NEWPORT BAY FECAL COLIFORM TMDL
ANNUAL DATA REPORT

September 2003

Prepared and submitted on behalf of:

The County of Orange
and
The Cities of Costa Mesa, Irvine, Lake Forest,
Laguna Hills, Laguna Woods, Newport Beach, Orange, Santa Ana, and Tustin

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Appendix A Letter from the Santa Ana Regional Water Quality Control Board dated
January 7, 2000 including Attachment to Resolution No. 99-10
(Basin Plan TMDL for Fecal Coliform in Newport Bay Watershed)

1.0 INTRODUCTION

The fecal coliform Total Maximum Daily Load (TMDL) for the Newport Bay was established by the Santa Ana Regional Water Quality Control Board (RWQCB) on April 9, 1999. The TMDL and the January 7, 2000 Water Code Section 13267 letter from the RWQCB (**Appendix A**) require the County of Orange and the Cities of Costa Mesa, Irvine, Lake Forest, Newport Beach, Orange, Santa Ana and Tustin (watershed cities) to develop a routine monitoring program for Newport Bay and to submit an annual data report by September 1st of each year. The report is required to summarize the bacteriological data collected in Newport Bay from April 1st through March 31st and evaluate compliance with the recreational use (REC-1) bacterial water quality objectives established in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan). This report responds to these requirements and includes data from April 1, 2002 through March 31, 2003.

2.0 ROUTINE MONITORING PROGRAM (TMDL Section 3.a.ii.a)

2.1 Data Collection

Section 3.a.ii.a of the TMDL requires the County and watershed cities to implement a routine monitoring program to determine compliance with bacterial quality objectives in the Bay. At a minimum, routine monitoring includes the collection of five samples per 30-day period at a total of 35 stations, as identified in **Figure 1**, and analysis of the samples for total coliform, fecal coliform, and *enterococcus* indicator bacteria. The County and watershed cities have identified the current monitoring program implemented by the Orange County Health Care Agency (HCA) as the basis for satisfying the requirements of the routine monitoring program.

The Basin Plan established fecal coliform water quality objectives for REC-1 use of Bays and Estuaries as follows:

> *Fecal coliform concentration: log mean less than 200 MPN/100 mL, based on five or more samples/30 day period, and not more than 10% of the samples exceed 400 organisms/100 mL for any 30-day period.*

2.2 Data Analysis

Table 1 presents the data from HCA's bacteriological monitoring program. Concentrations of total coliform, fecal coliform and *enterococcus* indicator bacteria are listed for each Bay and tributary station with the corresponding sampling date.

Table 2 presents an evaluation of the data in Table 1 with respect to the REC-1 fecal coliform objective in the Basin Plan (see definition above under 2.1 Data Collection). In determining if a single date met the objectives for a 30-day period, three conditions resulted in a "no." Those three conditions are:

- The single day sample exceeded 400 MPN/100 ml; or
- The log mean was greater than 200 MPN/100 ml; or
- There was a single day exceedance of 400 MPN/100 ml within the thirty day period.

Calculation of the geomean for the first four sampling events in April required the use of data from the previous sampling year (see the September 2002 Report). Failure of the objective on these dates may be due to an exceedance of the acute 400 organisms/100 mL standard in the preceding data. It should also be noted that the Santa Ana Delhi Channel, Back Bay Drive Drain, and Big Canyon Wash tributary stations are not assigned REC-1 beneficial uses. The data from these tributaries have been provided as a recognition of their potential impact on water quality in Newport Bay. As a result, the data for Santa Ana Delhi Channel, Back Bay Drive Drain, and Big Canyon Wash have not been evaluated with respect to the REC-1 fecal coliform objectives.

Figures 2 and **3** show the percentage of time that fecal coliform sampling at each station met REC-1 fecal coliform objectives for the dry and wet seasons respectively.

Three stations were frequently not amenable to sampling due to either: 1) Low tide conditions (Vaughn's Launch and Ski Zone), 2) Inaccessible access to roads (Vaughn's Launch and Ski Zone), or 3) Water diversion practices (Back Bay Drive Drain). The inability to sample at these locations on a regular basis is the primary reason for missing geomean values as depicted in **Table 2**. In particular, geomean values for the Upper Bay stations of Vaughn's Launch and the Ski Zone could not be calculated for the entire sampling period of April 1, 2002 – March 31, 2003. Consequently, there is insufficient data to determine if the stations where in compliance with the fecal coliform objectives.

During the dry season (April – October), as depicted in **Figure 2**, twenty-one of thirty-two stations met the REC-1 objective at least 75% of the time. The following thirteen stations met the objective 100% of the time:

- 15th Street Beach
- 10th Street Beach
- N Street Beach
- Ruby Avenue Beach
- Sapphire Avenue Beach
- Abalone Avenue Beach
- Park Avenue Beach
- Onyx Avenue Beach
- Promontory Point
- Bayshore Beach
- Newport Dunes West
- Newport Dunes Middle
- Newport Dunes East

The following stations were exceptions in meeting the objective less than 45% of the time:

- 43rd Street Beach
- 33rd Street Channel
- Newport Blvd. Bridge
- Rhine Channel
- Harbor Patrol Beach

During the wet season (October – April), as depicted in **Figure 3**, one of thirty-two stations met the REC-1 fecal coliform objective at least 75% of the time. The following stations met the objective less than 45% of the time:

- 43rd Street Beach
- 33rd Street Channel
- Newport Blvd. Bridge
- 19th Street Beach
- Harbor Patrol Beach
- 10th Street Beach
- San Diego Creek at Campus Drive

FIGURES

FIGURE 1

Bacteriological Water Sampling Stations in Newport Bay

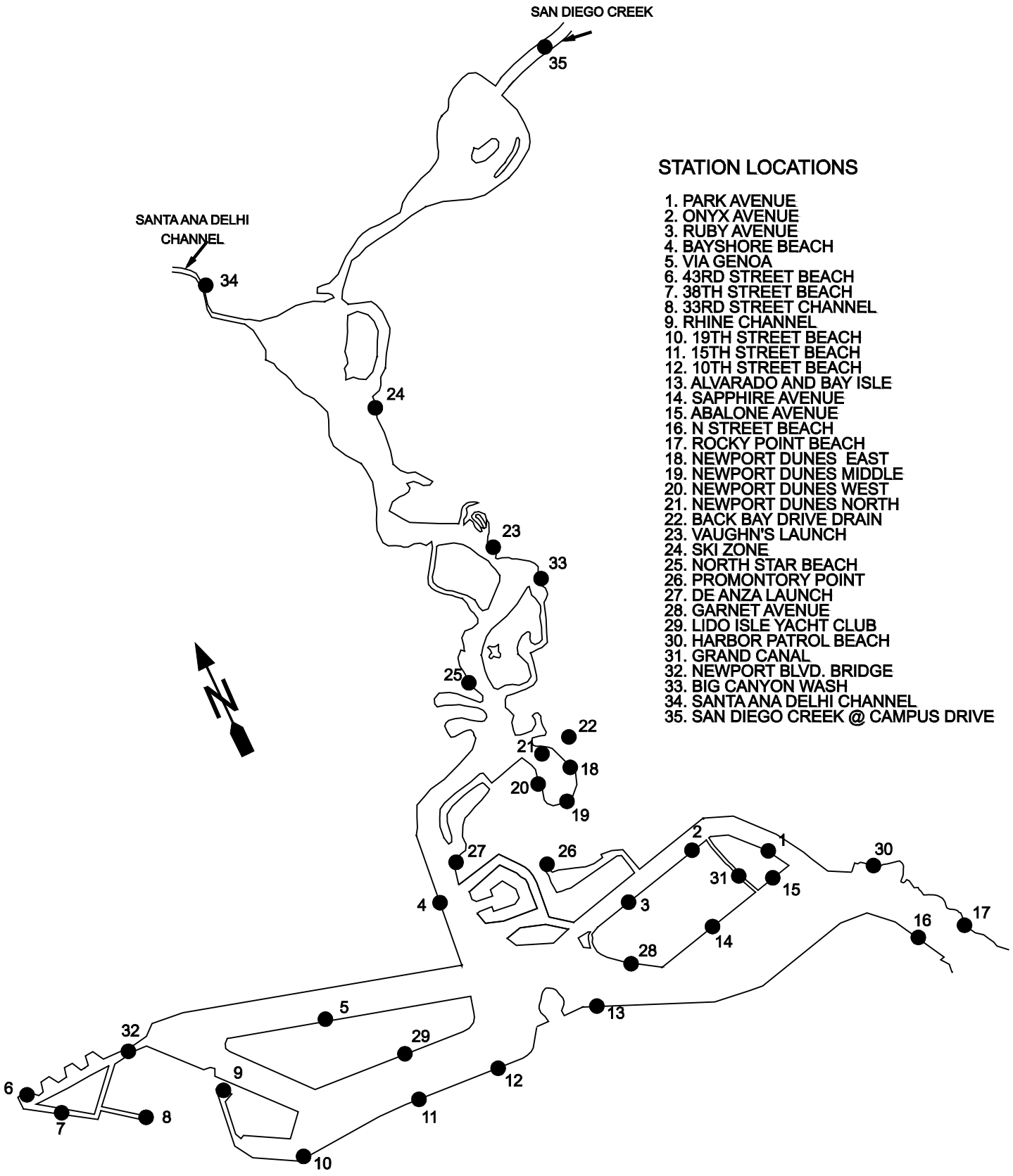
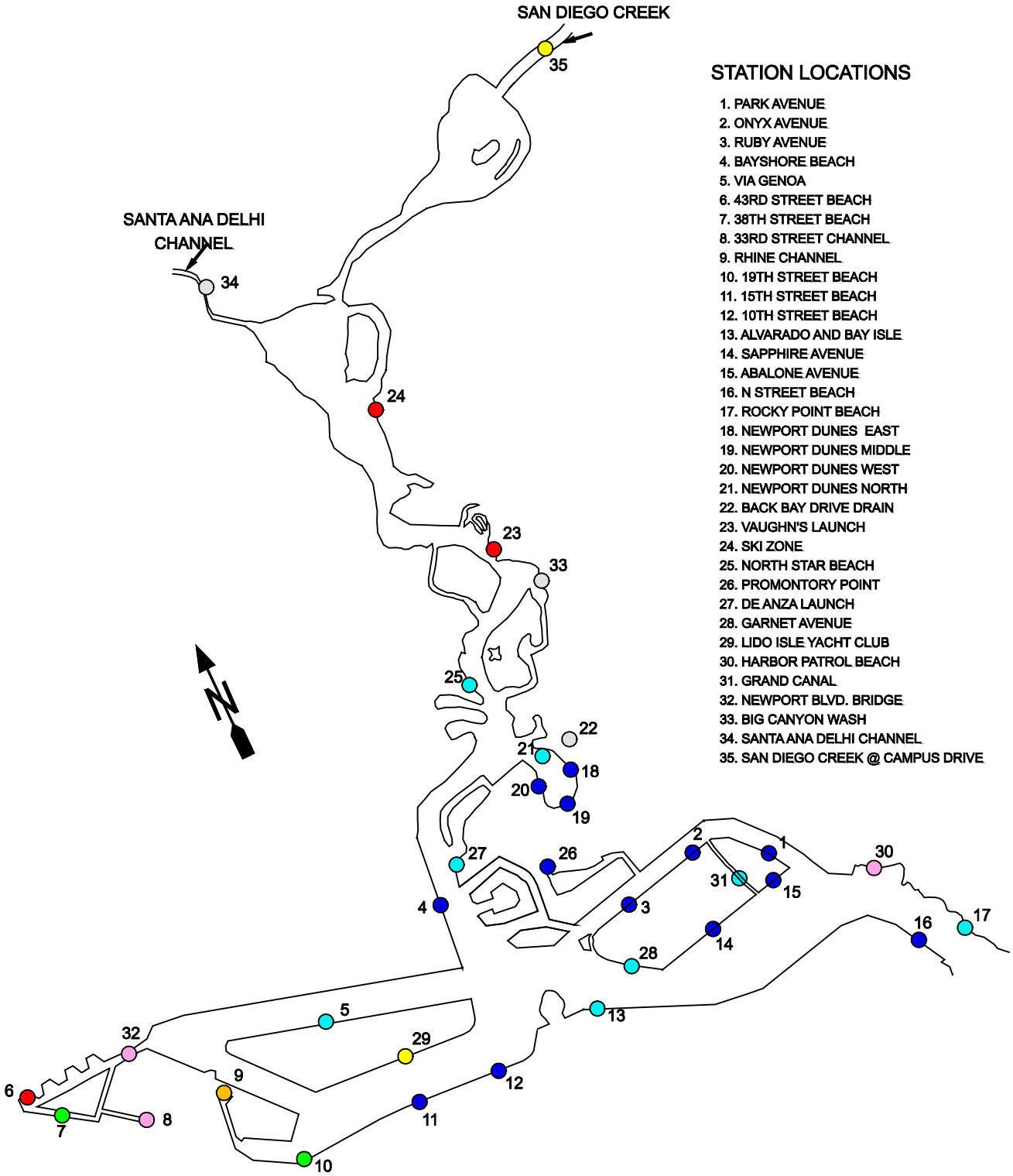


FIGURE 2

Percentage of Time REC-1 Fecal Coliform Objective Met (200 MPN/100mL Geomean and non-exceedance of 400CFU/100mL) for 2003 Dry Season (April 15 - October 15)

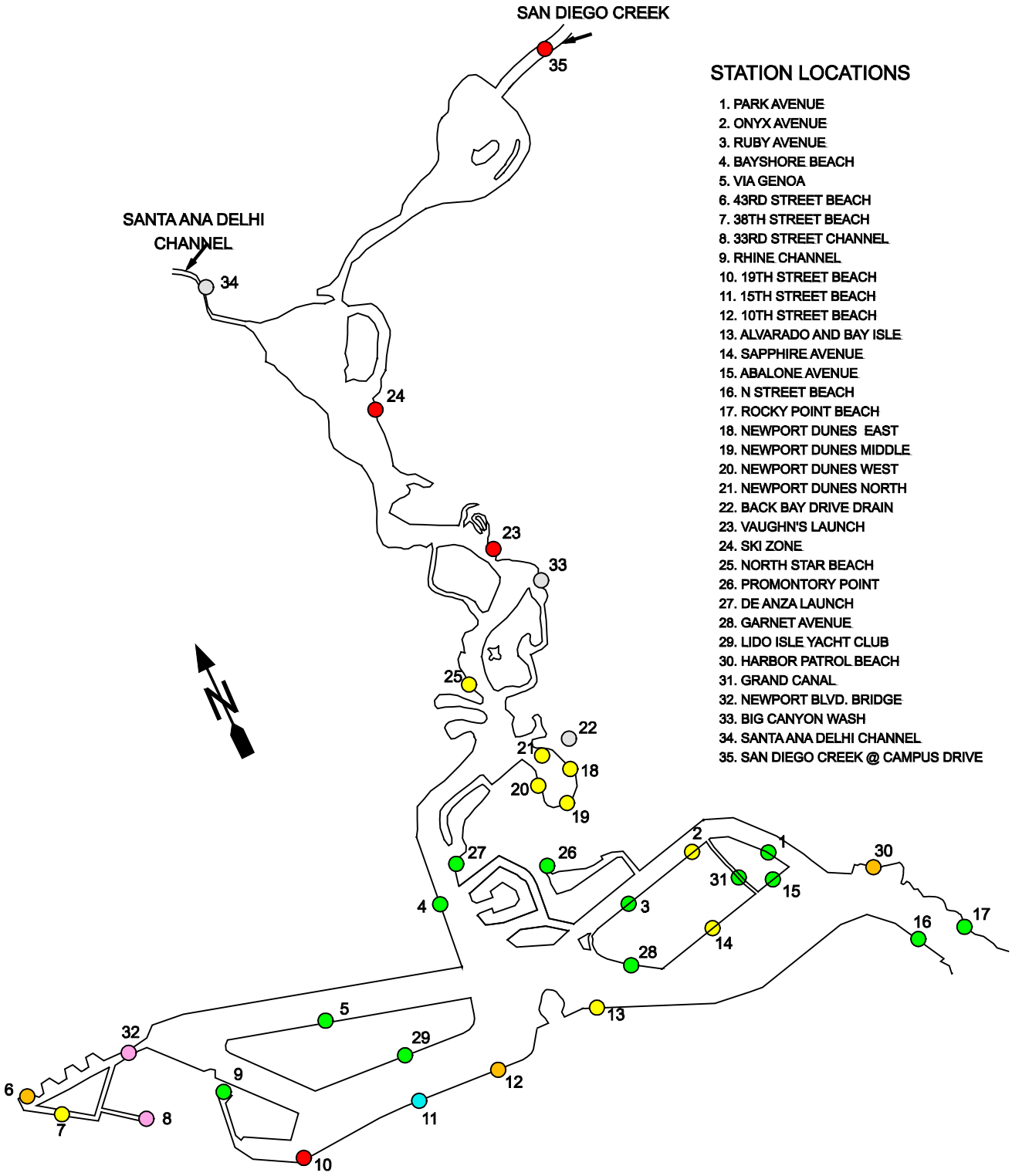


NA	0% - 14%	15% - 29%	30% - 44%	45% - 59%	60% - 74%	75% - 89%	90% - 100%

NA = Not evaluated. Not assigned REC-1 standards.

