

**QUARTERLY WATER QUALITY
MONITORING REPORT
CHEVRON PRODUCTS COMPANY
EL SEGUNDO REFINERY**

Daniel J. Pondella, II, Ph.D. and Jonathan P. Williams, M.S.

**Vantuna Research Group, Occidental College
Los Angeles, California 90041**

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In accord with the requirements of the California Regional Water Quality Control Board, Los Angeles Region (Order No. R4-2006-0089 under NPDES Permit No. CA0000337) the Vantuna Research Group at Occidental College completed the spring offshore portion of Chevron's El Segundo Refinery NPDES sampling program. Water quality parameters (temperature, dissolved oxygen, pH, and conductivity) were consistent among all receiving waters stations indicating that the diffuser section of the outfall continues to work properly. This finding was also confirmed by visual observation of the outfall by scuba. In addition, in April, May, and June water grabs were collected at the 20' isobath (Stations RW1, RW3 and RW5) and surfzone (Stations S1, S3 and S5) for bacteria monitoring. There were elevated fecal coliform and total coliform bacteria at Station RW5 in April, Station S5 in May and Station S5 in June. Detectable levels of enterococci and total coliform bacteria were also found at Station S3 in June. Overall the conditions of the study site were healthy and consistent with ambient conditions throughout Santa Monica Bay.

WATER QUALITY

On May 26, 2010, water quality parameters (temperature, dissolved oxygen, pH and conductivity) were measured with a Sea-Bird oceanographic profiler (Model SEACAT SBE 19-03). All offshore receiving water stations (RW1, RW3, RW5 through RW10, and RW14 through RW18; Figure 1) were sampled. The results of the hydrocasts are given at 1-meter depth increments from the surface to the bottom at stations on both the flood and ebb tide (Appendix I). Water quality parameters were similar among the receiving water stations. These findings were consistent with the visual surveys of the outfall; indicating that the diffuser section continues to operate normally. All water quality parameters for each station were consistent with the ambient nearshore marine environment of Santa Monica Bay.

VISUAL SURVEYS OF THE OUTFALL

A visual inspection of the outfall's diffuser section was completed on May 13, 2010 during the enhanced monitoring program. During this visual survey, the outfall was functioning properly. The diffuser section was functioning properly. There was still significant invertebrate growth on the outfall and we observed twelve species of fish in its vicinity.

FIELD NOTES

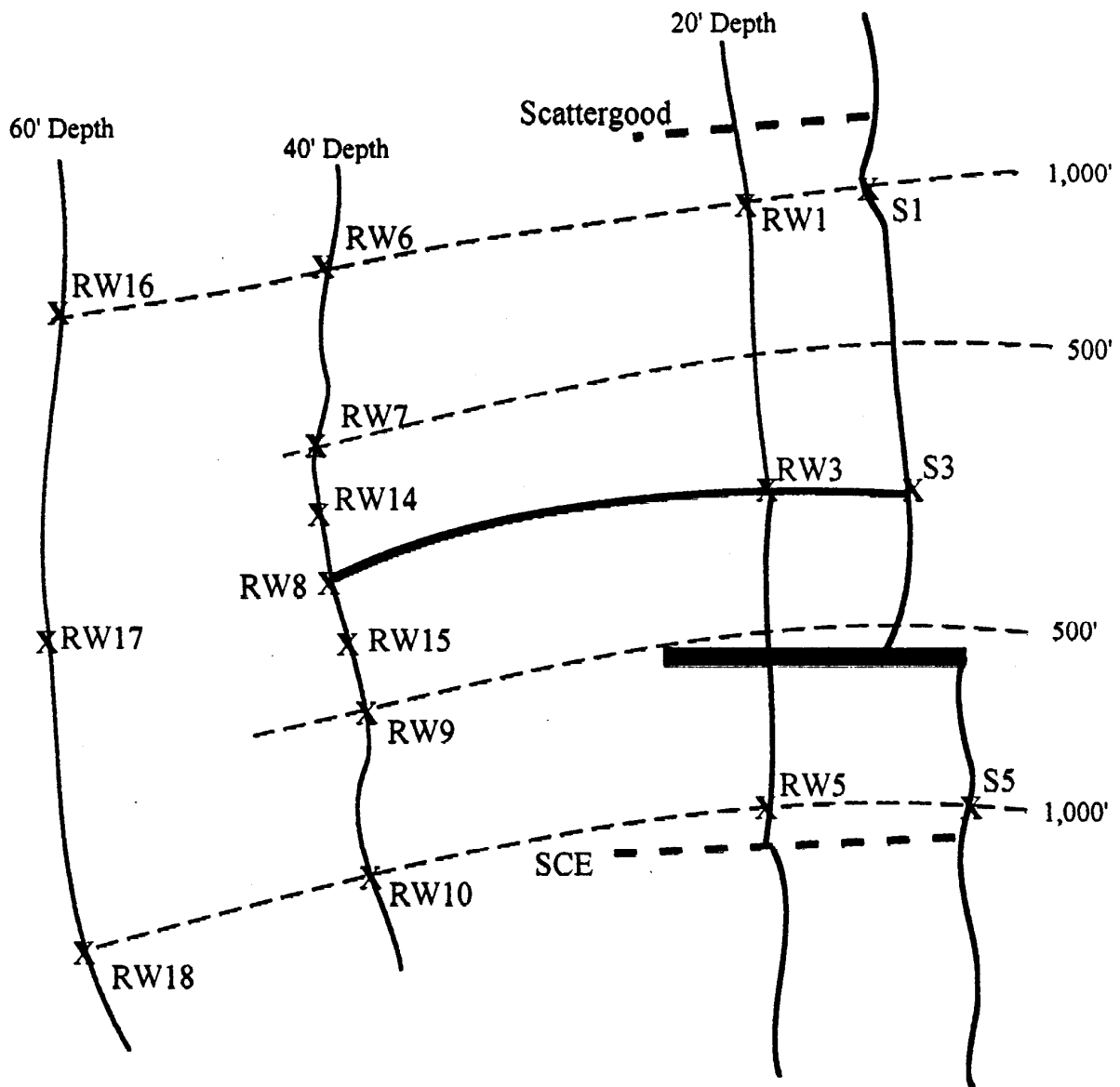
All appropriate observations and field notes were taken at each station (Appendix II). There were good field conditions each day of the survey. Western gulls, Brandt's cormorants, western grebes, willets, whimbrels, a great egret and California sea lions were present in the study area. We had late rains this year and spring featured unusually high and persistent onshore winds. There was a red tide in the Santa Monica Bay that was observed at the inner stations during the May survey. This was caused by the dinoflagellate, *Lingulodinium polyedrum*, which blooms during years of heavy runoff. The study site appeared normal during these surveys.

