) Phthalate	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Diethyl Phthalate	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Dimethyl Phthalate	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Di-n-butyl Phthalate	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Di-n-octyl Phthalate	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Hexachlorobenzene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Hexachlorobutadiene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Hexachlorocyclopentadiene	ng/L	< 10000	< 10000	< 10000	< 10000	< 10000	< 10000
Hexachloroethane	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Isophorone	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Nitrobenzene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
N-Nitrosodi-n-propylamine	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
N-Nitrosodiphenylamine	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Polynuclear Aromatic Hydrocarbons							
Acenaphthene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Acenaphthylene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Anthracene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Chrysene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Fluoranthene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Fluorene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Indeno[1,2,3-c,d]pyrene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Naphthalene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Phenanthrene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000
Pyrene	ng/L	< 5000	< 5000	< 5000	< 5000	< 5000	< 5000

Table C-11.21
Exceedances of CTR Acute Toxicity Criteria at ACRW Sites: 2008-09

	Dry Weather					Storms				
Site	n	Cd	Cu	Ni	Zn	n	Cd	Cu	Ni	Zn
ACM-1d	2					1				
DSB-1	1		1							
DSB-1d						1				
DSB-3	1		1							
DSB-5	1		1	1						
DSB-5d						1				
LB-2	1									
LB-2d	1									
LB-4	1		1							
LB-4d						1				
NI-1	1			1						
NI-1d	2					1				
SCM-1d	2					1				
SJC-1	1									

Table C-11.22
Aqueous Toxicity in ACRW Drains and Surfzone: 2008-09

			Mysidopsis			Sea Urchin	
			Survival		Growth	Fertilization	Embryo Dev
Site	Date	Type	48hr TUa	TUc	TUc	TUc	TUc
ACM-1d	10/1/08 10:25	DT	0	1	1	1	1
ACM-1d	12/15/08 13:30	ST	1.04	> 2	> 2	1	1
ACM-1d	4/30/09 11:15	DT	0	1	1	1	1
DSB-1	10/2/08 12:20	DT	0	8	2	1	1
DSB-1d	12/15/08 9:30	ST	0.80	1	1	1	1
DSB-3	10/2/08 11:55	DT	0	1	1	1	1
DSB-5	10/2/08 11:25	DT	0	2	1	2	1
DSB-5d	12/15/08 9:58	ST	1.33	> 2	> 2	1	1
LB-2	10/2/08 9:00	DT	0	4	1	1	1
LB-2d	10/2/08 9:15	DT	0	2	1	1	1
LB-4	10/2/08 10:10	DT	1.15	4	2	1	1
LB-4d	12/15/08 14:20	ST	0.97	2	2	1	1
NI-1	9/30/08 12:49	DT	0.96	2	2	1	1
NI-1d	9/30/08 13:30	DT	0	1	1	1	1
NI-1d	12/15/08 11:30	ST	0.93	1	1	1	1
NI-1d	4/30/09 10:30	DT	0	2	1	1	1
SCM-1d	10/1/08 10:02	DT	0.23	1	1	1	1
SCM-1d	12/15/08 12:45	ST	2.74	> 2	> 2	1	1
SCM-1d	4/28/09 14:45	DT	1.20	2	2	1	1
SJC-1	9/30/08 11:40	DT	0.73	1	1	1	1

Table C-11.24
Dry Weather Reconnaissance Sites Exceeding Upper Bound or Below Lower Bound of Regional Tolerance Interval on Consecutive Sampling Dates

			Tolerance Interval Bound Consecutively Exceeded														
Watershed	**Site**	**Type**	Ammonia	Nitrate	orthophosphate	Dissolved Oxyge	pH	Turbidity	TSS	MBAS	Total Chlorine	Total Coliform	Malathion	Cadmium	Copper	Nickel	Zinc
Aliso Creek	AVJ01P26	Random		X					X								
	AVJ01P27	Targeted		X	X												
	AVJ01P28	Targeted	X	X	X												
	AVJ01P33	Random		X													
	LFJ01P01	Targeted		X													
	LFJ01P05	Targeted							X	X		X					
	LHJ05P01	Targeted				X	X									X	
	LNJ03P13	Targeted												X		X	
	LNJ04@LPAZ	Targeted					X									X	
	LWJ01AVSM	Targeted												X			
Dana Point Coastal Streams	DPK01P04	Random														X	
including Salt Creek	LNK01P09	Random			X												
Laguna Coastal Streams	LBLCWI02	Targeted									X						
San Clemente Coastal Streams	DPM00P01	Random														X	
	SCBS@M02	Targeted								X		X					
	SCM03P01	Random	X			X											
San Juan Creek	COL02P55	Random														X	
	DPL01S02	Targeted		X										X		X	X
	DPL01S03	Targeted		X													
	LHL04TBN1	Targeted													X		
	LNL03P06	Targeted		X													
	MVL03P09	Targeted												X		X	
		Region Total	38			Consecutively exceed in 2008											