FIGURE 3

Percentage of Time REC-1 Fecal Coliform Objective Met (200 MPN/100mL Geomean and non-exceedance of 400CFU/100mL) for 2003 Wet Season (October 16 - April 14)



NA	0% - 14%	15% - 29%	30% - 44%	45% - 59%	60% - 74%	75% - 89%	90% - 100%

NA = Not evaluated. Not assigned REC-1 standards.

TABLES

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	43rd Street Beach			38th Street Beach			33rd Street Channel		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	30	20	<10	20	<10	<10	2800	140	540
8-Apr-02	240	10	10	470	20	70	200	<10	<10
18-Apr-02	450	250	20	20	10	10	90	<10	<10
22-Apr-02	160	20	<10	20	<10	<10	>35800	350	210
29-Apr-02	20	10	10	50	<10	10	470	10	20
6-May-02	29800	230	700	1460	<10	<10	TNTC	690	80
13-May-02	1400	700	40	80	10	<10	710	40	50
20-May-02	50	30	50	20	20	<10	Cw/C	1200	280
28-May-02	360	120	10	130	70	10	600	10	80
3-Jun-02	9000	60	60	600	90	10	140	20	<10
10-Jun-02	3800	1180	30	220	10	20	5200	170	690
17-Jun-02	70	<10	<10	TNTC	20	20	>6800	460	200
25-Jun-02	950	200	80	1040	40	60	7400	70	30
1-Jul-02	80	10	10	170	120	<10	13000	1000	70
10-Jul-02	3000	410	140	3000	490	160	Cw/C	TNTC	530
15-Jul-02	10000	2600	600	140	40	20	5200	500	440
22-Jul-02	1000	60	40	400	50	80	Cw/C	4800	680
31-Jul-02	1000	740	10	160	50	40	60	30	30
5-Aug-02	800	110	10	600	60	10	400	110	20
12-Aug-02	1000	90	10	930	60	30	900	200	30
19-Aug-02	>350	30	30	1000	40	50	Cw/C	3200	1250
26-Aug-02	380	100	30	70	20	10	200	30	20
3-Sep-02	>740	>450	80	5400	>590	50	>4000	480	140
9-Sep-02	70	40	10	100	40	20	>280	110	100
16-Sep-02	30	20	20	>220	10	20	>150	50	30
23-Sep-02	880	640	<10	390	40	20	180	10	<10
30-Sep-02	260	80	20	100	40	10	>90	20	150
7-Oct-02	>80	40	<10	40	30	20	<10	<10	<10
15-Oct-02	>40	40	<10	>430	30	20	240	20	<10
21-Oct-02	520	340	<10	590	270	10	150	20	<10
28-Oct-02	>680	190	10	280	20	10	>190	<10	10
4-Nov-02	100	60	70	190	10	10	80	<10	10
12-Nov-02	>22200	2400	39	>15000	920	30	6400	640	29
18-Nov-02	30	30	<10	470	130	70	70	20	<10
25-Nov-02	50	10	10	1140	20	20	340	20	40
2-Dec-02	7200	280	680	>14000	440	4000	>1700	80	620
9-Dec-02	150	30	390	60	10	50	>900	20	20
16-Dec-02	100	60	60	>50	60	20	100	100	30
23-Dec-02	>1070	20	200	2400	80	240	>9000	630	900
30-Dec-02	3200	990	140	6200	260	750	Cw/C	4800	1090
6-Jan-03	300	90	10	260	30	30	110	10	40
13-Jan-03	3600	250	120	>780	200	640	3600	90	260
21-Jan-03	80	80	140	40	10	20	420	<10	10
27-Jan-03	140	30	20	3400	130	270	7800	90	230
3-Feb-03	340	180	120	30	10	<10	>300	10	50
10-Feb-03	>15000	290	50	150	<10	30	Cw/C	11000	1280
18-Feb-03	3000	290	30	6800	390	100	>1780	100	20
24-Feb-03	8200	2000	470	60	10	10	>1100	110	120
3-Mar-03	>1250	220	40	110	40	10	850	60	30
10-Mar-03	>6800	2200	210	>9800	11000	1340	>5800	>100	10
17-Mar-03	Cw/C	3800	950	Cw/C	3600	1260	Cw/C	3800	60
24-Mar-03	>1480	30	80	120	<10	20	2400	<10	160
31-Mar-03	>660	20	80	130	10	10	100	<10	20

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Data provided by County of Orange Health Care Agency

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms

FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	Lido Yacht Club Beach			Via Genoa Beach			Newport Blvd. Bridge		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	30	10	10	90	80	10	1800	10	<10
8-Apr-02	10	10	<10	10	<10	10	TNTC	520	450
18-Apr-02	4000	4000	250	120	20	<10	25000	600	20
22-Apr-02	340	200	10	10	20	<10	TNTC	1430	TNTC
29-Apr-02	200	10	10	<10	<10	<10	1360	<10	70
6-May-02	10	<10	<10	930	470	700	24200	470	90
13-May-02	<10	20	<10	60	10	<10	4600	20	350
20-May-02	80	80	<10	10	<10	<10	TNTC	190	80
28-May-02	<10	10	10	80	10	<10	450	10	30
3-Jun-02	10	<10	<10	40	20	<10	Cw/C	5400	2000
10-Jun-02	10	40	<10	30	10	10	TNTC	600	620
17-Jun-02	10	<10	<10	10	<10	<10	2200	100	90
25-Jun-02	<10	<10	10	40	10	<10	6000	550	320
1-Jul-02	150	150	30	20	<10	<10	330	10	<10
10-Jul-02	>20	<10	<10	50	<10	<10	900	<10	10
15-Jul-02	6000	3400	950	20	40	<10	12000	640	1770
22-Jul-02	60	<10	20	40	<10	50	2800	250	140
31-Jul-02	110	70	30	10	<10	10	800	50	30
5-Aug-02	50	30	<10	40	<10	<10	540	30	20
12-Aug-02	>10	40	70	20	30	<10	18000	11000	10
19-Aug-02	<10	10	10	20	10	<10	Cw/C	4000	1140
26-Aug-02	120	80	30	<10	10	<10	4400	70	80
3-Sep-02	40	20	10	10	10	<10	5000	20	70
9-Sep-02	20	<10	10	20	20	10	>470	20	100
16-Sep-02	980	1040	20	<10	<10	30	50	20	10
23-Sep-02	30	10	90	20	10	<10	210	50	<10
30-Sep-02	<10	<10	<10	<10	10	<10	30	<10	<10
7-Oct-02	10	<10	10	<10	<10	<10	>190	60	<10
15-Oct-02	10	10	<10	40	20	<10	250	30	10
21-Oct-02	30	<10	<10	>70	<10	170	4200	1920	30
28-Oct-02	30	<10	<10	40	10	<10	240	<10	<10
4-Nov-02	100	60	20	90	10	10	20	10	<10
12-Nov-02	>9200	440	<2	>15000	2000	32	>9200	1000	20
18-Nov-02	220	50	20	60	30	<10	Cw/C	1000	210
25-Nov-02	20	<10	<10	60	10	40	70	<10	<10
2-Dec-02	>1840	130	10	3800	250	220	>21000	200	880
9-Dec-02	40	30	10	90	<10	<10	150	30	20
16-Dec-02	70	20	<10	160	60	210	650	220	10
23-Dec-02	>890	80	100	>1720	200	160	>6400	40	200
30-Dec-02	30	20	<10	40	10	20	25000	240	120
6-Jan-03	70	30	40	490	160	100	460	100	50
13-Jan-03	160	150	<10	60	30	20	19000	>100	110
21-Jan-03	10	30	<10	80	20	50	90	40	10
27-Jan-03	<10	<10	<10	10	<10	<10	Cw/C	800	210
3-Feb-03	<10	<10	<10	<10	<10	<10	160	30	30
10-Feb-03	10	40	20	<10	10	<10	Cw/C	5600	210
18-Feb-03	>430	20	20	>1280	80	1140	>3800	680	270
24-Feb-03	160	80	<10	470	<10	10	20	<10	<10
3-Mar-03	100	20	<10	190	30	30	690	80	25200
10-Mar-03	30	20	<10	<10	10	<10	TNTC	4600	80
17-Mar-03	Cw/C	7200	1730	Cw/C	4000	680	Cw/C	2000	270
24-Mar-03	280	<10	10	80	30	40	>1010	20	<10
31-Mar-03	<10	<10	<10	10	<10	<10	630	200	20

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Data provided by County of Orange Health Care Agency

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms

FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	Rhine Channel			19th Street Beach			15th Street Beach		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	40	20	30	610	460	<10	10	<10	<10
8-Apr-02	2400	40	50	<10	<10	<10	30	<10	<10
18-Apr-02	1110	480	50	10	<10	30	<10	<10	<10
22-Apr-02	80	50	40	290	70	10	30	<10	20
29-Apr-02	20	<10	<10	10	<10	<10	20	20	<10
6-May-02	4000	1800	50	170	230	140	10	<10	<10
13-May-02	60	<10	<10	20	<10	<10	30	<10	<10
20-May-02	100	10	<10	<10	10	10	10	<10	<10
28-May-02	40	10	<10	210	<10	<10	10	10	<10
3-Jun-02	250	40	10	30	<10	<10	>30	10	<10
10-Jun-02	500	110	50	90	20	10	<10	<10	<10
17-Jun-02	420	110	<10	<10	<10	<10	50	<10	<10
25-Jun-02	170	50	10	2200	70	20	80	100	590
1-Jul-02	180	70	30	20	10	<10	<10	<10	<10
10-Jul-02	200	70	150	460	200	50	240	40	<10
15-Jul-02	930	120	340	150	160	<10	260	60	<10
22-Jul-02	200	10	10	>400	100	50	40	<10	10
31-Jul-02	830	330	90	120	80	<10	50	<10	<10
5-Aug-02	190	40	10	30	20	<10	20	<10	<10
12-Aug-02	Cw/C	TNTC	710	70	10	<10	10	<10	<10
19-Aug-02	600	280	70	30	10	20	60	20	10
26-Aug-02	110	20	20	>100	70	<10	10	10	<10
3-Sep-02	1000	810	90	8000	8000	30	140	60	<10
9-Sep-02	100	120	20	60	30	10	40	<10	10
16-Sep-02	100	20	20	40	<10	20	20	10	<10
23-Sep-02	30	<10	<10	100	10	20	150	160	<10
30-Sep-02	30	<10	<10	70	90	<10	30	30	<10
7-Oct-02	80	10	<10	160	20	<10	10	30	<10
15-Oct-02	60	<10	<10	5400	200	20	60	20	10
21-Oct-02	40	<10	<10	90	100	20	60	20	<10
28-Oct-02	<10	<10	<10	160	60	<10	30	10	<10
4-Nov-02	80	20	<10	>300	260	600	20	20	<10
12-Nov-02	>11000	600	29	TNTC	2000	100	4400	>350	74
18-Nov-02	110	100	10	50	30	<10	80	40	10
25-Nov-02	130	10	10	50	10	<10	30	20	<10
2-Dec-02	>1350	180	10	5400	560	50	5400	140	80
9-Dec-02	120	60	10	140	30	10	40	10	20
16-Dec-02	100	20	<10	5000	2000	TNTC	20	10	<10
23-Dec-02	>840	100	80	>1890	220	100	>790	90	40
30-Dec-02	>580	20	50	170	60	50	>820	30	30
6-Jan-03	50	50	<10	680	180	270	50	50	10
13-Jan-03	640	20	30	740	630	530	50	10	30
21-Jan-03	160	50	<10	210	<10	<10	<10	10	<10
27-Jan-03	640	20	20	20	<10	<10	20	10	<10
3-Feb-03	20	<10	10	620	570	70	70	10	<10
10-Feb-03	50	30	20	40	20	20	800	210	<10
18-Feb-03	570	50	10	1000	130	140	>510	30	<10
24-Feb-03	200	80	10	1100	880	80	30	30	20
3-Mar-03	70	20	10	100	40	10	50	<10	<10
10-Mar-03	250	110	20	220	100	30	80	10	<10
17-Mar-03	Cw/C	2800	780	Cw/C	5400	790	Cw/C	3400	1600
24-Mar-03	70	10	10	490	10	30	60	30	<10
31-Mar-03	<10	<10	<10	50	20	<10	<10	<10	10

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Data provided by County of Orange Health Care Agency

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms

FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	10th Street Beach			Alvarado/ Bay Isle Beach			N Street Beach		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	10	30	40	40	10	20	30	40	<10
8-Apr-02	<10	<10	<10	10	<10	20	<10	10	<10
18-Apr-02	20	<10	<10	<10	<10	<10	30	<10	<10
22-Apr-02	<10	<10	<10	160	150	60	40	60	10
29-Apr-02	<10	<10	<10	40	10	10	20	30	10
6-May-02	370	270	90	20	<10	10	70	40	<10
13-May-02	10	<10	<10	10	<10	<10	<10	<10	<10
20-May-02	20	<10	10	40	<10	<10	120	40	<10
28-May-02	70	<10	<10	90	<10	40	40	10	10
3-Jun-02	20	<10	<10	40	<10	10	80	10	40
10-Jun-02	<10	<10	<10	40	20	30	<10	10	<10
17-Jun-02	<10	20	<10	10	<10	<10	40	<10	<10
25-Jun-02	<10	<10	10	30	30	<10	<10	<10	<10
1-Jul-02	20	10	<10	20	10	<10	20	20	60
10-Jul-02	<10	10	<10	>10	20	30	10	<10	<10
15-Jul-02	100	90	40	70	50	10	10	40	10
22-Jul-02	<10	<10	20	>50	20	30	<10	<10	<10
31-Jul-02	<10	<10	<10	100	50	<10	30	20	<10
5-Aug-02	30	10	<10	60	20	30	10	10	<10
12-Aug-02	10	10	10	210	10	20	30	<10	<10
19-Aug-02	20	<10	<10	10	10	<10	20	20	<10
26-Aug-02	20	20	10	60	<10	10	10	<10	<10
3-Sep-02	30	10	<10	6400	830	<10	10	<10	<10
9-Sep-02	40	<10	<10	60	10	90	10	<10	<10
16-Sep-02	20	10	10	<10	<10	10	<10	<10	10
23-Sep-02	190	130	30	30	30	<10	10	<10	10
30-Sep-02	70	10	<10	60	40	10	30	10	<10
7-Oct-02	30	<10	<10	20	10	<10	<10	<10	<10
15-Oct-02	20	20	<10	<10	30	<10	<10	<10	<10
21-Oct-02	20	10	<10	230	160	<10	10	10	<10
28-Oct-02	20	<10	20	80	10	<10	10	10	<10
4-Nov-02	120	60	50	190	140	30	10	<10	<10
12-Nov-02	>17000	2000	74	>16000	>470	54	>11000	>420	29
18-Nov-02	200	20	<10	100	20	10	50	<10	10
25-Nov-02	10	10	<10	10	10	<10	50	10	10
2-Dec-02	5600	210	50	10000	510	50	3800	130	30
9-Dec-02	50	10	30	100	20	50	20	<10	<10
16-Dec-02	630	740	510	150	100	110	20	20	<10
23-Dec-02	>1500	220	200	>1930	130	160	>1280	70	110
30-Dec-02	190	130	80	130	10	30	30	<10	10
6-Jan-03	>260	200	4000	100	10	70	60	20	10
13-Jan-03	300	80	230	70	10	<10	50	10	<10
21-Jan-03	20	<10	<10	30	20	10	<10	<10	<10
27-Jan-03	10	<10	40	60	<10	10	10	10	<10
3-Feb-03	30	10	<10	70	20	<10	<10	10	<10
10-Feb-03	140	100	40	30	10	30	10	<10	<10
18-Feb-03	>530	40	10	300	30	<10	180	<10	10
24-Feb-03	2400	2000	60	<10	<10	80	60	10	<10
3-Mar-03	80	30	<10	130	<10	20	30	<10	<10
10-Mar-03	1940	1500	670	80	20	<10	20	<10	<10
17-Mar-03	Cw/C	8000	4400	Cw/C	7400	4600	Cw/C	5200	5000
24-Mar-03	290	30	80	270	<10	50	110	30	20
31-Mar-03	10	<10	<10	10	<10	<10	10	10	<10