BACTERIA MONITORING

Water grabs were completed at stations RW1, RW3, RW5, S1, S3 and S5 on April 9, May 13, and June 15, 2010. These water samples were analyzed by CRG Marine Laboratories, Inc. for total coliforms (SM 9221B), fecal coliforms (SM9221E) and enterococcus (EPA 1600). The results of this testing program are presented in Table 1 and the reports from CRG Marine Laboratories, Inc. are in Appendix III. There were elevated fecal coliform and total coliform bacteria at Station RW5 in April, Station S5 in May and Station S5 in June. Detectable levels of enterococci and total coliform bacteria were also found at Station S3 in June.

Table 1. The results of the bacterial monitoring are presented below by receiving water station and sampling month.

	<u>Station</u>					
<u>April</u>	<u>RW1</u>	<u>RW3</u>	<u>RW5</u>	<u>S1</u>	<u>S3</u>	<u>S5</u>
Enterococci (CFU/100ml)	10	< 10	< 10	< 10	< 10	< 10
Fecal Coliform (MPN/100ml)	< 20	< 20	20	< 20	< 20	< 20
Total Coliform (MPN/100ml)	< 20	< 20	80	< 20	< 20	< 20
<u>May</u>						
Enterococci (CFU/100ml)	< 10	< 10	< 10	< 10	< 10	< 10
Fecal Coliform (MPN/100ml)	< 20	< 20	< 20	< 20	< 20	20
Total Coliform (MPN/100ml)	< 20	< 20	< 20	< 20	< 20	20
<u>June</u>						
Enterococci (CFU/100ml)	< 10	< 10	< 10	< 10	10	< 10
Fecal Coliform (MPN/100ml)	< 20	< 20	< 20	< 20	< 20	20
Total Coliform (MPN/100ml)	< 20	< 20	< 20	< 20	20	20



X Reference

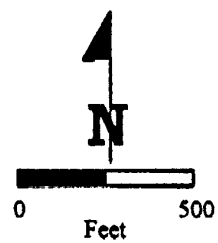


Figure 1. Locations (X) of Chevron's El Segundo's Refinery Receiving Water Monitoring Stations.

Appendix I

Water quality data were recorded on May 26, 2010 from the R/V Xenarcha. These data were organized by station according to flood or ebb tides. There was a high tide of 3.8 ft at 9:48 AM.