Table C-11.25: Sediment Chemistry in Dana Point Harbor East Basin - 9/25/08

Sediment Toxicity	%surv	0
Clay	%	12.89
Silt+Clay	%	34.05
Nitrogen	mg/kg	1758
Phosphorus	mg/kg	697
Total Sulfide	mg/Kg	1591
TOC-S	%C	5.04
Metals		
Ag	mg/kg	0.58
Al	mg/kg	24910
As	mg/kg	11.73
Ba	mg/kg	147
Be	mg/kg	1.168
Cd	mg/kg	5.529
Co	mg/kg	9.071
Cr	mg/kg	53.85
Cu	mg/kg	409.3
Fe	mg/kg	27420
Hg	mg/kg	0.12
Mn	mg/kg	200.8
Mo	mg/kg	4.909
Ni	mg/kg	32.85
Pb	mg/kg	24.87
Sb	mg/kg	0.768
Se	mg/kg	0.72
Sn	mg/kg	4.83
Sr	mg/kg	156.8
Ti	mg/kg	1263
Tl	mg/kg	0.359
V	mg/kg	84.66
Zn	mg/kg	526.6
Polycyclic Aromatic Hydrocarbons		
Acenaphthene	ug/Kg	7.7
Acenaphthylene	ug/Kg	3.9
Anthracene	ug/Kg	24
Biphenyl	ug/Kg	2.9
Dibenzothiophene	ug/Kg	12.4
Fluorene	ug/Kg	10.4
2-Methylnaphthalene	ug/Kg	4.1
1-Methylphenanthrene	ug/Kg	12.1
Naphthalene	ug/Kg	10.1
1-Methylnaphthalene	ug/Kg	2.7
2,6-Dimethylnaphthalene	ug/Kg	6.4
2,3,5-TriMethylnaphthalene	ug/Kg	< 1
Phenanthrene	ug/Kg	129.5
Benzo[a]anthracene	ug/Kg	111
Benzo[a]pyrene	ug/Kg	165.4
Benzo[b]fluoranthene	ug/Kg	201.7
Benzo[e]pyrene	ug/Kg	205
Benzo[g,h,i]perylene	ug/Kg	250.4
Chrysene	ug/Kg	211.7
Dibenz[a,h]anthracene	ug/Kg	50.8
Fluoranthene	ug/Kg	354.9
Indeno[1,2,3-c,d]pyrene	ug/Kg	187.2
Perylene	ug/Kg	115.6
Pyrene	ug/Kg	339
Chlorinated Herbicides		
2,4,5 TP-Silvex	ug/Kg	< 10
2,4-D	ug/Kg	< 100