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Data provided by County of Orange Health Care Agency

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FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	Garnet Avenue Beach			Ruby Avenue Beach			Sapphire Avenue Beach		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	<10	10	10	10	<10	<10	30	<10	<10
8-Apr-02	<10	<10	<10	60	<10	10	10	<10	<10
18-Apr-02	20	<10	<10	30	<10	<10	10	<10	<10
22-Apr-02	400	180	<10	<10	<10	<10	<10	<10	<10
29-Apr-02	40	<10	20	<10	<10	10	10	<10	20
6-May-02	20	10	<10	10	<10	<10	60	50	<10
13-May-02	<10	10	<10	20	<10	<10	50	<10	<10
20-May-02	50	10	20	20	<10	30	10	<10	<10
28-May-02	170	10	<10	450	30	30	420	20	10
3-Jun-02	20	10	<10	<10	<10	<10	10	20	<10
10-Jun-02	50	<10	10	80	10	<10	10	<10	10
17-Jun-02	<10	<10	<10	30	<10	<10	<10	<10	<10
25-Jun-02	100	20	<10	<10	<10	<10	10	<10	10
1-Jul-02	110	30	10	<10	<10	<10	10	10	<10
10-Jul-02	140	50	20	40	10	<10	40	<10	30
15-Jul-02	100	100	90	<10	<10	<10	30	<10	10
22-Jul-02	100	60	40	60	20	10	10	<10	20
31-Jul-02	20	20	10	10	10	<10	60	50	30
5-Aug-02	100	100	<10	20	<10	<10	40	<10	20
12-Aug-02	30	10	20	<10	<10	<10	40	10	60
19-Aug-02	30	30	<10	10	<10	<10	30	20	10
26-Aug-02	80	40	20	<10	<10	<10	30	<10	30
3-Sep-02	70	10	<10	50	20	20	10	<10	<10
9-Sep-02	100	30	<10	30	<10	<10	50	50	<10
16-Sep-02	10	<10	<10	60	<10	<10	10	10	<10
23-Sep-02	80	30	<10	<10	10	<10	40	20	40
30-Sep-02	100	130	10	60	10	<10	40	40	20
7-Oct-02	20	<10	<10	10	20	<10	<10	10	<10
15-Oct-02	20	<10	<10	70	<10	<10	10	<10	<10
21-Oct-02	100	<10	<10	10	<10	30	20	10	<10
28-Oct-02	30	40	<10	10	<10	<10	<10	20	10
4-Nov-02	20	<10	<10	30	<10	<10	<10	10	<10
12-Nov-02	TNTC	>500	19	>11000	>350	20	>8600	440	3
18-Nov-02	120	10	<10	250	180	<10	10	<10	<10
25-Nov-02	270	80	50	50	20	10	40	20	10
2-Dec-02	5800	200	30	7800	100	50	4200	150	50
9-Dec-02	20	20	<10	60	50	60	40	<10	<10
16-Dec-02	60	10	<10	260	10	<10	10	<10	<10
23-Dec-02	4800	130	250	>1740	550	160	8000	470	300
30-Dec-02	>640	60	180	60	<10	20	20	10	20
6-Jan-03	570	150	140	>1000	10	190	160	10	490
13-Jan-03	40	10	<10	110	40	10	30	<10	<10
21-Jan-03	<10	<10	10	50	<10	260	30	10	<10
27-Jan-03	50	30	50	10	<10	<10	50	<10	<10
3-Feb-03	30	20	10	30	<10	<10	10	<10	10
10-Feb-03	<10	<10	280	20	<10	10	450	10	<10
18-Feb-03	370	10	20	>590	10	10	100	10	<10
24-Feb-03	20	10	430	250	350	160	<10	<10	<10
3-Mar-03	100	10	<10	100	<10	<10	>320	30	<10
10-Mar-03	60	50	<10	10	<10	<10	20	<10	<10
17-Mar-03	Cw/C	6400	5400	Cw/C	9400	4800	Cw/C	5000	7000
24-Mar-03	2400	20	170	190	10	10	260	40	40
31-Mar-03	<10	10	<10	10	<10	<10	130	150	<10

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TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	Grand Canal			Abalone Avenue Beach			Park Avenue Beach		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	30	<10	<10	<10	<10	<10	30	<10	<10
8-Apr-02	40	50	70	<10	<10	20	210	10	10
18-Apr-02	20	20	<10	<10	<10	<10	530	<10	10
22-Apr-02	20	<10	<10	10	20	<10	30	30	<10
29-Apr-02	<10	<10	<10	<10	<10	<10	10	10	<10
6-May-02	30	30	<10	90	30	110	80	<10	<10
13-May-02	<10	<10	10	<10	<10	<10	160	<10	<10
20-May-02	180	150	80	160	<10	10	70	20	10
28-May-02	330	50	10	60	<10	<10	210	<10	<10
3-Jun-02	170	60	20	10	<10	<10	60	<10	10
10-Jun-02	60	<10	20	<10	10	<10	10	<10	<10
17-Jun-02	40	30	<10	<10	10	<10	20	<10	10
25-Jun-02	<10	10	10	<10	10	10	70	10	10
1-Jul-02	410	410	380	50	10	90	90	<10	10
10-Jul-02	114	50	20	<10	30	10	40	20	10
15-Jul-02	100	60	10	10	<10	<10	100	20	10
22-Jul-02	20	<10	<10	60	10	<10	240	90	40
31-Jul-02	190	100	<10	50	<10	10	4000	280	90
5-Aug-02	30	10	20	30	10	<10	60	10	<10
12-Aug-02	160	70	50	10	20	<10	130	40	<10
19-Aug-02	70	70	20	60	20	<10	400	210	70
26-Aug-02	140	140	110	20	10	10	20	<10	<10
3-Sep-02	60	60	<10	20	10	20	20	<10	10
9-Sep-02	10	<10	<10	20	10	10	<10	20	10
16-Sep-02	40	50	<10	<10	10	<10	70	<10	<10
23-Sep-02	40	10	10	20	<10	<10	20	20	<10
30-Sep-02	60	10	<10	40	10	50	100	<10	<10
7-Oct-02	10	<10	<10	<10	<10	<10	<10	<10	<10
15-Oct-02	30	20	<10	20	<10	<10	30	20	<10
21-Oct-02	10	10	<10	10	10	<10	70	10	<10
28-Oct-02	60	10	<10	30	<10	<10	20	<10	<10
4-Nov-02	<10	20	<10	<10	<10	<10	20	10	<10
12-Nov-02	14000	600	27	>10000	440	20	>12000	560	34
18-Nov-02	70	<10	10	80	20	40	70	10	10
25-Nov-02	70	40	<10	30	10	<10	2000	160	20
2-Dec-02	5600	120	50	>960	90	10	4600	110	20
9-Dec-02	60	10	<10	30	<10	<10	120	<10	<10
16-Dec-02	70	10	20	200	90	50	170	<10	<10
23-Dec-02	>1200	120	100	>1000	110	100	>1130	130	100
30-Dec-02	160	40	20	<10	10	60	50	10	20
6-Jan-03	50	40	<10	<10	10	<10	<10	<10	<10
13-Jan-03	50	70	<10	30	10	<10	30	<10	<10
21-Jan-03	10	<10	<10	<10	<10	<10	20	<10	<10
27-Jan-03	<10	10	10	20	<10	60	<10	<10	10
3-Feb-03	<10	<10	10	10	10	<10	20	<10	<10
10-Feb-03	<10	<10	<10	<10	<10	50	<10	<10	<10
18-Feb-03	40	<10	<10	50	<10	<10	150	<10	<10
24-Feb-03	40	50	120	20	10	<10	40	<10	<10
3-Mar-03	60	<10	10	20	10	<10	180	<10	<10
10-Mar-03	30	10	30	100	<10	10	80	<10	<10
17-Mar-03	Cw/C	8000	6800	Cw/C	7800	6800	Cw/C	7600	5800
24-Mar-03	300	140	<10	280	10	70	>530	50	40
31-Mar-03	>10	10	30	<10	<10	<10	10	<10	<10

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

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FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	Onyx Avenue Beach			Promontory Point Channel			Harbor Patrol Beach		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	40	20	<10	200	<10	<10	8200	140	340
8-Apr-02	40	<10	20	10	<10	<10	1400	180	370
18-Apr-02	<10	<10	<10	<10	<10	<10	800	620	170
22-Apr-02	40	30	<10	<10	<10	<10	>90	210	90
29-Apr-02	70	60	<10	10	10	<10	20	10	10
6-May-02	20	<10	<10	<10	10	10	>5200	90	50
13-May-02	130	10	<10	<10	<10	<10	>1400	1400	10
20-May-02	10	<10	10	10	10	10	Cw/C	280	30
28-May-02	1230	10	10	30	<10	<10	900	600	20
3-Jun-02	10	10	<10	160	<10	<10	360	330	80
10-Jun-02	<10	10	10	<10	<10	20	230	230	40
17-Jun-02	20	<10	<10	10	<10	<10	1000	220	220
25-Jun-02	50	<10	<10	20	<10	<10	10	20	<10
1-Jul-02	10	<10	<10	20	<10	<10	200	420	50
10-Jul-02	100	10	30	<10	<10	<10	LA	480	120
15-Jul-02	<10	<10	<10	30	10	10	250	300	40
22-Jul-02	120	10	70	90	20	20	200	180	50
31-Jul-02	<10	<10	<10	<10	<10	<10	400	60	70
5-Aug-02	100	20	10	<10	<10	<10	240	130	510
12-Aug-02	50	40	<10	200	30	<10	1000	380	40
19-Aug-02	120	20	10	10	<10	<10	1000	310	130
26-Aug-02	10	<10	<10	10	<10	<10	>130	110	20
3-Sep-02	60	20	10	<10	<10	<10	>120	90	40
9-Sep-02	60	<10	30	20	<10	<10	300	380	40
16-Sep-02	50	<10	20	10	<10	<10	<10	70	20
23-Sep-02	100	<10	<10	40	<10	<10	160	190	40
30-Sep-02	40	20	10	<10	<10	<10	30	30	<10
7-Oct-02	20	60	<10	<10	<10	<10	>900	1270	40
15-Oct-02	20	20	20	<10	<10	<10	80	30	10
21-Oct-02	60	<10	50	<10	<10	<10	>560	290	70
28-Oct-02	20	<10	20	<10	<10	<10	10	<10	<10
4-Nov-02	140	60	150	<10	<10	<10	20	<10	<10
12-Nov-02	>9400	2000	40	TNTC	2000	160	TNTC	1000	100
18-Nov-02	200	140	<10	60	<10	<10	440	40	300
25-Nov-02	10	20	10	10	<10	<10	80	50	20
2-Dec-02	5000	410	150	12000	200	30	>1040	200	170
9-Dec-02	30	10	<10	<10	<10	<10	20	<10	<10
16-Dec-02	270	20	20	>20	<10	10	130	60	50
23-Dec-02	>1140	60	120	>320	20	<10	>1040	100	120
30-Dec-02	120	10	10	20	<10	<10	>750	20	230
6-Jan-03	330	40	70	100	10	70	70	20	<10
13-Jan-03	30	30	<10	<10	<10	<10	180	<10	10
21-Jan-03	40	<10	<10	20	<10	10	60	<10	<10
27-Jan-03	30	<10	<10	10	<10	<10	50	<10	70
3-Feb-03	<10	10	10	10	<10	<10	90	20	<10
10-Feb-03	60	10	20	<10	<10	<10	30	50	<10
18-Feb-03	160	10	<10	40	<10	<10	>240	<10	10
24-Feb-03	20	20	10	10	<10	<10	2400	1870	300
3-Mar-03	100	10	<10	20	<10	<10	160	80	20
10-Mar-03	10	<10	<10	<10	<10	<10	420	80	20
17-Mar-03	Cw/C	8200	4800	Cw/C	5200	6600	Cw/C	9200	6200
24-Mar-03	210	<10	50	240	<10	20	2400	220	280
31-Mar-03	20	<10	10	<10	<10	<10	>60	<10	20

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

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TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

LOWER BAY STATIONS

(Concentrations in CFU/100 mL)

	Rocky Point Beach								
	TC	FC	ENT						
1-Apr-02	50	60	<10						
8-Apr-02	40	10	20						
18-Apr-02	40	<10	<10						
22-Apr-02	20	10	10						
29-Apr-02	<10	<10	<10						
6-May-02	<10	<10	<10						
13-May-02	10	<10	10						
20-May-02	120	20	<10						
28-May-02	<10	<10	<10						
3-Jun-02	40	<10	<10						
10-Jun-02	<10	<10	<10						
17-Jun-02	10	20	<10						
25-Jun-02	880	880	190						
1-Jul-02	20	<10	<10						
10-Jul-02	>10	10	<10						
15-Jul-02	70	50	90						
22-Jul-02	30	<10	10						
31-Jul-02	40	<10	<10						
5-Aug-02	180	110	180						
12-Aug-02	30	10	<10						
19-Aug-02	30	20	<10						
26-Aug-02	20	<10	<10						
3-Sep-02	50	20	30						
9-Sep-02	>180	<10	<10						
16-Sep-02	10	<10	<10						
23-Sep-02	10	10	<10						
30-Sep-02	30	10	<10						
7-Oct-02	<10	<10	<10						
15-Oct-02	10	<10	<10						
21-Oct-02	50	10	20						
28-Oct-02	<10	<10	<10						
4-Nov-02	10	<10	<10						
12-Nov-02	>9400	100	62						
18-Nov-02	160	20	<10						
25-Nov-02	150	<10	10						
2-Dec-02	>1200	680	170						
9-Dec-02	120	140	100						
16-Dec-02	60	20	<10						
23-Dec-02	300	30	50						
30-Dec-02	290	60	570						
6-Jan-03	50	10	50						
13-Jan-03	200	10	20						
21-Jan-03	70	50	40						
27-Jan-03	100	50	10						
3-Feb-03	20	<10	<10						
10-Feb-03	10	10	10						
18-Feb-03	60	10	10						
24-Feb-03	<10	<10	<10						
3-Mar-03	50	10	<10						
10-Mar-03	30	20	<10						
17-Mar-03	Cw/C	5800	5400						
24-Mar-03	220	60	60						
31-Mar-03	50	10	30						

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Data provided by County of Orange Health Care Agency

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TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

UPPER BAY STATIONS

(Concentrations in CFU/100 mL)