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 1	flood	945	0	16.76	6.3	8.48	42.2
				1	16.44	6.3	8.47	42.2
				2	16.35	6.3	8.46	42.2
				3	16.31	6.3	8.46	42.2
				4	16.30	6.3	8.46	42.2
				5	16.29	6.3	8.46	42.2
				6	16.25	6.3	8.46	42.2
				7	16.23	6.3	8.46	42.2

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 3	flood	941	0	16.65	6.6	8.50	42.2
				1	16.38	6.7	8.46	42.2
				2	16.30	6.7	8.45	42.2
				3	16.37	6.7	8.47	42.2
				4	16.26	6.7	8.46	42.2
				5	16.15	6.7	8.44	42.2
				6	16.16	6.7	8.44	42.2
				7	16.15	6.6	8.44	42.2
				8	16.15	6.6	8.44	42.2

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 5	flood	937	0	16.64	6.6	8.49	42.0
				1	16.48	6.7	8.46	42.0
				2	16.38	6.7	8.44	42.0
				3	16.43	6.7	8.48	42.0
				4	16.23	6.7	8.46	42.0
				5	16.09	6.7	8.43	42.0
				6	16.08	6.7	8.43	42.0
				7	16.07	6.6	8.43	42.0
				8	16.07	6.6	8.43	42.0

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 6	flood	903	0	16.07	6.3	8.42	41.2
				1	15.99	6.4	8.41	41.2
				2	15.94	6.5	8.32	41.2
				3	15.91	6.7	8.42	41.3
				4	15.90	6.7	8.41	41.3
				5	15.88	6.4	8.41	41.3
				6	15.85	6.5	8.40	41.3
				7	15.77	6.5	8.39	41.3
				8	15.65	6.4	8.38	41.3
				9	15.34	6.3	8.36	41.3
				10	15.10	6.3	8.33	41.3
				11	14.99	6.3	8.31	41.3
				12	14.72	6.2	8.29	41.3
				13	14.04	6.1	8.26	41.3

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 7	flood	908	0	16.06	6.5	8.44	41.5
				1	16.00	6.3	8.42	41.5
				2	15.99	6.2	8.47	41.6
				3	15.90	6.4	8.43	41.6
				4	15.76	6.4	8.40	41.6
				5	15.57	6.4	8.37	41.6
				6	15.38	6.3	8.34	41.6
				7	15.25	6.2	8.32	41.6
				8	15.15	6.2	8.31	41.6
				9	15.11	6.2	8.31	41.6
				10	15.12	6.2	8.31	41.6
				11	15.11	6.2	8.31	41.6
				12	14.74	6.2	8.30	41.6
				13	14.23	6.1	8.26	41.6

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 8	flood	918	0	16.10	6.6	8.46	41.6
				1	16.01	6.9	8.44	41.6
				2	15.78	7.0	8.42	41.6
				3	16.06	7.1	8.45	41.8
				4	15.99	7.1	8.43	41.8
				5	15.90	7.0	8.43	41.8
				6	15.83	6.9	8.42	41.8
				7	15.49	6.7	8.38	41.8
				8	15.18	6.6	8.32	41.8
				9	14.93	6.4	8.30	41.8
				10	14.77	6.2	8.28	41.8
				11	14.65	6.2	8.25	41.8
				12	14.43	6.0	8.22	41.8
				13	14.41	5.8	8.22	41.7

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 9	flood	926	0	16.06	6.8	8.47	41.6
				1	15.98	6.8	8.45	41.6
				2	15.85	6.8	8.42	41.6
				3	16.02	7.0	8.46	41.9
				4	15.97	6.9	8.44	41.9
				5	15.91	6.9	8.43	41.9
				6	15.84	6.9	8.42	41.9
				7	15.63	6.7	8.40	41.9
				8	15.16	6.4	8.34	41.9
				9	14.71	6.3	8.28	41.9
				10	14.53	6.2	8.25	41.9
				11	14.39	6.0	8.24	41.9
				12	14.25	5.9	8.23	41.8
				13	14.20	5.9	8.22	41.8

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 10	flood	931	0	16.21	6.7	8.47	41.7
				1	16.09	6.7	8.46	41.7
				2	16.02	6.7	8.44	41.7
				3	16.06	6.8	8.48	41.9
				4	15.99	6.8	8.46	41.9
				5	15.94	6.8	8.44	41.9
				6	15.89	6.7	8.43	41.9
				7	15.79	6.3	8.42	41.9
				8	15.57	6.2	8.39	41.9
				9	14.92	6.2	8.32	41.9
				10	14.71	6.3	8.27	41.9
				11	14.57	6.4	8.26	41.9
				12	14.40	5.9	8.26	41.9
				13	14.16	5.7	8.23	41.8