Pyrethroid Pesticides		
Allethrin	ug/Kg	< 0.5
Bifenthrin	ug/Kg	80.9
Cyfluthrin	ug/Kg	21.5
Cypermethrin	ug/Kg	10.3
Deltamethrin	ug/Kg	< 0.5
L-Cyhalothrin	ug/Kg	2.5
Permethrin	ug/Kg	48
Prallethrin	ug/Kg	< 0.5
Triazine Pesticides		
Ametryn	ug/Kg	< 5
Atraton	ug/Kg	< 5
Atrazine	ug/Kg	< 5
Prometon	ug/Kg	< 5
Prometryn	ug/Kg	< 5
Propazine	ug/Kg	< 5
Secbumeton	ug/Kg	< 5
Simazine	ug/Kg	< 5
Simetryn	ug/Kg	< 5
Terbuthylazine	ug/Kg	< 5
Tertbutryn	ug/Kg	< 5
Organochlorine Pesticides and PCB Arochlors		
2,4'-DDD	ug/Kg	< 1
2,4'-DDE	ug/Kg	< 1
2,4'-DDT	ug/Kg	< 1
4,4'-DDD	ug/Kg	< 1
4,4'-DDE	ug/Kg	8.1
4,4'-DDT	ug/Kg	< 1
Alpha-BHC	ug/Kg	< 1
Beta-BHC	ug/Kg	< 1
Delta-BHC	ug/Kg	< 1
Gamma-BHC (Lindane)	ug/Kg	< 1
Aldrin	ug/Kg	< 1
Chlordane-alpha	ug/Kg	< 1
Chlordane-gamma	ug/Kg	< 1
OxyChlordane	ug/Kg	< 1
cis-Nonachlor	ug/Kg	< 1
Dieldrin	ug/Kg	< 1
Endosulfan I	ug/Kg	< 1
Endosulfan II	ug/Kg	< 1
Endosulfan Sulfate	ug/Kg	< 1
Endrin	ug/Kg	< 1
Endrin Aldehyde	ug/Kg	< 1
Endrin Ketone	ug/Kg	< 1
Heptachlor	ug/Kg	< 1
Heptachlor Epoxide	ug/Kg	< 1
Methoxychlor	ug/Kg	< 1
Mirex	ug/Kg	< 1
PCB-1016	ug/Kg	< 10
PCB-1221	ug/Kg	< 10
PCB-1232	ug/Kg	< 10
PCB-1242	ug/Kg	< 10
PCB-1248	ug/Kg	< 10
PCB-1254	ug/Kg	< 10
PCB-1260	ug/Kg	< 10
Perthane	ug/Kg	< 5
Toxaphene	ug/Kg	< 10
Trans-Nonachlor	ug/Kg	< 1

Organophosphate Pesticides		
Bolstar	ug/Kg	< 10
Chlorpyrifos	ug/Kg	< 5
Demeton	ug/Kg	< 10
Diazinon	ug/Kg	< 5
Dichlorvos	ug/Kg	< 10
Dimethoate	ug/Kg	< 5
Disulfoton	ug/Kg	< 10
Ethoprop	ug/Kg	< 10
Fenchlorphos	ug/Kg	< 10
Fensulfothion	ug/Kg	< 10
Fenthion	ug/Kg	< 10
Malathion	ug/Kg	< 5
Merphos	ug/Kg	< 10
Mevinphos	ug/Kg	< 10
Parathion-Methyl	ug/Kg	< 10
Phorate	ug/Kg	< 10
Tetrachlorvinphos	ug/Kg	< 10
Tokuthion	ug/Kg	< 10
Trichloronate	ug/Kg	< 10
PCB Congeners		
PCB018	ug/Kg	< 1
PCB028	ug/Kg	< 1
PCB031	ug/Kg	< 1
PCB033	ug/Kg	< 1
PCB037	ug/Kg	< 1
PCB044	ug/Kg	< 1
PCB049	ug/Kg	< 1
PCB052	ug/Kg	< 1
PCB066	ug/Kg	< 1
PCB070	ug/Kg	< 1
PCB074	ug/Kg	< 1
PCB077	ug/Kg	< 1
PCB081	ug/Kg	< 1
PCB087	ug/Kg	< 1
PCB095	ug/Kg	< 1
PCB097	ug/Kg	< 1
PCB099	ug/Kg	< 1
PCB101	ug/Kg	< 1
PCB105	ug/Kg	< 1
PCB110	ug/Kg	< 1
PCB114	ug/Kg	< 1
PCB118	ug/Kg	< 1
PCB119	ug/Kg	< 1
PCB123	ug/Kg	< 1
PCB126	ug/Kg	< 1
PCB138	ug/Kg	< 1
PCB141	ug/Kg	< 1
PCB149	ug/Kg	< 1
PCB151	ug/Kg	< 1
PCB153	ug/Kg	< 1
PCB156	ug/Kg	< 1
PCB157	ug/Kg	< 1
PCB158	ug/Kg	< 1
PCB168+132	ug/Kg	< 1
PCB169	ug/Kg	< 1
PCB170	ug/Kg	< 1
PCB177	ug/Kg	< 1
PCB180	ug/Kg	< 1
PCB183	ug/Kg	< 1
PCB187	ug/Kg	< 1
PCB189	ug/Kg	< 1
PCB194	ug/Kg	< 1
PCB200	ug/Kg	< 1
PCB201	ug/Kg	< 1
PCB206	ug/Kg	< 1