	Newport Dunes - Middle			Newport Dunes - West			Newport Dunes - East		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	110	160	40	160	240	<10	50	20	10
8-Apr-02	40	20	<10	70	<10	<10	100	<10	20
18-Apr-02	10	20	<10	20	<10	<10	30	<10	<10
22-Apr-02	50	30	50	10	50	30	40	70	30
29-Apr-02	120	50	<10	50	10	<10	30	20	<10
6-May-02	190	40	<10	100	30	<10	160	60	<10
13-May-02	10	<10	<10	<10	10	<10	10	<10	<10
20-May-02	<10	20	<10	<10	<10	<10	>30	20	<10
28-May-02	50	<10	<10	<10	<10	<10	10	<10	<10
3-Jun-02	10	<10	<10	<10	<10	<10	<10	<10	<10
10-Jun-02	<10	10	20	<10	<10	10	150	120	<10
17-Jun-02	30	10	20	<10	10	10	400	30	10
25-Jun-02	<10	<10	<10	<10	<10	<10	10	50	130
1-Jul-02	>50	<10	<10	>30	40	10	>10	10	10
10-Jul-02	1840	10	<10	2020	10	10	2200	20	40
15-Jul-02	10	<10	20	280	<10	10	660	400	<10
22-Jul-02	10	10	20	30	<10	20	30	<10	10
31-Jul-02	<10	<10	<10	<10	20	10	1400	10	10
5-Aug-02	40	<10	20	190	20	<10	450	<10	<10
12-Aug-02	<10	<10	<10	<10	<10	<10	40	10	<10
19-Aug-02	40	<10	<10	20	<10	70	50	30	<10
26-Aug-02	30	<10	<10	<10	<10	<10	120	80	<10
3-Sep-02	90	10	<10	70	<10	<10	20	10	10
9-Sep-02	<10	<10	<10	40	<10	<10	70	20	<10
16-Sep-02	10	<10	<10	140	50	30	50	<10	<10
23-Sep-02	40	<10	<10	20	<10	<10	60	<10	<10
30-Sep-02	110	<10	<10	30	10	<10	70	30	<10
7-Oct-02	150	10	<10	50	10	<10	20	<10	<10
15-Oct-02	30	10	10	20	40	<10	>800	240	540
21-Oct-02	80	20	10	280	70	70	70	20	<10
28-Oct-02	7000	250	10	5600	150	30	7800	200	20
4-Nov-02	40	60	30	50	50	50	40	70	<10
12-Nov-02	Cw/C	5600	46	TNTC	3600	32	Cw/C	6000	100
18-Nov-02	930	150	20	760	160	40	990	120	<10
25-Nov-02	370	100	30	380	100	<10	280	100	<10
2-Dec-02	Cw/C	6200	450	Cw/C	6800	460	Cw/C	5800	310
9-Dec-02	60	40	30	1130	1100	210	30	50	20
16-Dec-02	100	40	10	100	20	10	120	60	30
23-Dec-02	>1280	180	60	>1580	210	180	>1380	240	90
30-Dec-02	490	40	30	>630	30	<10	400	50	30
6-Jan-03	>280	320	230	>380	290	300	>100	40	30
13-Jan-03	220	60	30	>780	240	270	>360	100	40
21-Jan-03	901	70	<10	30	40	20	100	30	<10
27-Jan-03	30	30	20	70	<10	20	230	180	20
3-Feb-03	40	10	<10	20	10	<10	120	120	100
10-Feb-03	70	100	20	70	80	<10	190	100	10
18-Feb-03	2000	80	20	>760	80	10	1000	150	40
24-Feb-03	150	80	10	120	40	20	390	290	20
3-Mar-03	380	180	40	520	140	100	440	100	50
10-Mar-03	50	<10	<10	50	10	10	140	80	10
17-Mar-03	Cw/C	Cw/C	17000	Cw/C	Cw/C	15000	Cw/C	Cw/C	19000
24-Mar-03	770	140	320	530	140	140	490	60	100
31-Mar-03	10	<10	10	60	<10	30	200	40	70

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms
FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

UPPER BAY STATIONS

(Concentrations in CFU/100 mL)

	Newport Dunes - North			Vaughn's Launch			Ski Zone		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	220	60	30	NS	NS	NS	NS	NS	NS
8-Apr-02	130	10	<10	180	<10	20	730	<10	30
18-Apr-02	350	350	20	NS	NS	NS	NS	NS	NS
22-Apr-02	30	400	<10	40	<10	150	100	20	20
29-Apr-02	100	60	<10	NS	NS	NS	NS	NS	NS
6-May-02	130	<10	<10	NS	NS	NS	NS	NS	NS
13-May-02	<40	10	<10	NS	NS	NS	NS	NS	NS
20-May-02	800	100	40	NS	NS	NS	NS	NS	NS
28-May-02	70	20	10	NS	NS	NS	NS	NS	NS
3-Jun-02	20	10	20	NS	NS	NS	NS	NS	NS
10-Jun-02	20	<10	<10	NS	NS	NS	NS	NS	NS
17-Jun-02	<10	10	<10	NS	NS	NS	NS	NS	NS
25-Jun-02	2400	590	90	NS	NS	NS	NS	NS	NS
1-Jul-02	>20	10	<10	NS	NS	NS	NS	NS	NS
10-Jul-02	2000	90	50	NS	NS	NS	NS	NS	NS
15-Jul-02	20	<10	<10	NS	NS	NS	NS	NS	NS
22-Jul-02	10	<10	40	NS	NS	NS	NS	NS	NS
31-Jul-02	42000	60	20	NS	NS	NS	NS	NS	NS
5-Aug-02	>10	30	20	NS	NS	NS	NS	NS	NS
12-Aug-02	80	40	10	>10	<10	20	<10	<10	<10
19-Aug-02	70	30	30	<10	10	30	20	30	50
26-Aug-02	20	40	10	NS	NS	NS	NS	NS	NS
3-Sep-02	>90	160	70	>170	20	40	<10	10	30
9-Sep-02	>120	90	10	<10	10	10	<10	<10	<10
16-Sep-02	50	<10	30	30	10	10	<10	<10	20
23-Sep-02	40	50	<10	20	<10	10	<10	<10	<10
30-Sep-02	100	20	10	NS	NS	NS	NS	NS	NS
7-Oct-02	>110	100	20	NS	NS	NS	NS	NS	NS
15-Oct-02	30	40	<10	NS	NS	NS	NS	NS	NS
21-Oct-02	50	80	30	NS	NS	NS	NS	NS	NS
28-Oct-02	6600	160	10	NS	NS	NS	NS	NS	NS
4-Nov-02	90	60	70	NS	NS	NS	NS	NS	NS
12-Nov-02	Cw/C	6400	72	NS	NS	NS	NS	NS	NS
18-Nov-02	770	140	50	470	40	20	>850	60	10
25-Nov-02	200	90	60	NS	NS	NS	NS	NS	NS
2-Dec-02	Cw/C	5800	470	>33600	570	160	>39000	520	140
9-Dec-02	>420	260	110	110	10	10	310	<10	<10
16-Dec-02	>200	100	40	100	20	670	30	<10	30
23-Dec-02	>1300	290	100	4800	420	220	>6800	510	60
30-Dec-02	340	40	20	380	20	80	13000	100	110
6-Jan-03	100	80	<10	420	140	150	280	60	220
13-Jan-03	>420	30	40	>1160	90	180	3800	170	100
21-Jan-03	130	130	30	100	30	30	160	40	30
27-Jan-03	100	80	20	120	120	60	<10	20	10
3-Feb-03	40	20	10	40	50	30	180	180	<10
10-Feb-03	200	20	10	NS	NS	NS	NS	NS	NS
18-Feb-03	2000	250	10	>650	140	20	>920	80	10
24-Feb-03	190	30	10	NS	NS	NS	NS	NS	NS
3-Mar-03	480	100	20	NS	NS	NS	NS	NS	NS
10-Mar-03	370	330	80	NS	NS	NS	NS	NS	NS
17-Mar-03	Cw/C	Cw/C	22600	Cw/C	Cw/C	TNTC	Cw/C	Cw/C	TNTC
24-Mar-03	710	160	70	NS	NS	NS	NS	NS	NS
31-Mar-03	70	10	20	>360	10	340	190	<10	10

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms

FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

UPPER BAY STATIONS

(Concentrations in CFU/100 mL)

	North Star Beach			De Anza Launch			Bayshore Beach		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	50	40	230	10	<10	<10	60	<10	10
8-Apr-02	8200	6400	10	80	20	<10	80	70	20
18-Apr-02	1770	50	90	210	<10	10	120	20	<10
22-Apr-02	30	<10	20	20	<10	<10	10	<10	<10
29-Apr-02	400	30	20	530	450	<10	50	<10	<10
6-May-02	10	<10	30	10	<10	<10	40	20	20
13-May-02	20	<10	<10	1100	30	<10	50	20	10
20-May-02	120	<10	10	80	<10	<10	170	<10	<10
28-May-02	90	<10	10	80	10	10	60	10	<10
3-Jun-02	10	<10	<10	30	20	<10	20	<10	<10
10-Jun-02	10	<10	10	30	10	<10	160	30	<10
17-Jun-02	30	<10	<10	10	<10	<10	50	<10	10
25-Jun-02	<10	<10	<10	<10	40	130	10	<10	10
1-Jul-02	10	<10	<10	<10	<10	<10	20	<10	<10
10-Jul-02	10	<10	<10	50	10	<10	120	10	10
15-Jul-02	50	<10	20	20	<10	10	20	<10	<10
22-Jul-02	50	<10	20	>10	10	<10	50	<10	10
31-Jul-02	<10	<10	<10	20	<10	<10	120	80	330
5-Aug-02	10	<10	20	30	10	<10	20	<10	<10
12-Aug-02	10	<10	<10	<10	10	10	10	10	<10
19-Aug-02	10	10	20	30	30	<10	70	10	20
26-Aug-02	10	<10	20	30	340	10	<10	<10	<10
3-Sep-02	510	100	<10	230	40	<10	>1120	140	20
9-Sep-02	30	<10	<10	100	<10	<10	10	<10	10
16-Sep-02	10	10	<10	30	<10	10	80	<10	<10
23-Sep-02	<10	<10	10	10	10	20	20	40	10
30-Sep-02	30	10	<10	20	40	<10	10	<10	<10
7-Oct-02	20	10	10	<10	<10	50	50	10	<10
15-Oct-02	10	10	<10	10	<10	<10	40	<10	20
21-Oct-02	70	<10	10	50	<10	<10	30	10	20
28-Oct-02	Cw/C	7400	70	3600	120	<10	95	30	10
4-Nov-02	<10	20	<10	<10	<10	<10	20	10	<10
12-Nov-02	TNTC	2600	78	TNTC	2800	96	TNTC	3200	48
18-Nov-02	510	20	40	120	10	10	110	30	<10
25-Nov-02	270	30	70	30	<10	20	110	10	10
2-Dec-02	>19000	360	100	21000	230	100	16000	390	80
9-Dec-02	70	10	20	30	10	<10	60	<10	40
16-Dec-02	100	40	20	20	10	10	30	10	<10
23-Dec-02	6200	360	650	>1780	180	160	4800	290	270
30-Dec-02	>430	<10	50	110	10	<10	60	10	<10
6-Jan-03	2000	70	280	70	20	<10	5200	140	1220
13-Jan-03	>900	60	60	100	30	10	100	10	10
21-Jan-03	100	<10	20	70	<10	<10	10	<10	10
27-Jan-03	100	30	10	50	<10	<10	50	10	10
3-Feb-03	90	30	30	20	30	10	10	<10	10
10-Feb-03	110	50	50	20	<10	10	120	<10	<10
18-Feb-03	2200	120	80	410	10	10	420	20	10
24-Feb-03	>470	280	460	30	10	10	80	20	<10
3-Mar-03	>760	100	120	250	20	10	280	20	<10
10-Mar-03	160	30	60	80	10	20	260	20	30
17-Mar-03	Cw/C	Cw/C	35000	Cw/C	6000	9600	Cw/C	6200	12000
24-Mar-03	>600	70	120	>780	40	110	>750	30	80
31-Mar-03	40	10	10	20	<10	<10	>220	<10	30

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms
FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

TRIBUTARY STATIONS

(Concentrations in CFU/100 mL)

	San Diego Creek - Campus Dr.			Santa Ana Delhi Channel			Big Canyon Wash		
	TC	FC	ENT	TC	FC	ENT	TC	FC	ENT
1-Apr-02	>4400	80	>40	TNTC	1100	1640	TNTC	30	50
8-Apr-02	TNTC	1100	>90	TNTC	2200	500	TNTC	160	220
18-Apr-02	4400	120	4600	6200	280	810	620	40	50
22-Apr-02	2000	80	1000	23000	630	1070	1000	50	50
29-Apr-02	13800	280	200	13400	470	670	1000	80	40
6-May-02	>1400	100	200	6800	520	840	22200	110	100
13-May-02	>2400	140	90	>5800	930	290	6600	170	30
20-May-02	TNTC	3600	1300	TNTC	520	420	>3800	90	30
28-May-02	2000	110	310	TNTC	400	490	2000	30	30
3-Jun-02	>2200	800	190	>3000	1000	1500	5400	20	<10
10-Jun-02	>600	190	650	3400	560	1280	2000	40	110
17-Jun-02	2400	180	70	2000	340	1890	6400	510	120
25-Jun-02	400	170	60	2200	730	1680	NS	NS	NS
1-Jul-02	<10	160	60	>1000	390	470	1000	240	230
10-Jul-02	>1000	>70	330	>15000	1400	1120	>1000	680	640
15-Jul-02	<10	200	1100	400	320	550	400	290	230
22-Jul-02	Cw/OC	120	1200	Cw/C	840	6000	>20	100	10000
31-Jul-02	>800	>20	>800	TNTC	5000	1400	>60	10	220
5-Aug-02	Cw/Oc	50	270	>2200	570	1600	1000	100	120
12-Aug-02	>400	270	210	>2400	2000	620	1000	310	180
19-Aug-02	>400	160	370	Cw/C	400	520	>4000	620	360
26-Aug-02	>4800	180	350	>2800	1000	540	>390	130	210
3-Sep-02	>200	>230	>380	Cw/C	7600	340	1000	480	110
9-Sep-02	>1600	190	90	4000	740	490	>550	250	240
16-Sep-02	>400	210	1000	>1000	220	300	3200	1030	510
23-Sep-02	2800	160	380	4200	730	840	>490	350	370
30-Sep-02	>800	>280	90	>4000	800	360	>600	1070	1110
7-Oct-02	>600	330	60	TNTC	1000	430	NS	NS	NS
15-Oct-02	>800	>490	140	20600	>570	150	NS	NS	NS
21-Oct-02	4800	>310	120	TNTC	1550	150	NS	NS	NS
28-Oct-02	Cw/C	TNTC	100	Cw/C	13000	270	NS	NS	NS
4-Nov-02	Cw/C	2800	50	TNTC	2200	200	NS	NS	NS
12-Nov-02	TNTC	7400	880	Cw/C	6000	1320	NS	NS	NS
18-Nov-02	>15000	1000	350	>17000	1000	370	600	70	100
25-Nov-02	>6800	>530	100	>10000	880	380	>590	360	470
2-Dec-02	Cw/C	4000	1300	Cw/C	2800	1150	>10000	860	590
9-Dec-02	>13000	>410	230	>16000	910	450	2000	250	220
16-Dec-02	>3800	260	80	>17000	>330	480	>1000	120	60
23-Dec-02	Cw/C	800	3000	Cw/C	2800	1100	3400	290	130
30-Dec-02	Cw/C	9600	2000	Cw/C	TNTC	6000	3000	270	330
6-Jan-03	4000	540	420	4000	200	240	2400	290	280
13-Jan-03	Cw/C	400	210	>16000	340	240	2000	100	80
21-Jan-03	>7400	210	100	>20200	310	390	>1020	140	120
27-Jan-03	5000	70	20	Cw/C	>30	270	1000	200	90
3-Feb-03	>5600	100	10	6800	480	240	2400	180	100
10-Feb-03	2600	30	20	3800	70	60	>1000	210	140
18-Feb-03	>27600	2200	750	TNTC	1190	3600	>2200	580	100
24-Feb-03	>7200	930	250	>8600	1060	210	>2600	200	140
3-Mar-03	>17000	800	360	>9200	380	390	NS	NS	NS
10-Mar-03	Cw/C	390	190	Cw/C	480	230	NS	NS	NS
17-Mar-03	Cw/C	Cw/C	TNTC	Cw/C	11000	3800	Cw/C	6000	13000
24-Mar-03	4800	>480	700	13000	1010	250	2000	40	150
31-Mar-03	>2200	>310	30	>10000	390	20	>4600	40	80