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 14	flood	913	0	16.15	6.6	8.45	41.6
				1	16.07	6.3	8.43	41.6
				2	16.00	6.7	8.42	41.6
				3	16.07	6.6	8.46	41.7
				4	16.01	6.9	8.44	41.7
				5	15.95	6.8	8.43	41.7
				6	15.91	6.4	8.43	41.8
				7	15.85	6.1	8.42	41.8
				8	15.59	6.1	8.40	41.8
				9	15.39	6.1	8.37	41.8
				10	15.17	6.1	8.32	41.8
				11	14.97	6.1	8.28	41.7
				12	14.79	6.2	8.27	41.7
				13	14.69	6.1	8.26	41.7

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 15	flood	922	0	16.19	6.9	8.47	41.6
				1	16.10	7.0	8.45	41.6
				2	15.98	7.0	8.42	41.6
				3	16.02	7.2	8.46	41.8
				4	15.95	7.0	8.44	41.8
				5	15.90	7.0	8.43	41.8
				6	15.62	7.0	8.40	41.8
				7	15.45	6.8	8.36	41.8
				8	15.17	6.5	8.34	41.8
				9	14.78	6.2	8.30	41.8
				10	14.60	6.0	8.27	41.8
				11	14.50	6.0	8.25	41.8
				12	14.38	5.9	8.24	41.8
				13	14.22	5.9	8.23	41.8

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 16	flood	857	0	15.91	7.1	8.42	40.4
				1	15.87	7.0	8.40	40.4
				2	15.80	6.9	8.38	40.3
				3	15.76	7.1	8.37	41.0
				4	15.61	7.1	8.36	41.0
				5	15.29	7.0	8.35	41.0
				6	14.90	6.7	8.30	41.0
				7	14.58	6.4	8.27	41.0
				8	14.22	6.2	8.25	41.0
				9	13.82	6.1	8.22	41.0
				10	13.22	5.9	8.16	41.0
				11	13.04	5.8	8.12	41.0
				12	12.94	5.8	8.11	41.0
				13	12.78	5.7	8.10	41.0
				14	12.68	5.7	8.09	41.0
				15	12.62	5.7	8.08	40.9
				16	12.58	5.7	8.06	40.9
				17	12.49	5.7	8.05	40.9
				18	12.05	5.7	8.01	40.8
				19	11.64	5.7	7.96	40.8
				20	11.26	5.7	7.91	40.7

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 17	flood	850	0	15.57	6.9	8.33	40.2
				1	15.50	6.9	8.22	40.6
				2	15.19	6.8	8.16	40.9
				3	14.71	6.7	8.14	40.9
				4	14.24	7.0	8.14	41.0
				5	13.95	6.9	8.14	40.9
				6	13.88	6.8	8.13	40.9
				7	13.86	6.7	8.13	40.8
				8	13.85	6.5	8.13	40.7
				9	13.84	6.4	8.13	40.7
				10	13.82	6.2	8.13	40.6
				11	13.77	6.0	8.12	40.6
				12	13.74	5.8	8.11	40.5
				13	13.72	5.8	8.10	40.4
				14	13.67	5.7	8.07	40.3
				15	13.53	5.7	8.03	40.1
				16	13.37	5.7	7.99	39.9
				17	12.71	5.7	7.92	39.8
				18	11.84	5.7	7.89	40.1
				19	11.52	5.7	7.88	40.3
				20	11.19	5.7	7.88	40.4

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 18	flood	844	0	15.85	6.9	8.39	41.9
				1	15.81	6.9	8.37	41.9
				2	15.71	6.9	8.34	41.8
				3	15.61	6.9	8.30	41.8
				4	15.39	7.0	8.25	41.6
				5	15.10	6.8	8.23	41.5
				6	14.86	6.4	8.20	41.4
				7	14.57	6.3	8.20	41.3
				8	14.49	6.0	8.20	41.2
				9	14.40	5.9	8.20	41.2
				10	14.17	5.9	8.20	41.1
				11	13.79	5.8	8.21	41.1
				12	13.35	5.8	8.20	41.1
				13	13.10	5.8	8.20	41.1
				14	13.00	5.8	8.19	41.1
				15	12.66	5.7	8.18	41.1
				16	12.11	5.7	8.18	41.1
				17	11.67	5.7	8.17	41.1
				18	11.53	5.7	8.17	41.1
				19	11.44	5.7	8.17	41.1

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 1	ebb	1106	0	17.06	6.1	8.56	42.6
				1	16.54	6.0	8.50	42.6
				2	16.33	6.0	8.48	42.6
				3	16.32	6.1	8.50	42.7
				4	16.27	6.1	8.48	42.7
				5	16.18	6.1	8.47	42.7
				6	16.10	6.1	8.46	42.7
				7	16.05	6.1	8.45	42.7