Anthropogenically influenced according to SCCWRP's Iron Normalization Procedure

Exceeds Effects Range Median (ERM)

Table C-11.28
Sediment Toxicity at Dana Point Harbor in a Regional Context, Using Data from the Bight '03 Bays and Harbors Stratum

Area	% Highly toxic	% Moderately toxic	% Nontoxic
Dana Point NPDES 03-04	20	70	10
Dana Point NPDES 04-05	20	50	30
Dana Point NPDES 05-06	10	0	90
Dana Point NPDES 06-07	10	20	70
Dana Point NPDES 07-08	10	0	90
Dana Point 03-08	14	28	58
Southern California Bight overall	10	37	53
Anaheim Bay	0	50	50
Dana Point	0	0	100
San Pedro Bay	5	37	58
Marina del Rey	0	25	75
Mission Bay	0	50	50
Newport Bay	63	25	13
Oxnard Harbor	0	0	100
Redondo Harbor	0	0	100
San Diego Bay	0	47	53

Highly toxic:	< 50% survival
Moderately toxic:	≥ 50 - < 83% survival
Nontoxic:	≥ 83% survival

Table C-11.29
Exceedances of CTR Acute Criteria for Dissolved Metals in the SDR: 2008-09

					Freshwater CTR						Saltwater CTR					
			n		Cu		Ni		Zn		Cu		Ni		Zn	
Waterbody or Watershed	**Site**	**Pgm**	**Dry**	**Storms**	**dry**	**st**	**dry**	**st**	**dry**	**st**	**dry**	**st**	**dry**	**st**	**dry**	**st**
Dana Point Coastal Streams	DSB-1	ACRW	1								1					
Dana Point Coastal Streams	DSB-3	ACRW	1								1					
Dana Point Coastal Streams	DSB-5	ACRW	1								1		1			
Dana Point Coastal Streams	NI-1	ACRW	1										1			
Doheny SMCA	DSB-1d	ACRW		1												
Doheny SMCA	DSB-5d	ACRW		1												
Heisler Park State Marine Reserve	LB-2d	ACRW	1													
Laguna Beach Coastal Streams	LB-2	ACRW	1													
Laguna Beach Coastal Streams	LB-4	ACRW	1								1					
Laguna Beach SMCA	ACM-1d	ACRW	2	1												
Laguna Beach SMCA	LB-4d	ACRW		1												
Niguel SMCA	NI-1d	ACRW	2	1												
Niguel SMCA	SCM-1d	ACRW	2	1												
San Juan Creek	SJC-1	ACRW	1													
Aliso Creek	ACJ01	ME		9								2				
Laguna Beach Coastal Streams	LCWI02	ME		10		2						6				
San Clemente Coastal Streams	PDCM01	ME		11								11		3		1
San Clemente Coastal Streams	SDCM02	ME		10								10				1
San Juan Creek	SJNL01	ME		7								3				
San Juan Creek	TCOL02	ME		11								3				
Aliso Creek	AC-CCR	USB	2													
Aliso Creek	ACJ01	USB	2													
Aliso Creek	AC-PPD	USB	1													
Aliso Creek	EC-MD	USB	2													
Aliso Creek	WC-WCT	USB	2													
Dana Point Coastal Streams	SC-MB	USB	2													
Laguna Beach Coastal Streams	LC-133	USB	2													
San Clemente Coastal Streams	SD-AP	USB	2													
San Juan Creek	REF-BC	USB	1													
San Juan Creek	REF-CS	USB	2													
San Juan Creek	REF-TCAS	USB	1													
San Juan Creek	SJC-74	USB	1													
San Juan Creek	SJC-CC	USB	2													
San Juan Creek	TC-AP	USB	1													
San Juan Creek	TC-DO	USB	2													
	SMC00206	USB	1													
	SMC00531	USB	1													
	SMC00873	USB	1													

SMCA-State Marine Conservation Area