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms
FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 1

BACTERIOLOGICAL SAMPLING RESULTS FOR NEWPORT BAY

TRIBUTARY STATIONS

(Concentrations in CFU/100 mL)

	Back Bay Dr. Drain								
	TC	FC	ENT						
1-Apr-02	NS	NS	NS						
8-Apr-02	4200	130	150						
18-Apr-02	1390	90	350						
22-Apr-02	940	220	790						
29-Apr-02	5000	2600	750						
6-May-02	2600	100	160						
13-May-02	4800	600	160						
20-May-02	>5800	1500	19000						
28-May-02	6600	220	1580						
3-Jun-02	6600	270	450						
10-Jun-02	4800	210	900						
17-Jun-02	5000	980	420						
25-Jun-02	Cw/C	10000	5000						
1-Jul-02	NS	NS	NS						
10-Jul-02	NS	NS	NS						
15-Jul-02	NS	NS	NS						
22-Jul-02	NS	NS	NS						
31-Jul-02	NS	NS	NS						
5-Aug-02	NS	NS	NS						
12-Aug-02	NS	NS	NS						
19-Aug-02	NS	NS	NS						
26-Aug-02	NS	NS	NS						
3-Sep-02	NS	NS	NS						
9-Sep-02	NS	NS	NS						
16-Sep-02	NS	NS	NS						
23-Sep-02	NS	NS	NS						
30-Sep-02	NS	NS	NS						
7-Oct-02	NS	NS	NS						
15-Oct-02	NS	NS	NS						
21-Oct-02	NS	NS	NS						
28-Oct-02	NS	NS	NS						
4-Nov-02	NS	NS	NS						
12-Nov-02	>8400	3240	3250						
18-Nov-02	>200	300	170						
25-Nov-02	4600	130	520						
2-Dec-02	>1320	210	850						
9-Dec-02	>1000	50	510						
16-Dec-02	>410	40	110						
23-Dec-02	2000	510	110						
30-Dec-02	>120	20	10						
6-Jan-03	>310	70	170						
13-Jan-03	4200	50	100						
21-Jan-03	>290	40	130						
27-Jan-03	1000	50	10						
3-Feb-03	2400	60	20						
10-Feb-03	1000	10	50						
18-Feb-03	>430	10	20						
24-Feb-03	>430	40	10						
3-Mar-03	>300	30	30						
10-Mar-03	1000	>70	240						
17-Mar-03	>13000	1120	750						
24-Mar-03	>580	80	30						
31-Mar-03	>3000	150	270						

Sampling results possibly influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

TC = Total Coliforms **ENT** = Enterococci **Cw/C** = Confluent Growth with Coliforms
FC = Fecal Coliforms **NS** = Not Sampled **TNTC** = Too Numerous To Count

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	43rd Street Beach			38th Street Beach			33rd Street Channel		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	20	26	yes	<10	43	no	140	225	no
8-Apr-02	10	16	yes	20	27	no	<10	180	no
18-Apr-02	250		ID	10		ID	<10		ID
22-Apr-02	20	25	yes	<10	11	yes	350	54	yes
29-Apr-02	10	25	yes	<10	11	yes	10	35	yes
6-May-02	230	41	yes	<10	11	yes	690	47	no
13-May-02	700	96	no	10	10	yes	40	63	no
20-May-02	30	63	no	20	11	yes	1200	163	no
28-May-02	120	90	no	70	17	yes	10	80	no
3-Jun-02	60	128	no	90	26	yes	20	92	no
10-Jun-02	1180	178	no	10	26	yes	170	70	no
17-Jun-02	<10	76	no	20	30	yes	460	113	no
25-Jun-02	200	111	no	40	35	yes	70	64	no
1-Jul-02	10	68	no	120	39	yes	1000	161	no
10-Jul-02	410	99	no	490	54	no	40000	738	no
15-Jul-02	2600	116	no	40	72	no	500	916	no
22-Jul-02	60	166	no	50	86	no	4800	1464	no
31-Jul-02	740	216	no	50	90	no	30	1236	no
5-Aug-02	110	349	no	60	78	no	110	795	no
12-Aug-02	90	258	no	60	51	yes	200	275	no
19-Aug-02	30	106	no	40	51	yes	3200	399	no
26-Aug-02	100	117	no	20	43	yes	30	145	no
3-Sep-02	>450	106	no	>590	70	no	480	252	no
9-Sep-02	40	87	no	40	65	no	110	252	no
16-Sep-02	20	64	no	10	45	no	50	191	no
23-Sep-02	640	118	no	40	45	no	10	60	no
30-Sep-02	80	113	no	40	52	no	20	56	no
7-Oct-02	40	70	no	30	29	yes	<10	26	yes
15-Oct-02	40	70	no	30	27	yes	20	18	yes
21-Oct-02	340	123	no	270	52	yes	20	15	yes
28-Oct-02	190	96	yes	20	45	yes	<10	15	yes
4-Nov-02	60	91	yes	10	34	yes	<10	13	yes
12-Nov-02	2400	206	no	920	68	no	640	30	no
18-Nov-02	30	195	no	130	92	no	20	30	no
25-Nov-02	10	96	no	20	54	no	20	30	no
2-Dec-02	280	104	no	440	101	no	80	46	no
9-Dec-02	30	90	no	10	101	no	20	53	no
16-Dec-02	60	43	yes	60	59	no	100	36	yes
23-Dec-02	20	40	yes	80	53	no	630	73	no
30-Dec-02	990	100	no	260	89	no	4800	217	no
6-Jan-03	90	80	no	30	52	yes	10	143	no
13-Jan-03	250	122	no	200	94	yes	90	194	no
21-Jan-03	80	129	no	10	66	yes	<10	122	no
27-Jan-03	30	140	no	130	73	yes	90	83	no
3-Feb-03	180	99	yes	10	38	yes	10	24	yes
10-Feb-03	290	126	yes	<10	30	yes	11000	98	no
18-Feb-03	290	129	yes	390	35	yes	100	100	no
24-Feb-03	2000	246	no	10	35	yes	110	161	no
3-Mar-03	220	367	no	40	27	yes	60	149	no
10-Mar-03	2200	606	no	11000	111	no	>100	236	no
17-Mar-03	3800	1013	no	3600	362	no	3800	190	no
24-Mar-03	30	644	no	<10	174	no	<10	120	no
31-Mar-03	20	256	no	10	174	no	<10	74	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	Lido Yacht Club Beach			Via Genoa Beach			Newport Blvd. Bridge		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	10	16	yes	80	19	yes	10	22	yes
8-Apr-02	10	16	yes	<10	19	yes	520	49	no
18-Apr-02	4000		no	20		ID	600		no
22-Apr-02	200	60	no	20	25	yes	1430	199	no
29-Apr-02	10	60	no	<10	20	yes	<10	135	no
6-May-02	<10	60	no	470	28	no	470	291	no
13-May-02	20	69	no	10	28	no	20	152	no
20-May-02	80	32	yes	<10	25	no	190	121	no
28-May-02	10	17	yes	10	22	no	10	45	no
3-Jun-02	<10	17	yes	20	25	no	5400	157	no
10-Jun-02	40	23	yes	10	11	yes	600	165	no
17-Jun-02	<10	20	yes	<10	11	yes	100	228	no
25-Jun-02	<10	13	yes	10	11	yes	550	282	no
1-Jul-02	150	23	yes	<10	11	yes	10	282	no
10-Jul-02	<10	23	yes	<10	10	yes	<10	80	no
15-Jul-02	3400	55	no	40	13	yes	640	81	no
22-Jul-02	<10	55	no	<10	13	yes	250	97	no
31-Jul-02	70	81	no	<10	13	yes	50	60	no
5-Aug-02	30	59	no	<10	13	yes	30	75	no
12-Aug-02	40	78	no	30	16	yes	11000	305	no
19-Aug-02	10	24	yes	10	12	yes	4000	440	no
26-Aug-02	80	37	yes	10	12	yes	70	341	no
3-Sep-02	20	29	yes	10	12	yes	20	284	no
9-Sep-02	<10	23	yes	20	14	yes	20	262	no
16-Sep-02	1040	44	no	<10	11	yes	20	74	no
23-Sep-02	10	44	no	10	11	yes	50	31	yes
30-Sep-02	<10	29	no	10	11	yes	<10	21	yes
7-Oct-02	<10	25	no	<10	11	yes	60	26	yes
15-Oct-02	10	25	no	20	11	yes	30	28	yes
21-Oct-02	<10	10	yes	<10	11	yes	1920	70	no
28-Oct-02	<10	10	yes	10	11	yes	<10	51	no
4-Nov-02	60	14	yes	10	11	yes	10	51	no
12-Nov-02	440	31	no	2000	33	no	1000	90	no
18-Nov-02	50	42	no	30	36	no	1000	181	no
25-Nov-02	<10	42	no	10	36	no	<10	63	no
2-Dec-02	130	70	no	250	68	no	200	115	no
9-Dec-02	30	61	no	<10	68	no	30	143	no
16-Dec-02	20	33	yes	60	34	yes	220	106	no
23-Dec-02	80	36	yes	200	50	yes	40	56	yes
30-Dec-02	20	42	yes	10	50	yes	240	105	yes
6-Jan-03	30	31	yes	160	45	yes	100	91	yes
13-Jan-03	150	43	yes	30	57	yes	>100	116	yes
21-Jan-03	30	46	yes	20	45	yes	40	83	yes
27-Jan-03	<10	31	yes	<10	25	yes	800	150	no
3-Feb-03	<10	27	yes	<10	25	yes	30	99	no
10-Feb-03	40	28	yes	10	14	yes	5600	222	no
18-Feb-03	20	19	yes	80	17	yes	680	326	no
24-Feb-03	80	23	yes	<10	15	yes	<10	247	no
3-Mar-03	20	26	yes	30	19	yes	80	156	no
10-Mar-03	20	30	yes	10	19	yes	4600	426	no
17-Mar-03	7200	86	no	4000	63	no	2000	347	no
24-Mar-03	<10	75	no	30	51	no	20	171	no
31-Mar-03	<10	49	no	<10	51	no	200	312	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	Rhine Channel			19th Street Beach			15th Street Beach		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	20	42	yes	460	25	no	<10	22	yes
8-Apr-02	40	26	yes	<10	25	no	<10	19	yes
18-Apr-02	480		no	<10		no	<10		ID
22-Apr-02	50	45	no	70	32	no	<10	14	yes
29-Apr-02	<10	45	no	<10	32	no	20	11	yes
6-May-02	1800	112	no	230	28	yes	<10	11	yes
13-May-02	<10	85	no	<10	28	yes	<10	11	yes
20-May-02	10	39	no	10	28	yes	<10	11	yes
28-May-02	10	28	no	<10	19	yes	10	11	yes
3-Jun-02	40	37	no	<10	19	yes	10	10	yes
10-Jun-02	110	21	yes	20	11	yes	<10	10	yes
17-Jun-02	110	34	yes	<10	11	yes	<10	10	yes
25-Jun-02	50	48	yes	70	17	yes	100	16	yes
1-Jul-02	70	70	yes	10	17	yes	<10	16	yes
10-Jul-02	70	78	yes	200	31	yes	40	21	yes
15-Jul-02	120	80	yes	160	47	yes	60	30	yes
22-Jul-02	10	49	yes	100	74	yes	<10	30	yes
31-Jul-02	330	72	yes	80	76	yes	<10	19	yes
5-Aug-02	40	64	yes	20	87	yes	<10	19	yes
12-Aug-02	40000	229	no	10	48	yes	<10	14	yes
19-Aug-02	280	272	no	10	28	yes	20	11	yes
26-Aug-02	20	312	no	70	26	yes	10	11	yes
3-Sep-02	810	373	no	8000	65	no	60	16	yes
9-Sep-02	120	465	no	30	70	no	<10	16	yes
16-Sep-02	20	102	no	<10	70	no	10	16	yes
23-Sep-02	<10	52	no	10	70	no	160	25	yes
30-Sep-02	<10	45	no	90	74	no	30	31	yes
7-Oct-02	10	19	yes	20	22	yes	30	27	yes
15-Oct-02	<10	11	yes	200	32	yes	20	31	yes
21-Oct-02	<10	10	yes	100	51	yes	20	36	yes
28-Oct-02	<10	10	yes	60	74	yes	10	20	yes
4-Nov-02	20	11	yes	260	91	yes	20	19	yes
12-Nov-02	600	26	no	2000	229	no	>350	31	yes
18-Nov-02	100	41	no	30	156	no	40	35	yes
25-Nov-02	10	41	no	10	99	no	20	35	yes
2-Dec-02	180	74	no	560	154	no	140	60	yes
9-Dec-02	60	92	no	30	100	no	10	52	yes
16-Dec-02	20	46	yes	2000	100	no	10	26	yes
23-Dec-02	100	46	yes	220	149	no	90	30	yes
30-Dec-02	20	53	yes	60	213	no	30	33	yes
6-Jan-03	50	41	yes	180	170	no	50	27	yes
13-Jan-03	20	33	yes	630	313	no	10	27	yes
21-Jan-03	50	40	yes	<10	108	no	10	27	yes
27-Jan-03	20	29	yes	<10	58	no	10	17	yes
3-Feb-03	<10	25	yes	570	92	no	10	14	yes
10-Feb-03	30	23	yes	20	59	no	210	18	yes
18-Feb-03	50	27	yes	130	43	no	30	23	yes
24-Feb-03	80	30	yes	880	105	no	30	29	yes
3-Mar-03	20	30	yes	40	139	no	<10	29	yes
10-Mar-03	110	48	yes	100	98	no	10	29	yes
17-Mar-03	2800	120	no	5400	301	no	3400	50	no
24-Mar-03	10	87	no	10	180	no	30	50	no
31-Mar-03	<10	57	no	20	85	no	<10	40	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	10th Street Beach			Alvarado/ Bay Isle Beach			N Street Beach		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	30	19	yes	10	55	no	40	17	yes
8-Apr-02	<10	19	yes	<10	55	no	10	17	yes
18-Apr-02	<10		ID	<10		no	<10		ID
22-Apr-02	<10	12	yes	150	40	no	60	22	yes
29-Apr-02	<10	12	yes	10	17	yes	30	24	yes
6-May-02	270	19	yes	<10	17	yes	40	24	yes
13-May-02	<10	19	yes	<10	17	yes	<10	24	yes
20-May-02	<10	19	yes	<10	17	yes	40	31	yes
28-May-02	<10	19	yes	<10	10	yes	10	22	yes
3-Jun-02	<10	19	yes	<10	10	yes	10	17	yes
10-Jun-02	<10	10	yes	20	11	yes	10	13	yes
17-Jun-02	20	11	yes	<10	11	yes	<10	13	yes
25-Jun-02	<10	11	yes	30	14	yes	<10	10	yes
1-Jul-02	10	11	yes	10	14	yes	20	11	yes
10-Jul-02	10	11	yes	20	16	yes	<10	11	yes
15-Jul-02	90	18	yes	50	20	yes	40	15	yes
22-Jul-02	<10	16	yes	20	23	yes	<10	15	yes
31-Jul-02	<10	16	yes	50	25	yes	20	17	yes
5-Aug-02	10	16	yes	20	29	yes	10	15	yes
12-Aug-02	10	16	yes	10	25	yes	<10	15	yes
19-Aug-02	<10	10	yes	10	18	yes	20	13	yes
26-Aug-02	20	11	yes	<10	16	yes	<10	13	yes
3-Sep-02	10	11	yes	830	28	no	<10	11	yes
9-Sep-02	<10	11	yes	10	24	no	<10	11	yes
16-Sep-02	10	11	yes	<10	24	no	<10	11	yes
23-Sep-02	130	19	yes	30	30	no	<10	10	yes
30-Sep-02	10	17	yes	40	40	no	10	10	yes
7-Oct-02	<10	17	yes	10	16	yes	<10	10	yes
15-Oct-02	20	19	yes	30	20	yes	<10	10	yes
21-Oct-02	10	19	yes	160	36	yes	10	10	yes
28-Oct-02	<10	11	yes	10	29	yes	10	10	yes
4-Nov-02	60	16	yes	140	37	yes	<10	10	yes
12-Nov-02	2000	47	no	>470	79	no	>420	21	no
18-Nov-02	20	47	no	20	73	no	<10	21	no
25-Nov-02	10	47	no	10	42	no	10	21	no
2-Dec-02	210	87	no	510	92	no	130	35	no
9-Dec-02	10	61	no	20	63	no	<10	35	no
16-Dec-02	740	50	no	100	46	no	20	19	yes
23-Dec-02	220	81	no	130	67	no	70	28	yes
30-Dec-02	130	135	no	10	67	no	<10	28	yes
6-Jan-03	200	133	no	10	30	yes	20	19	yes
13-Jan-03	80	202	no	10	26	yes	10	19	yes
21-Jan-03	<10	86	yes	20	19	yes	<10	17	yes
27-Jan-03	<10	46	yes	<10	11	yes	10	11	yes
3-Feb-03	10	28	yes	20	13	yes	10	11	yes
10-Feb-03	100	24	yes	10	13	yes	<10	10	yes
18-Feb-03	40	21	yes	30	16	yes	<10	10	yes
24-Feb-03	2000	60	no	<10	14	yes	10	10	yes
3-Mar-03	30	75	no	<10	14	yes	<10	10	yes
10-Mar-03	1500	205	no	20	14	yes	<10	10	yes
17-Mar-03	8000	492	no	7400	54	no	5200	35	no
24-Mar-03	30	464	no	<10	43	no	30	44	no
31-Mar-03	<10	161	no	<10	43	no	10	44	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	Garnet Avenue Beach			Ruby Avenue Beach			Sapphire Avenue Beach		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	20	13	yes	<10	16	yes	<10	10	yes
8-Apr-02	80	20	yes	<10	11	yes	<10	10	yes
18-Apr-02	<10		ID	<10		ID	<10		ID
22-Apr-02	10	17	yes	<10	11	yes	<10	10	yes
29-Apr-02	10	17	yes	<10	10	yes	<10	10	yes
6-May-02	20	17	yes	<10	10	yes	50	14	yes
13-May-02	630	26	no	<10	10	yes	<10	14	yes
20-May-02	20	30	no	<10	10	yes	<10	14	yes
28-May-02	<10	30	no	30	12	yes	20	16	yes
3-Jun-02	20	35	no	<10	12	yes	20	18	yes
10-Jun-02	10	30	no	10	12	yes	<10	13	yes
17-Jun-02	<10	13	yes	<10	12	yes	<10	13	yes
25-Jun-02	60	16	yes	<10	12	yes	<10	13	yes
1-Jul-02	30	20	yes	<10	10	yes	10	11	yes
10-Jul-02	20	20	yes	10	10	yes	<10	10	yes
15-Jul-02	30	26	yes	<10	10	yes	<10	10	yes
22-Jul-02	<10	26	yes	20	11	yes	<10	10	yes
31-Jul-02	<10	18	yes	10	11	yes	50	14	yes
5-Aug-02	120	24	yes	<10	11	yes	<10	14	yes
12-Aug-02	<10	20	yes	<10	11	yes	10	14	yes
19-Aug-02	60	24	yes	<10	11	yes	20	16	yes
26-Aug-02	20	27	yes	<10	10	yes	<10	16	yes
3-Sep-02	90	42	yes	20	11	yes	<10	11	yes
9-Sep-02	30	32	yes	<10	11	yes	50	16	yes
16-Sep-02	20	37	yes	<10	11	yes	10	16	yes
23-Sep-02	10	26	yes	10	11	yes	20	16	yes
30-Sep-02	50	31	yes	10	11	yes	40	21	yes
7-Oct-02	90	31	yes	20	11	yes	10	21	yes
15-Oct-02	<10	25	yes	<10	11	yes	<10	15	yes
21-Oct-02	10	21	yes	<10	11	yes	10	15	yes
28-Oct-02	20	25	yes	<10	11	yes	20	15	yes
4-Nov-02	40	24	yes	<10	11	yes	10	11	yes
12-Nov-02	240	29	yes	>350	20	yes	440	24	no
18-Nov-02	30	36	yes	180	36	yes	<10	24	no
25-Nov-02	4600	122	no	20	42	yes	20	28	no
2-Dec-02	<10	106	no	100	66	yes	150	42	no
9-Dec-02	<10	80	no	50	91	yes	<10	42	no
16-Dec-02	30	53	no	10	45	yes	<10	20	yes
23-Dec-02	50	59	no	550	56	no	470	43	no
30-Dec-02	<10	17	yes	<10	49	no	10	37	no
6-Jan-03	40	23	yes	10	31	no	10	22	no
13-Jan-03	200	41	yes	40	29	no	<10	22	no
21-Jan-03	<10	33	yes	<10	29	no	10	22	no
27-Jan-03	40	32	yes	<10	13	yes	<10	10	yes
3-Feb-03	<10	32	yes	<10	13	yes	<10	10	yes
10-Feb-03	<10	24	yes	<10	13	yes	10	10	yes
18-Feb-03	640	30	no	10	10	yes	10	10	yes
24-Feb-03	<10	30	no	350	20	yes	<10	10	yes
3-Mar-03	10	23	no	<10	20	yes	30	12	yes
10-Mar-03	<10	23	no	<10	20	yes	<10	12	yes
17-Mar-03	20	26	no	9400	80	no	5000	43	no
24-Mar-03	<10	11	yes	10	80	no	40	57	no
31-Mar-03	10	11	yes	<10	39	no	150	98	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	Grand Canal			Abalone Avenue Beach			Park Avenue Beach		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	<10	10	yes	<10	11	yes	<10	11	yes
8-Apr-02	50	14	yes	<10	11	yes	10	10	yes
18-Apr-02	20		ID	<10		ID	<10		ID
22-Apr-02	<10	16	yes	20	13	yes	30	12	yes
29-Apr-02	<10	16	yes	<10	11	yes	10	12	yes
6-May-02	30	20	yes	30	14	yes	<10	12	yes
13-May-02	<10	14	yes	<10	14	yes	<10	12	yes
20-May-02	150	21	yes	<10	14	yes	20	14	yes
28-May-02	50	30	yes	<10	12	yes	<10	11	yes
3-Jun-02	60	42	yes	<10	12	yes	<10	11	yes
10-Jun-02	<10	34	yes	10	10	yes	<10	11	yes
17-Jun-02	30	42	yes	10	10	yes	<10	11	yes
25-Jun-02	10	25	yes	10	10	yes	10	10	yes
1-Jul-02	410	37	no	10	10	yes	<10	10	yes
10-Jul-02	50	36	no	30	12	yes	20	11	yes
15-Jul-02	60	52	no	<10	12	yes	20	13	yes
22-Jul-02	<10	41	no	10	12	yes	90	20	yes
31-Jul-02	100	66	no	<10	12	yes	280	40	yes
5-Aug-02	10	31	yes	10	12	yes	10	40	yes
12-Aug-02	70	33	yes	20	11	yes	40	46	yes
19-Aug-02	70	35	yes	20	13	yes	210	73	yes
26-Aug-02	140	59	yes	10	13	yes	<10	47	yes
3-Sep-02	60	53	yes	10	13	yes	<10	24	yes
9-Sep-02	<10	53	yes	10	13	yes	20	28	yes
16-Sep-02	50	49	yes	10	11	yes	<10	21	yes
23-Sep-02	10	33	yes	<10	10	yes	20	13	yes
30-Sep-02	10	20	yes	10	10	yes	<10	13	yes
7-Oct-02	<10	14	yes	<10	10	yes	<10	13	yes
15-Oct-02	20	16	yes	<10	10	yes	20	13	yes
21-Oct-02	10	11	yes	10	10	yes	10	13	yes
28-Oct-02	10	11	yes	<10	10	yes	<10	11	yes
4-Nov-02	20	13	yes	<10	10	yes	10	11	yes
12-Nov-02	600	30	no	440	21	no	560	26	no
18-Nov-02	<10	26	no	20	24	no	10	22	no
25-Nov-02	40	34	no	10	24	no	160	39	no
2-Dec-02	120	57	no	90	38	no	110	63	no
9-Dec-02	10	49	no	<10	38	no	<10	63	no
16-Dec-02	10	22	yes	90	28	yes	<10	28	yes
23-Dec-02	120	36	yes	110	39	yes	130	47	yes
30-Dec-02	40	36	yes	10	39	yes	10	27	yes
6-Jan-03	40	29	yes	10	25	yes	<10	17	yes
13-Jan-03	70	42	yes	10	25	yes	<10	17	yes
21-Jan-03	<10	42	yes	<10	16	yes	<10	17	yes
27-Jan-03	10	26	yes	<10	10	yes	<10	10	yes
3-Feb-03	<10	19	yes	10	10	yes	<10	10	yes
10-Feb-03	<10	15	yes	<10	10	yes	<10	10	yes
18-Feb-03	<10	10	yes	<10	10	yes	<10	10	yes
24-Feb-03	50	14	yes	10	10	yes	<10	10	yes
3-Mar-03	<10	14	yes	10	10	yes	<10	10	yes
10-Mar-03	10	14	yes	<10	10	yes	<10	10	yes
17-Mar-03	8000	53	no	7800	38	no	7600	38	no
24-Mar-03	140	89	no	10	38	no	50	52	no
31-Mar-03	10	65	no	<10	38	no	<10	52	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