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 3	ebb	1100	0	17.04	6.0	8.58	42.4
				1	16.70	6.0	8.50	42.4
				2	16.24	6.0	8.47	42.4
				3	16.23	6.1	8.52	42.5
				4	16.18	6.1	8.47	42.5
				5	16.10	6.0	8.46	42.5
				6	15.93	6.0	8.44	42.5
				7	15.88	6.0	8.43	42.5

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 5	ebb	1055	0	17.10	6.2	8.59	42.3
				1	16.85	6.2	8.51	42.3
				2	16.35	6.2	8.46	42.3
				3	16.22	6.3	8.22	42.4
				4	16.08	6.3	8.46	42.4
				5	15.93	6.3	8.43	42.4
				6	15.91	6.2	8.43	42.4
				7	15.90	6.2	8.42	42.4

Depth Temperature Oxygen pH Conductivity

Date	Station	Tide	Time	(m)	(C)	(ppm)		(mmhos/cm)
5/26/2010	RW 6	ebb	1016	0	16.46	6.6	8.48	41.2
				1	16.28	6.6	8.47	41.1
				2	16.07	6.6	8.19	41.4
				3	15.93	6.6	8.46	41.4
				4	15.75	6.7	8.43	41.4
				5	15.56	6.6	8.40	41.4
				6	14.95	6.6	8.35	41.4
				7	14.61	6.6	8.30	41.4
				8	14.50	6.6	8.27	41.4
				9	14.33	6.5	8.24	41.4
				10	13.97	6.3	8.20	41.4
				11	13.77	6.2	8.18	41.4
				12	13.70	6.1	8.17	41.4
				13	13.59	6.1	8.17	41.4

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 7	ebb	1021	0	16.43	6.6	8.47	41.5
				1	16.14	6.7	8.42	41.5
				2	15.86	6.6	8.37	41.5
				3	15.74	6.7	8.44	41.9
				4	15.39	6.7	8.40	41.9
				5	15.22	6.7	8.35	41.9
				6	15.03	6.7	8.33	41.9
				7	14.69	6.6	8.31	41.9
				8	14.21	6.5	8.24	41.9
				9	13.91	6.5	8.19	41.9
				10	13.80	6.5	8.18	41.9
				11	13.75	6.3	8.18	41.8
				12	13.74	6.2	8.18	41.8
				13	13.75	5.9	8.17	41.8

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 8	ebb	1033	0	16.52	6.8	8.48	41.7
				1	16.26	6.7	8.48	41.7
				2	16.02	6.7	8.43	41.7
				3	16.02	6.8	8.49	42.1
				4	15.92	6.8	8.46	42.1
				5	15.81	6.8	8.43	42.1
				6	15.61	6.8	8.40	42.1
				7	14.38	6.8	8.31	42.1
				8	14.28	6.7	8.23	42.1
				9	13.93	6.7	8.19	42.1
				10	13.78	6.4	8.16	42.0
				11	13.73	6.1	8.15	42.0
				12	13.61	6.1	8.14	42.0
				13	13.54	6.1	8.14	41.9

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 9	ebb	1043	0	16.46	6.7	8.47	41.5
				1	16.22	6.7	8.46	41.5
				2	15.97	6.7	8.43	41.5
				3	15.89	6.8	8.46	41.9
				4	15.84	6.7	8.44	41.9
				5	15.63	6.7	8.41	41.9
				6	14.89	6.7	8.32	41.9
				7	14.01	6.6	8.23	41.9
				8	13.58	6.6	8.17	41.8
				9	13.32	6.5	8.14	41.8
				10	13.27	6.4	8.13	41.8
				11	13.17	6.4	8.11	41.8
				12	13.11	6.3	8.10	41.8
				13	13.12	5.8	8.10	41.7

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 10	ebb	1048	0	16.53	6.5	8.46	41.7
				1	16.45	6.5	8.48	41.7
				2	16.23	6.4	8.47	41.7
				3	16.14	6.5	8.50	41.9
				4	15.99	6.4	8.49	42.0
				5	15.89	6.4	8.47	42.0
				6	15.71	6.4	8.44	42.0
				7	15.28	6.4	8.40	42.0
				8	14.32	6.4	8.32	42.0
				9	13.71	6.4	8.23	42.0
				10	13.16	6.4	8.16	42.0
				11	13.11	6.3	8.11	41.9
				12	13.10	5.9	8.10	41.9
				13	13.13	5.8	8.09	41.9