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TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	Onyx Avenue Beach			Promontory Point Channel			Harbor Patrol Beach		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	20	17	yes	<10	10	yes	140	71	no
8-Apr-02	<10	11	yes	<10	10	yes	180	96	no
18-Apr-02	<10		ID	<10		ID	620		no
22-Apr-02	30	14	yes	<10	10	yes	210	305	no
29-Apr-02	60	20	yes	10	10	yes	10	127	no
6-May-02	<10	18	yes	10	10	yes	90	116	no
13-May-02	10	18	yes	<10	10	yes	1400	175	no
20-May-02	<10	18	yes	10	10	yes	280	149	no
28-May-02	10	14	yes	<10	10	yes	600	184	no
3-Jun-02	10	10	yes	<10	10	yes	330	371	no
10-Jun-02	10	10	yes	<10	10	yes	230	447	no
17-Jun-02	<10	10	yes	<10	10	yes	220	309	no
25-Jun-02	<10	10	yes	<10	10	yes	20	182	no
1-Jul-02	<10	10	yes	<10	10	yes	420	170	no
10-Jul-02	10	10	yes	<10	10	yes	480	183	no
15-Jul-02	<10	10	yes	10	10	yes	300	193	no
22-Jul-02	10	10	yes	20	11	yes	180	185	no
31-Jul-02	<10	10	yes	<10	11	yes	60	231	no
5-Aug-02	20	11	yes	<10	11	yes	130	182	no
12-Aug-02	40	15	yes	30	14	yes	380	174	yes
19-Aug-02	20	17	yes	<10	14	yes	310	175	yes
26-Aug-02	<10	17	yes	<10	12	yes	110	159	yes
3-Sep-02	20	20	yes	<10	12	yes	90	172	yes
9-Sep-02	<10	17	yes	<10	12	yes	380	213	no
16-Sep-02	<10	13	yes	<10	10	yes	70	152	yes
23-Sep-02	<10	11	yes	<10	10	yes	190	138	yes
30-Sep-02	20	13	yes	<10	10	yes	30	106	yes
7-Oct-02	60	16	yes	<10	10	yes	1270	181	no
15-Oct-02	20	19	yes	<10	10	yes	30	109	no
21-Oct-02	<10	19	yes	<10	10	yes	290	144	no
28-Oct-02	<10	19	yes	<10	10	yes	<10	80	no
4-Nov-02	60	24	yes	<10	10	yes	<10	64	no
12-Nov-02	2000	47	no	2000	29	no	1000	61	no
18-Nov-02	140	70	no	<10	29	no	40	65	no
25-Nov-02	20	80	no	<10	29	no	50	46	no
2-Dec-02	410	169	no	200	53	no	200	83	no
9-Dec-02	10	118	no	<10	53	no	<10	83	no
16-Dec-02	20	47	no	<10	18	yes	60	47	yes
23-Dec-02	60	40	no	20	21	yes	100	57	yes
30-Dec-02	10	35	no	<10	21	yes	20	47	yes
6-Jan-03	40	22	yes	10	11	yes	20	30	yes
13-Jan-03	30	27	yes	<10	11	yes	<10	30	yes
21-Jan-03	<10	24	yes	<10	11	yes	<10	21	yes
27-Jan-03	<10	16	yes	<10	10	yes	<10	13	yes
3-Feb-03	10	16	yes	<10	10	yes	20	13	yes
10-Feb-03	10	12	yes	<10	10	yes	50	16	yes
18-Feb-03	10	10	yes	<10	10	yes	<10	16	yes
24-Feb-03	20	11	yes	<10	10	yes	1870	45	no
3-Mar-03	10	11	yes	<10	10	yes	80	68	no
10-Mar-03	<10	11	yes	<10	10	yes	80	90	no
17-Mar-03	8200	44	no	5200	35	no	9200	256	no
24-Mar-03	<10	44	no	<10	35	no	220	475	no
31-Mar-03	<10	38	no	<10	35	no	<10	167	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

LOWER BAY STATIONS

	Rocky Point Beach		
	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	60	46	yes
8-Apr-02	10	40	yes
18-Apr-02	<10		ID
22-Apr-02	10	18	yes
29-Apr-02	<10	14	yes
6-May-02	<10	10	yes
13-May-02	<10	10	yes
20-May-02	20	11	yes
28-May-02	<10	11	yes
3-Jun-02	<10	11	yes
10-Jun-02	<10	11	yes
17-Jun-02	20	13	yes
25-Jun-02	880	28	no
1-Jul-02	<10	28	no
10-Jul-02	10	28	no
15-Jul-02	50	39	no
22-Jul-02	<10	34	no
31-Jul-02	<10	14	yes
5-Aug-02	110	22	yes
12-Aug-02	10	22	yes
19-Aug-02	20	19	yes
26-Aug-02	<10	19	yes
3-Sep-02	20	21	yes
9-Sep-02	<10	13	yes
16-Sep-02	<10	13	yes
23-Sep-02	10	11	yes
30-Sep-02	10	11	yes
7-Oct-02	<10	10	yes
15-Oct-02	<10	10	yes
21-Oct-02	10	10	yes
28-Oct-02	<10	10	yes
4-Nov-02	<10	10	yes
12-Nov-02	100	16	yes
18-Nov-02	20	18	yes
25-Nov-02	<10	18	yes
2-Dec-02	680	42	no
9-Dec-02	140	72	no
16-Dec-02	20	52	no
23-Dec-02	30	56	no
30-Dec-02	60	81	no
6-Jan-03	10	35	yes
13-Jan-03	10	20	yes
21-Jan-03	50	25	yes
27-Jan-03	50	27	yes
3-Feb-03	<10	19	yes
10-Feb-03	10	19	yes
18-Feb-03	10	19	yes
24-Feb-03	<10	14	yes
3-Mar-03	10	10	yes
10-Mar-03	20	11	yes
17-Mar-03	5800	41	no
24-Mar-03	60	59	no
31-Mar-03	10	59	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

UPPER BAY STATIONS

	Bayshore Beach			De Anza Launch			Newport Dunes West		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	<10	22	yes	<10	23	no	240	69	no
8-Apr-02	70	26	yes	20	26	no	<10	69	no
18-Apr-02	20		ID	<10		no	<10		no
22-Apr-02	<10	17	yes	<10	11	yes	50	26	yes
29-Apr-02	<10	17	yes	450	25	no	10	26	yes
6-May-02	20	19	yes	<10	25	no	30	17	yes
13-May-02	20	15	yes	30	27	no	10	17	yes
20-May-02	<10	13	yes	<10	27	no	<10	17	yes
28-May-02	10	13	yes	10	27	no	<10	12	yes
3-Jun-02	<10	13	yes	20	14	yes	<10	12	yes
10-Jun-02	30	14	yes	10	14	yes	<10	10	yes
17-Jun-02	<10	12	yes	<10	11	yes	10	10	yes
25-Jun-02	<10	12	yes	40	15	yes	<10	10	yes
1-Jul-02	<10	12	yes	<10	15	yes	40	13	yes
10-Jul-02	10	12	yes	10	13	yes	10	13	yes
15-Jul-02	<10	10	yes	<10	13	yes	<10	13	yes
22-Jul-02	<10	10	yes	10	13	yes	<10	13	yes
31-Jul-02	80	15	yes	<10	10	yes	20	15	yes
5-Aug-02	<10	15	yes	10	10	yes	20	13	yes
12-Aug-02	10	15	yes	10	10	yes	<10	13	yes
19-Aug-02	10	15	yes	30	12	yes	<10	13	yes
26-Aug-02	<10	15	yes	340	25	yes	<10	13	yes
3-Sep-02	140	17	yes	40	33	yes	<10	11	yes
9-Sep-02	<10	17	yes	<10	33	yes	<10	10	yes
16-Sep-02	<10	17	yes	<10	33	yes	50	14	yes
23-Sep-02	40	22	yes	10	27	yes	<10	14	yes
30-Sep-02	<10	22	yes	40	17	yes	10	14	yes
7-Oct-02	10	13	yes	<10	13	yes	10	14	yes
15-Oct-02	<10	13	yes	<10	13	yes	40	18	yes
21-Oct-02	10	13	yes	<10	13	yes	70	19	yes
28-Oct-02	30	12	yes	120	22	yes	150	33	yes
4-Nov-02	10	12	yes	<10	16	yes	50	46	yes
12-Nov-02	3200	39	no	2800	51	no	3600	150	no
18-Nov-02	30	49	no	10	51	no	160	198	no
25-Nov-02	10	49	no	<10	51	no	100	212	no
2-Dec-02	390	82	no	230	58	no	6800	455	no
9-Dec-02	<10	82	no	10	58	no	1100	845	no
16-Dec-02	10	26	yes	10	19	yes	20	299	no
23-Dec-02	290	41	yes	180	33	yes	210	316	no
30-Dec-02	10	41	yes	10	33	yes	30	248	no
6-Jan-03	140	33	yes	20	20	yes	290	132	no
13-Jan-03	10	33	yes	30	26	yes	240	97	yes
21-Jan-03	<10	33	yes	<10	26	yes	40	112	yes
27-Jan-03	10	17	yes	<10	14	yes	<10	61	yes
3-Feb-03	<10	17	yes	30	18	yes	10	49	yes
10-Feb-03	<10	10	yes	<10	16	yes	80	38	yes
18-Feb-03	20	11	yes	10	12	yes	80	30	yes
24-Feb-03	20	13	yes	10	12	yes	40	30	yes
3-Mar-03	20	15	yes	20	14	yes	140	51	yes
10-Mar-03	20	17	yes	10	11	yes	10	51	yes
17-Mar-03	6200	63	no	6000	41	no	40000	178	no
24-Mar-03	30	68	no	40	54	no	140	199	no
31-Mar-03	<10	59	no	<10	54	no	<10	151	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

UPPER BAY STATIONS

	Newport Dunes Middle			Newport Dunes East			Newport Dunes North		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	160	69	no	20	99	no	60	130	no
8-Apr-02	20	79	no	<10	72	no	10	88	no
18-Apr-02	20		no	<10		no	350		no
22-Apr-02	30	33	yes	70	19	yes	400	61	yes
29-Apr-02	50	39	yes	20	19	yes	60	87	yes
6-May-02	40	30	yes	60	24	yes	<10	61	yes
13-May-02	<10	26	yes	<10	24	yes	10	61	yes
20-May-02	20	26	yes	20	28	yes	100	47	yes
28-May-02	<10	21	yes	<10	19	yes	20	26	yes
3-Jun-02	<10	15	yes	<10	16	yes	10	18	yes
10-Jun-02	10	11	yes	120	19	yes	<10	18	yes
17-Jun-02	10	11	yes	30	24	yes	10	18	yes
25-Jun-02	<10	10	yes	50	28	yes	590	26	no
1-Jul-02	<10	10	yes	10	28	yes	10	23	no
10-Jul-02	10	10	yes	20	32	yes	90	35	no
15-Jul-02	<10	10	yes	400	41	yes	<10	35	no
22-Jul-02	10	10	yes	<10	33	yes	<10	35	no
31-Jul-02	<10	10	yes	10	24	yes	60	22	yes
5-Aug-02	<10	10	yes	<10	24	yes	30	28	yes
12-Aug-02	<10	10	yes	10	21	yes	40	24	yes
19-Aug-02	<10	10	yes	30	12	yes	30	29	yes
26-Aug-02	<10	10	yes	80	19	yes	40	39	yes
3-Sep-02	10	10	yes	10	19	yes	160	47	yes
9-Sep-02	<10	10	yes	20	22	yes	90	59	yes
16-Sep-02	<10	10	yes	<10	22	yes	<10	44	yes
23-Sep-02	<10	10	yes	<10	17	yes	50	49	yes
30-Sep-02	<10	10	yes	30	14	yes	20	43	yes
7-Oct-02	10	10	yes	<10	14	yes	100	39	yes
15-Oct-02	10	10	yes	240	24	yes	40	33	yes
21-Oct-02	20	11	yes	20	27	yes	80	50	yes
28-Oct-02	250	22	yes	200	49	yes	160	63	yes
4-Nov-02	60	31	yes	70	58	yes	60	79	yes
12-Nov-02	5600	111	no	6000	209	no	6400	181	no
18-Nov-02	150	191	no	120	182	no	140	233	no
25-Nov-02	100	263	no	100	252	no	90	239	no
2-Dec-02	6200	500	no	5800	493	no	5800	489	no
9-Dec-02	40	461	no	50	461	no	260	656	no
16-Dec-02	40	172	no	60	184	no	100	286	no
23-Dec-02	180	178	no	240	211	no	290	330	no
30-Dec-02	40	148	no	50	184	no	40	281	no
6-Jan-03	320	82	yes	40	68	yes	80	119	yes
13-Jan-03	60	89	yes	100	78	yes	30	77	yes
21-Jan-03	70	99	yes	30	68	yes	130	82	yes
27-Jan-03	30	69	yes	180	64	yes	80	63	yes
3-Feb-03	10	53	yes	120	76	yes	20	55	yes
10-Feb-03	100	42	yes	100	92	yes	20	42	yes
18-Feb-03	80	44	yes	150	99	yes	250	64	yes
24-Feb-03	80	45	yes	290	157	yes	30	47	yes
3-Mar-03	180	65	yes	100	139	yes	100	50	yes
10-Mar-03	<10	65	yes	80	128	yes	330	87	yes
17-Mar-03	40000	215	no	40000	425	no	40000	397	no
24-Mar-03	140	241	no	60	354	no	160	363	no
31-Mar-03	<10	159	no	40	238	no	10	292	no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

UPPER BAY STATIONS

	North Star Beach			Vaughn's Launch			Ski Zone		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	40	83	no	NS		ID	NS		ID
8-Apr-02	6400	152	no	<10		ID	<10		ID
18-Apr-02	50		no	NS		ID	NS		ID
22-Apr-02	<10	66	no	<10		ID	20		ID
29-Apr-02	30	83	no	NS		ID	NS		ID
6-May-02	<10	63	no	NS		ID	NS		ID
13-May-02	<10	17	yes	NS		ID	NS		ID
20-May-02	<10	12	yes	NS		ID	NS		ID
28-May-02	<10	12	yes	NS		ID	NS		ID
3-Jun-02	<10	10	yes	NS		ID	NS		ID
10-Jun-02	<10	10	yes	NS		ID	NS		ID
17-Jun-02	<10	10	yes	NS		ID	NS		ID
25-Jun-02	<10	10	yes	NS		ID	NS		ID
1-Jul-02	<10	10	yes	NS		ID	NS		ID
10-Jul-02	<10	10	yes	NS		ID	NS		ID
15-Jul-02	<10	10	yes	NS		ID	NS		ID
22-Jul-02	<10	10	yes	NS		ID	NS		ID
31-Jul-02	<10	10	yes	NS		ID	NS		ID
5-Aug-02	<10	10	yes	NS		ID	NS		ID
12-Aug-02	<10	10	yes	<10		ID	<10		ID
19-Aug-02	10	10	yes	10		ID	30		ID
26-Aug-02	<10	10	yes	NS		ID	NS		ID
3-Sep-02	100	16	yes	20		ID	10		ID
9-Sep-02	<10	16	yes	10		ID	<10		ID
16-Sep-02	10	16	yes	10		ID	<10		ID
23-Sep-02	<10	16	yes	<10		ID	<10		ID
30-Sep-02	10	16	yes	NS		ID	NS		ID
7-Oct-02	10	10	yes	NS		ID	NS		ID
15-Oct-02	10	10	yes	NS		ID	NS		ID
21-Oct-02	<10	10	yes	NS		ID	NS		ID
28-Oct-02	7400	37	no	NS		ID	NS		ID
4-Nov-02	20	43	no	NS		ID	NS		ID
12-Nov-02	2600	131	no	NS		ID	NS		ID
18-Nov-02	20	150	no	40		ID	60		ID
25-Nov-02	30	187	no	NS		ID	NS		ID
2-Dec-02	360	102	no	570		no	520		no
9-Dec-02	10	89	no	10		no	<10		no
16-Dec-02	40	39	yes	20		no	<10		no
23-Dec-02	360	69	yes	420		no	510		no
30-Dec-02	<10	55	yes	20	63	no	100	102	no
6-Jan-03	70	40	yes	140	47	no	60	89	no
13-Jan-03	60	57	yes	90	73	no	170	108	no
21-Jan-03	<10	43	yes	30	79	no	40	137	no
27-Jan-03	30	26	yes	120	62	yes	20	119	yes
3-Feb-03	30	33	yes	50	74	yes	180	121	yes
10-Feb-03	50	31	yes	NS		ID	NS		ID
18-Feb-03	120	35	yes	140		ID	80		ID
24-Feb-03	280	69	yes	NS		ID	NS		ID
3-Mar-03	100	87	yes	NS		ID	NS		ID
10-Mar-03	30	87	yes	NS		ID	NS		ID
17-Mar-03	40000	332	no	40000		no	40000		no
24-Mar-03	70	298	no	NS		no	NS		no
31-Mar-03	10	153	no	10		no	<10		no

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

Geomean unable to be calculated since less than 5 samples taken from the preceding 30-day period

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TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

TRIBUTARY STATIONS

	Back Bay Dr. Drain			Big Canyon Wash			Santa Ana Delhi Channel		
	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective	Fecal Coliform	Geomean*	30-day period met objective
1-Apr-02	NS		NA	30	297	NA	1100	732	NA
8-Apr-02	130		NA	160	267	NA	2200	1288	NA
18-Apr-02	90		NA	40		NA	280		NA
22-Apr-02	220		NA	50	75	NA	630	611	NA
29-Apr-02	2600		NA	80	60	NA	470	725	NA
6-May-02	100	232	NA	110	78	NA	520	624	NA
13-May-02	600	315	NA	170	79	NA	930	526	NA
20-May-02	1500	552	NA	90	92	NA	520	595	NA
28-May-02	220	552	NA	30	83	NA	400	543	NA
3-Jun-02	270	351	NA	20	63	NA	1000	632	NA
10-Jun-02	210	407	NA	40	52	NA	560	641	NA
17-Jun-02	980	449	NA	510	64	NA	340	524	NA
25-Jun-02	10000	657	NA	NS		NA	730	561	NA
1-Jul-02	NS		NA	240		NA	390	558	NA
10-Jul-02	NS		NA	680		NA	1400	597	NA
15-Jul-02	NS		NA	290		NA	320	534	NA
22-Jul-02	NS		NA	100		NA	840	640	NA
31-Jul-02	NS		NA	10	136	NA	5000	940	NA
5-Aug-02	NS		NA	100	115	NA	570	1014	NA
12-Aug-02	NS		NA	310	98	NA	2000	1089	NA
19-Aug-02	NS		NA	620	114	NA	400	1139	NA
26-Aug-02	NS		NA	130	120	NA	1000	1179	NA
3-Sep-02	NS		NA	480	260	NA	7600	1282	NA
9-Sep-02	NS		NA	250	313	NA	740	1351	NA
16-Sep-02	NS		NA	1030	398	NA	220	869	NA
23-Sep-02	NS		NA	350	355	NA	730	980	NA
30-Sep-02	NS		NA	1070	541	NA	800	937	NA
7-Oct-02	NS		NA	NS		NA	1000	625	NA
15-Oct-02	NS		NA	NS		NA	>570	593	NA
21-Oct-02	NS		NA	NS		NA	1550	876	NA
28-Oct-02	NS		NA	NS		NA	13000	1558	NA
4-Nov-02	NS		NA	NS		NA	2200	1908	NA
12-Nov-02	3240		NA	NS		NA	6000	2730	NA
18-Nov-02	300		NA	70		NA	1000	3055	NA
25-Nov-02	130		NA	360		NA	880	2728	NA
2-Dec-02	210		NA	860		NA	2800	2007	NA
9-Dec-02	50	266	NA	250		NA	910	1682	NA
16-Dec-02	40	110	NA	120	230	NA	>330	942	NA
23-Dec-02	510	123	NA	290	306	NA	2800	1157	NA
30-Dec-02	20	84	NA	270	289	NA	40000	2482	NA
6-Jan-03	70	68	NA	290	233	NA	200	1464	NA
13-Jan-03	50	68	NA	100	194	NA	340	1202	NA
21-Jan-03	40	68	NA	140	200	NA	310	1187	NA
27-Jan-03	50	43	NA	200	185	NA	>30	479	NA
3-Feb-03	60	53	NA	180	171	NA	480	198	NA
10-Feb-03	10	36	NA	210	160	NA	70	160	NA
18-Feb-03	10	26	NA	580	228	NA	1190	206	NA
24-Feb-03	40	26	NA	200	245	NA	1060	264	NA
3-Mar-03	30	24	NA	NS		NA	380	438	NA
10-Mar-03	>70	24	NA	NS		NA	480	438	NA
17-Mar-03	1120	62	NA	6000		NA	11000	1204	NA
24-Mar-03	80	94	NA	40		NA	1010	1165	NA
31-Mar-03	150	123	NA	40		NA	390	954	NA

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

NS = Not Sampled

NA = Not Evaluted (No REC-1 Standards)

TABLE 2

RUNNING GEOMEAN OF FECAL COLIFORM CONCENTRATIONS IN NEWPORT BAY

April 2002-March 2003

TRIBUTARY STATIONS

	San Diego Creek @ Campus Dr.								
	Fecal Coliform	Geomean*	30-day period met objective						
1-Apr-02	80	426	no						
8-Apr-02	1100	489	no						
18-Apr-02	120		no						
22-Apr-02	80	176	no						
29-Apr-02	280	188	no						
6-May-02	100	197	no						
13-May-02	140	130	yes						
20-May-02	3600	257	no						
28-May-02	110	274	no						
3-Jun-02	800	338	no						
10-Jun-02	190	385	no						
17-Jun-02	180	405	no						
25-Jun-02	170	220	no						
1-Jul-02	160	237	no						
10-Jul-02	>70	145	yes						
15-Jul-02	200	147	yes						
22-Jul-02	120	136	yes						
31-Jul-02	>20	88	yes						
5-Aug-02	50	70	yes						
12-Aug-02	270	92	yes						
19-Aug-02	160	88	yes						
26-Aug-02	180	95	yes						
3-Sep-02	>230	155	yes						
9-Sep-02	190	202	no						
16-Sep-02	210	192	yes						
23-Sep-02	160	192	yes						
30-Sep-02	>280	210	no						
7-Oct-02	330	226	no						
15-Oct-02	>490	273	no						
21-Oct-02	>310	295	no						
28-Oct-02	40000	891	no						
4-Nov-02	2800	1412	no						
12-Nov-02	7400	2630	no						
18-Nov-02	1000	3034	no						
25-Nov-02	>530	3377	no						
2-Dec-02	4000	2131	no						
9-Dec-02	>410	1451	no						
16-Dec-02	260	743	no						
23-Dec-02	800	710	no						
30-Dec-02	9600	1268	no						
6-Jan-03	540	849	no						
13-Jan-03	400	845	no						
21-Jan-03	210	810	no						
27-Jan-03	70	498	no						
3-Feb-03	100	200	no						
10-Feb-03	30	112	yes						
18-Feb-03	2200	158	no						
24-Feb-03	930	212	no						
3-Mar-03	800	345	no						
10-Mar-03	390	453	no						
17-Mar-03	40000	1912	no						
24-Mar-03	>480	1410	no						
31-Mar-03	>310	1132	no						