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 14	ebb	1027	0	16.61	6.7	8.48	41.6
				1	15.96	6.8	8.40	41.6
				2	15.75	6.7	8.38	41.6
				3	15.52	6.8	8.33	41.6
				4	15.43	6.8	8.40	42.0
				5	15.26	6.8	8.35	42.0
				6	14.97	6.8	8.32	42.0
				7	14.68	6.7	8.28	42.0
				8	14.33	6.7	8.24	42.0
				9	13.84	6.7	8.19	41.9
				10	13.72	6.6	8.18	41.9
				11	13.63	6.4	8.17	41.9
				12	13.61	6.1	8.16	41.9
				13	13.60	5.9	8.16	41.8

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 15	ebb	1037	0	16.57	6.7	8.48	41.6
				1	16.27	6.7	8.47	41.6
				2	15.95	6.7	8.42	41.6
				3	15.93	6.8	8.44	42.0
				4	15.81	6.7	8.44	42.0
				5	15.31	6.7	8.40	42.0
				6	14.85	6.7	8.33	42.0
				7	14.31	6.7	8.27	42.0
				8	13.76	6.7	8.21	42.0
				9	13.72	6.7	8.18	42.0
				10	13.63	6.5	8.17	42.0
				11	13.58	6.1	8.16	41.9
				12	13.54	6.0	8.16	41.9
				13	13.52	5.9	8.15	41.8

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 16	ebb	1009	0	16.22	6.7	8.42	40.2
				1	15.78	6.8	8.34	40.2
				2	14.92	6.8	8.20	40.2
				3	13.94	6.8	8.10	40.3
				4	14.00	6.8	8.27	41.5
				5	13.21	6.8	8.16	41.5
				6	12.89	6.8	8.11	41.4
				7	12.78	6.8	8.09	41.4
				8	12.71	6.8	8.08	41.4
				9	12.63	6.8	8.08	41.3
				10	12.46	6.8	8.09	41.3
				11	12.35	6.8	8.08	41.2
				12	12.16	6.7	8.06	41.2
				13	12.04	6.6	8.04	41.1
				14	11.90	6.3	8.03	41.1
				15	11.82	6.1	8.02	41.0
				16	11.78	5.9	8.01	41.0
				17	11.74	5.8	8.00	40.9
				18	11.70	5.8	7.99	40.9

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 17	ebb	1003	0	16.16	6.9	8.42	40.6
				1	16.04	6.8	8.44	40.6
				2	15.95	6.8	8.42	40.6
				3	15.92	6.9	8.45	41.5
				4	15.71	6.9	8.44	41.5
				5	15.47	6.9	8.41	41.5
				6	14.80	6.8	8.37	41.5
				7	14.19	6.8	8.29	41.5
				8	13.77	6.8	8.22	41.5
				9	13.15	6.8	8.13	41.5
				10	12.53	6.7	8.08	41.5
				11	12.39	6.6	8.05	41.4
				12	12.23	6.3	8.03	41.4
				13	12.14	6.1	8.02	41.4
				14	12.07	6.0	8.00	41.3
				15	12.05	6.0	8.00	41.3
				16	12.03	5.9	7.99	41.2
				17	12.01	5.8	7.99	41.2
				18	11.97	5.7	7.99	41.2
				19	11.57	5.7	7.97	41.1
				20	11.15	5.7	7.93	41.1

Date	Station	Tide	Time	Depth (m)	Temperature (C)	Oxygen (ppm)	pH	Conductivity (mmhos/cm)
5/26/2010	RW 18	ebb	957	0	16.13	6.9	8.45	40.7
				1	15.54	6.9	8.28	40.6
				2	14.96	6.9	8.23	40.7
				3	14.75	7.0	8.29	41.8
				4	14.54	7.0	8.26	41.8
				5	14.27	6.9	8.22	41.8
				6	13.69	6.8	8.16	41.8
				7	13.37	6.8	8.12	41.8
				8	13.03	6.7	8.10	41.7
				9	12.51	6.6	8.04	41.7
				10	12.11	6.3	7.99	41.7
				11	11.91	6.1	7.97	41.6
				12	11.80	6.1	7.96	41.6
				13	11.74	6.0	7.96	41.5
				14	11.68	5.9	7.96	41.5
				15	11.66	5.9	7.95	41.4
				16	11.64	5.8	7.95	41.4
				17	11.62	5.8	7.94	41.3
				18	11.60	5.7	7.94	41.3
				19	11.56	5.7	7.94	41.2

Appendix II

Field notes were taken for all receiving water monitoring stations on April 9, May 13, May 26 and June 15, 2010. Water Quality station notes (May 26, 2010) were organized by flood and ebb tide.

April 9, 2010 - Bacteria Stations

Station:	<u>S1</u>	<u>S3</u>	<u>S5</u>
Tide:	Ebb	Ebb	Ebb
Date:	4/9/2010	4/9/2010	4/9/2010
Time:	12:05:23 PM	11:59:54 AM	11:54:29 AM
Crew:	Williams, Munoz, Fink	Williams, Munoz, Fink	Williams, Munoz, Fink
Wind (kn):	10	10	3
Sea Conditions (ft):	4	4	4
Cloud Cover (%):	10	10	10
Turbidity:	No	No	No
Floatables:	No	Yes, leaf litter	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	Willet (<i>Tringa semipalmata</i>), 6	Willet (<i>Tringa semipalmata</i>), 3; Whimbrel <i>Numenius phaeopus</i>), 1	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No
Comments:	None	None	None

Station:	<u>RW1</u>	<u>RW3</u>	<u>RW5</u>
Tide:	Ebb	Ebb	Ebb
Date:	4/9/2010	4/9/2010	4/9/2010
Time:	9:51:13 AM	9:47:26 AM	9:43:09 AM
Crew:	Williams, Munoz, Fink	Williams, Munoz, Fink	Williams, Munoz, Fink
Wind (kn):	3	3	3
Sea Conditions (ft):	8	6	5
Cloud Cover (%):	50	60	70
Turbidity:	No	No	No
Floatables:	No	Yes, giant kelp (<i>Macrocystis pyrifera</i>), garbage	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	Western grebe (<i>Aechmophorus occidentalis</i>), 70; Brandt's cormorant (<i>Phalacrocorax penicillatus</i>), 4
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No
Comments:	None	None	None

May 13th, 2010 - Bacteria Stations

Station:	<u>S1</u>	<u>S3</u>	<u>S5</u>
Tide:	Ebb	Ebb	Ebb
Date:	5/13/2010	5/13/2010	5/13/2010
Time:	2:16:09 PM	2:24:02 PM	2:28:29 PM
Crew:	Wozniak and Munoz	Wozniak and Munoz	Wozniak and Munoz
Wind (kn):	8	8	8
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	0	0	0
Turbidity:	No	No	No
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	Willet (<i>Tringa semipalmata</i>), 2	Western gull (<i>Larus occidentalis</i>), 2; Whimbrel (<i>Numenius phaeopus</i>), 4
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No

Station:	<u>RW1</u>	<u>RW3</u>	<u>RW5</u>
Tide:	Ebb	Ebb	Ebb
Date:	5/13/2010	5/13/2010	5/13/2010
Time:	12:04:19 PM	12:01:11 PM	11:57:41 AM
Crew:	Williams, Munoz, Fink, Hansler, and Wozniak	Williams, Munoz, Fink, Hansler, and Wozniak	Williams, Munoz, Fink, Hansler, and Wozniak
Wind (kn):	10	10	10
Sea Conditions (ft):	3	3	3
Cloud Cover (%):	5	5	5
Turbidity:	No	No	No
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No

May 26th, 2010 - Water Quality Stations

Station:	<u>RW1</u>	<u>RW3</u>	<u>RW5</u>
Tide:	Flood	Flood	Flood
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	9:45:22 AM	9:41:35 AM	9:36:06 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	2	2	2
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	20	20	30
Turbidity:	Yes	Yes	Yes
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	Yes	Yes	Yes
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	California sea lion (<i>Zalophus californianus</i>), 1	None
Commercial Fishing:	No	No	No

Station:	<u>RW6</u>	<u>RW7</u>	<u>RW8</u>
Tide:	Flood	Flood	Flood
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	9:03:35 AM	9:08:48 AM	9:18:37 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	2	2	2
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	90	80	60
Turbidity:	No	No	No
Floatables:	No	Yes, giant kelp (<i>Macrocystis pyrifera</i>), eelgrass (<i>Zostera sp.</i>), surfgrass (<i>Phyllospadix</i> <i>sp.</i>)	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No

Station:	<u>RW9</u>	<u>RW10</u>	<u>RW14</u>
Tide:	Flood	Flood	Flood
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	9:26:32 AM	9:31:34 AM	9:13:38 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	2	2	2
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	40	30	70
Turbidity:	No	No	No
Floatables:	No	Surfgrass (<i>Phyllospadix</i> <i>sp.</i>)	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No

Station:	<u>RW15</u>	<u>RW16</u>	<u>RW17</u>
Tide:	Flood	Flood	Flood
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	9:22:13 AM	8:57:02 AM	8:50:32 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	2	2	2
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	50	90	95
Turbidity:	No	No	No
Floatables:	Yes, giant kelp (<i>Macrocystis pyrifera</i>), surfgrass	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	1	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	California sea lion (<i>Zalophus californianus</i>), 7	California sea lion (<i>Zalophus californianus</i>), 14
Commercial Fishing:	No	No	No

Station:	<u>RW18</u>	<u>RW1</u>	<u>RW3</u>
Tide:	Flood	Ebb	Ebb
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	8:44:46 AM	11:06:39 AM	11:00
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	2	5	5
Sea Conditions (ft):	2	1	1
Cloud Cover (%):	95	20	20
Turbidity:	No	No	Yes
Floatables:	Yes, giant kelp (<i>Macrocystis pyrifera</i>)	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	Yes
Brown Pelicans:	1	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No

Station:	<u>RW5</u>	<u>RW6</u>	<u>RW7</u>
Tide:	Ebb	Ebb	Ebb
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	10:55:07 AM	10:16:29 AM	10:21:51 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	5	5	5
Sea Conditions (ft):	1	1	1
Cloud Cover (%):	20	20	20
Turbidity:	Yes	No	No
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	Yes	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No

Station:	<u>RW8</u>	<u>RW9</u>	<u>RW10</u>
Tide:	Ebb	Ebb	Ebb
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	10:33:40 AM	10:43:20 AM	10:48:42 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	5	5	5
Sea Conditions (ft):	1	1	1
Cloud Cover (%):	20	20	20
Turbidity:	No	No	No
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No
Comments:	None	None	None

Station:	<u>RW14</u>	<u>RW15</u>	<u>RW16</u>
Tide:	Ebb	Ebb	Ebb
Date:	5/26/2010	5/26/2010	5/26/2010
Time:	10:27:07 AM	10:37:51 AM	10:09:26 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	5	5	5
Sea Conditions (ft):	1	1	1
Cloud Cover (%):	20	20	20
Turbidity:	No	No	No
Floatables:	No	Yes, giant kelp (<i>Macrocystis pyrifera</i>)	Yes, giant kelp (<i>Macrocystis pyrifera</i>)
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	California sea lion (<i>Zalophus californianus</i>), 8
Commercial Fishing:	No	No	No

Station:	<u>RW17</u>	<u>RW18</u>
Tide:	Ebb	Ebb
Date:	5/26/2010	5/26/2010
Time:	10:03:21 AM	9:57:40 AM
Crew:	Williams, Hanson, Wozniak, Fredericks	Williams, Hanson, Wozniak, Fredericks
Wind (kn):	5	5
Sea Conditions (ft):	1	1
Cloud Cover (%):	20	20
Turbidity:	No	No
Floatables:	No	No
Oil/Grease:	No	No
Red Tide:	No	No
Brown Pelicans:	0	0
Least Terns:	0	0
Other Birds:	None	None
Marine Mammals:	California sea lion (<i>Zalophus californianus</i>), 7	None
Commercial Fishing:	No	No

June 15, 2010 - Bacteria Stations

Station:	<u>S1</u>	<u>S3</u>	<u>S5</u>
Tide:	Flood	Flood	Flood
Date:	6/15/2010	6/15/2010	6/15/2010
Time:	10:56:00 AM	10:52:00 AM	10:42:00 AM
Crew:	Williams, Wozniak	Williams, Wozniak	Williams, Wozniak
Wind (kn):	5	5	5
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	0	0	0
Turbidity:	No	No	No
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	Great egret (<i>Casmerodius albus</i>), 1
Marine Mammals:	None	None	None
Commercial Fishing:	No	No	No
Comments:	None	None	Pacific sand crabs (<i>Emerita analoga</i>) in collection container

Station:	<u>RW1</u>	<u>RW3</u>	<u>RW5</u>
Tide:	Flood	Flood	Flood
Date:	6/15/2010	6/15/2010	6/15/2010
Time:	10:58:00 AM	10:49:00 AM	10:41:00 AM
Crew:	Hanson, Fredericks	Hanson, Fredericks	Hanson, Fredericks
Wind (kn):	5	5	5
Sea Conditions (ft):	2	2	2
Cloud Cover (%):	0	0	0
Turbidity:	No	No	No
Floatables:	No	No	No
Oil/Grease:	No	No	No
Red Tide:	No	No	No
Brown Pelicans:	0	0	0
Least Terns:	0	0	0
Other Birds:	None	None	None
Marine Mammals:	None	None	None
Commercial			
Fishing:	No	No	No
Comments:	None	None	None

Appendix III

This appendix contains the three monthly bacteria reports from CRG Marine Laboratories, Inc.