* Geometric means are based on 5 samples from the preceding 30-day period

Sampling results on these dates may have been influenced by rainfall (within 72 hours of 0.1 inch of precipitation)

Running 30-day geometric mean > 200 organisms/100 mL based on 5 or more samples per 30-day period or Fecal Coliform sample > 400 organisms/100mL

Both criteria of the Fecal Coliform TMDL met

NS = Not Sampled

ID = Insufficient Data to Compare to Objective

APPENDIX A

Letter from the Santa Ana Regional Water Quality Control Board dated January 7, 2000 Including Attachment to Resolution No. 99-10 (Basin Plan TMDL for Fecal Coliform)

California Regional Water Quality Control Board
Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
3737 Main Street, Suite 500, Riverside, California 92501-3339
Phone (909) 782-4130 ∃ FAX (909) 781-6288

Gray Davis
Governor

COUNTY EXECUTIVE OFFICE
JAN 10 2000

January 7, 2000

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Chairman, Newport Bay Watershed Executive Comm.
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REQUEST FOR TECHNICAL REPORTS FOR THE IMPLEMENTATION OF THE TOTAL MAXIMUM DAILY LOAD FOR FECAL COLIFORM IN NEWPORT BAY

Dear Supervisor Wilson, Messrs. Roeder, Danner, Rudat, Ream, Dunek, and Huston, Ms. Mittermeier and Ms. Hall Hart, and Mr. Tamaribuchi:

On April 9, 1998, the California Regional Water Quality Control Board, Santa Ana Region, (Regional Board) adopted Resolution No. 99-10, which amended the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) to establish a Total Maximum Daily Load (TMDL) for fecal coliform in Newport Bay. The TMDL is the maximum load of fecal coliform that can be discharged to the Bay while assuring that the Bay's beneficial uses (e.g., recreation and shellfish harvesting uses) are protected. This TMDL was approved by the State Water Resources Control Board (SWRCB) on July 15, 1999, and by the Office of Administrative Law (OAL) on December 30, 1999, whence the TMDL became effective. For your information, the TMDL has also been submitted to the US EPA, which has already endorsed it; formal approval is also anticipated in the near future.

As you know, Board staff worked closely with the members of the Newport Bay Watershed Management and Executive Committees in the development of this TMDL. All parties sought to recommend a TMDL that would fulfill its legal obligations to achieve water quality objectives and protect beneficial uses, but which also recognized the significant uncertainties and difficulties associated with the fecal coliform problem. The adopted TMDL reflects consensus on a phased approach, whereby plans for further studies are to be submitted in accordance with a specific schedule, and whereby a detailed implementation plan will be developed later, based on the results of these studies. The study results may also indicate the need for revision of the TMDL; the Regional Board has committed to the review of the TMDL as warranted. A copy of the adopted TMDL is attached for your reference.

Pursuant to Water Code Section 13267, this letter is a request for technical reports that provide plans for further study and analysis, as required by the TMDL. We note that, in some cases (identified below), the plans required by the TMDL have already been or are being developed as part of the Health Risk Assessment (HRA) being conducted for the Bay. Please be aware that Regional Board approval of all the plans is required. We intend to present the proposed and, in some cases completed plans to the Regional Board at the earliest opportunity, following the submittal of your response to this request. As discussed below, we will recommend that the Regional Board accept the completed plans for modeling bacterial inputs and fate and for assessment of the recreational beneficial use of the Bay. You should be aware that Regional Board consideration of the plans will take place at a public hearing, and the Regional Board may require changes based on the input provided.

Pursuant to the Basin Plan requirements for the TMDL for fecal coliform in Newport Bay, and Section 13267 of the California Water Code, the County of Orange and the Cities of Irvine, Tustin, Newport Beach, Lake Forest, Santa Ana, Orange, and Costa Mesa, and the Irvine Company are hereby requested to submit the following, by the dates specified. These plans and schedules may be submitted together in a single report or separate reports for each task and jurisdiction.

1. Routine Monitoring Program (Section 3.a.ii.a)

"By January 30, 2000 the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay watershed shall propose a plan for routine monitoring to determine compliance with the bacterial quality objectives in the Bay. At a minimum, the proposed plan shall include the collection of five (5) samples/30-days at the stations specified in Table 5-9h and shown in Figure 5-1 and analysis of the samples for total and fecal coliform and enterococci. Reports of the collected data shall be submitted monthly. An annual report summarizing the data collected for the year and evaluating compliance with the water quality objectives shall be submitted by September 1 of each year.

In lieu of this coordinated, regional monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group plan to conduct routine monitoring in areas solely within their jurisdiction to determine compliance with the bacterial objectives in the Bay (if appropriate). Any such individual or group plans shall also be submitted by January 30, 2000. Reports of the data collected pursuant to approved individual/group plan(s) shall be submitted monthly and an annual report summarizing the data and evaluating compliance with water quality objectives shall be submitted by September 1 of each year.

The monitoring plan(s) shall be implemented upon Regional Board approval."

We are aware that the Orange County Health Care Agency (OCHCA) is implementing a monitoring program that meets most of the requirements cited above and it is acceptable for this monitoring program to be continued to provide for compliance with these requirements. The one difference between what is required by the TMDL and the monitoring being conducted by the OCHCA is that the OCHCA currently monitors for E.coli bacteria instead of fecal coliform. Since the Basin Plan objectives and the TMDL specifically address fecal coliform, monitoring for fecal coliform must be conducted as specified above. However, we also realize that E.coli bacteria constitute 80-90% of the fecal coliforms measured by the fecal coliform test method, and that the E.coli test method employed by OCHCA offers substantial time and resource savings. Therefore, we are willing to consider the use of E.coli monitoring as a surrogate for fecal coliform, provided that the relationship between E.coli and fecal coliform is demonstrated by the proposed monitoring program. Therefore, if you wish to use the OCHCA's monitoring program to comply with the above cited requirements, then you are requested to include in your proposed monitoring plan a plan for demonstrating the relationship between E.coli bacteria and fecal coliform.

2. Water Quality Model for Bacterial Indicators (Section 3.a.ii.b)

"By January 30, 2000, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach and the agricultural operators in the Newport Bay watershed shall submit a plan for the development and submittal of a water quality model to be completed by 13 months after Regional Board approval of the plan. The model shall be capable of analysis of fecal coliform inputs to Newport Bay, the fate of those inputs, and the effect of those inputs on compliance with bacterial quality objectives in the Bay."

As stated above, staff will recommend that the Regional Board find that the water quality model development effort that is part of the HRA satisfies the above requirement of the TMDL, provided that the model is capable of analysis of fecal coliform inputs to Newport Bay.

3. Beneficial Use Assessment (Section 3.a.ii.c)

"By January 30, 2000, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach shall submit a plan to complete, by 13 months after Regional Board approval of the plan, a beneficial use assessment to identify and quantify water contact recreation activities in Newport Bay. By 13 months after Regional Board approval of the beneficial use assessment plan, these parties shall submit a report of the results of the water contact recreation beneficial use assessment."

By February 1, 2001, the County of Orange , the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach shall submit a plan to complete, by 13 months after Regional Board approval of the plan, a beneficial use assessment to identify and quantify shellfish harvesting activities in Newport Bay. By 13 months after Regional Board approval of the beneficial use assessment plan, these parties shall submit a report of the results of the shellfish harvesting beneficial use assessment.

The beneficial use assessment reports shall contain recommendations for prioritizing areas within Newport Bay for purposes of evaluation and implementation of cost-effective and reasonable control actions as part of the TMDL process. The Regional Board will consider these recommendations and make its determinations regarding high priority water contact recreation and shellfish harvesting areas at a duly noticed public hearing. These determinations will be considered in establishing interim WLAs and LAs and compliance dates (Task 10, Table 5-9g)."

A workplan for assessment of the body contact recreation beneficial use throughout Newport Bay has been developed as part of the HRA and work has already been conducted pursuant to it. Staff has indicated our belief that the plan to conduct the assessment is appropriate and we will recommend its approval to the Regional Board. However, a plan and schedule for assessing the shellfish harvesting beneficial uses will need to be submitted. We are aware that the development of a workplan is underway.

4. Source Identification and Characterization (Section 3.a.ii.d)

"By March 1, 2000, the County of Orange and the City of Newport Beach shall submit a proposed plan for a program, to be completed within 7 months after Regional Board approval of the plan to identify and characterize fecal coliform inputs to The Dunes Resort. In lieu of this coordinated plan, each of these parties may submit an individual plan to identify and characterize fecal coliform inputs to The Dunes Resort. Any such individual plan shall also be submitted by March 1, 2000 and completed within 7 months after Regional Board approval of the plan(s).

By March 1, 2000, the County of Orange and the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach shall submit a proposed plan for a program, to be completed within 13 months after Regional Board approval of the plan to identify and characterize fecal coliform inputs to Newport Bay from urban runoff, including stormwater. In lieu of this coordinated, regional plan, one or more of these parties may submit an individual or group plan to identify and characterize fecal coliform inputs to the Bay from urban runoff from areas within its jurisdiction. Any such individual or group plan shall also be submitted by March 1, 2000 and completed within 13 months after Regional Board approval of the plan(s).

By April 1, 2000, the agricultural operators in the Newport Bay watershed shall submit a proposed plan for a program, to be completed within 16 months after Regional Board approval of the plan, to identify and characterize fecal coliform inputs to Newport Bay from agricultural runoff, including stormwater. In lieu of this coordinated plan, one or more of the agricultural operators may submit an individual or group plan to identify and characterize fecal coliform inputs to the Bay from agricultural runoff from areas within their jurisdiction. Any such individual or group plan shall also be submitted by April 1, 2000 and completed within 16 months after Regional Board approval of the plan(s).

By April 1, 2000 the County of Orange and the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach shall submit a proposed plan for a program, to be completed within 16 months after Regional Board approval of the plan, to identify and characterize fecal coliform inputs to Newport Bay from natural sources. In lieu of this coordinated, regional plan, one or more of these parties may submit an individual or group plan to identify and characterize fecal coliform inputs to the Bay from natural sources from areas within its jurisdiction. Any such individual or group plan shall also be submitted by April 1, 2000 and completed within 16 months after Regional Board approval of the plan(s)."

5. Evaluation of Vessel Waste Control Program (Section 3.a.ii.e)

"By April 1, 2000, the County of Orange and the City of Newport Beach shall submit a plan to complete, by one year after Regional Board approval of the plan, an assessment of the effectiveness of the vessel waste control program implemented by those agencies in Newport Bay. The plan shall be implemented upon approval by the Regional Board. A report of the study results shall be submitted, together with recommendations for changes to the vessel waste program necessary to ensure compliance with this TMDL.

The Regional Board will consider appropriate changes to the vessel waste control program. These changes shall be implemented in accordance with a schedule to be established by the Regional Board."

6. TMDL, WLA and LA Evaluation and Source Monitoring Program Section 3.a.ii.f)

"By 3 months after completion of Tasks 2, 4a, and 6 as shown in Table 5-9g of the TMDL the County of Orange, the Cities of Tustin, Irvine, Costa Mesa Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay watershed shall propose a plan for evaluation and source monitoring to determine compliance with the WLAs and LAs specified in Table 5-9f. In lieu of this coordinated, regional plan, one or more of these parties may submit an individual or group plan to conduct TMDL, WLA, LA and Source Evaluation monitoring from areas solely within their jurisdiction. Any such individual or group plan shall also be submitted by 3 months after completion of Tasks 2, 4a, and 6 as shown in Table 5-9g. Reports of the data collected pursuant to approved individual/group plan(s) shall be submitted monthly and an annual report summarizing the data and evaluating compliance with WLAs and LAs shall be submitted by September 1 of each year. The annual report shall also include an evaluation of the effectiveness of control measures implemented to control sources of fecal coliform, and recommendations for any changes to the control measures needed to ensure compliance with the TMDL, WLAs, and LAs.

The evaluation and source monitoring plan(s) shall be implemented upon Regional Board approval."

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7. Updated TMDL Report (Section 3.a.ii.g)

"By 6 months after completion of Tasks 2, 4a, and 6 as shown in Table 5-9g of the TMDL the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay watershed shall submit Updated TMDL Reports as specified in Table 5-9g. These updated TMDL reports shall, at a minimum, integrate and evaluate the results of the studies required in Table 5-9g (Task 1 – 7). The reports shall include recommendations for revisions to the TMDL, if appropriate and for interim WLAs, LAs and compliance schedules."

This request for monitoring and technical information applies to the County of Orange, each individual City within the Newport Bay Watershed, and the Irvine Company. The Regional Board and its staff have worked with the Newport Bay Watershed Executive Committee in the development of this TMDL and it is our assumption that this Committee will assume the responsibility for preparing a coordinated response to this request. However, the County, each City, and the Irvine Company is severally responsible for ensuring compliance with this request for monitoring and technical information, and for the implementation of the TMDL for fecal coliform in the Newport Bay Watershed within the areas of the watershed within their respective jurisdictions. We are obligated to advise you that failure to submit the requested monitoring and technical information by the specified deadline may subject the County, each City, and the Irvine Company to potential civil liability pursuant to Section 13268 of the California Water Code.

Should there be any questions, please contact me at (909) 782-3284, Joanne Schneider at (909) 782-3287, or Ken Theisen at (909) 320-2028.

Sincerely,

Gerard J. Thibeault
Executive Officer
Santa Ana Regional Water Quality Control Board

Attachment: Copy of Basin Plan TMDL for Fecal Coliform in Newport Bay Watershed

cc (w/ Attachment): Regional Board
Newport Bay Pathogen TMDL Mailing List

Attachment to Resolution No. 99-10

Amendment to the Santa Ana Region Basin Plan

Chapter 5 - Implementation Plan, Discussion of Newport Bay Watershed (page 5-39 et seq.)

3. Bacterial Contamination

Bacterial contamination of the waters of Newport Bay can directly affect two designated beneficial uses: water-contact recreation (**REC-1**) and shellfish harvesting (**SHEL**). The Orange County Health Care Agency (OCHCA) conducts routine bacteriological monitoring and more detailed sanitary surveys as necessary, and is responsible for closure of areas to recreational and shellfish harvesting uses if warranted by the results.

Because of consistently high levels of total coliform bacteria, the upper portion of Upper Newport Bay (Upper Bay) has been closed to these uses since 1974. In 1978, the shellfish harvesting prohibition area was expanded to include all of the Upper Bay, and the OCHCA generally advises against the consumption of shellfish harvested anywhere in the Bay. Bacterial objectives established to protect shellfish harvesting activities are rarely met in the Bay. (Fecal coliform objectives for the protection of shellfish harvesting and water-contact recreation are shown in Chapter 4, "Enclosed Bays and Estuaries". The OCHCA has relied on total coliform standards specified in the California Health and Safety Code. Fecal coliform are a subset of total coliform.) Certain areas in the lower parts of the Upper Bay and in Lower Newport Bay (Lower Bay) are also closed to water-contact recreation on a temporary basis, generally in response to storms. In these areas, there is generally good compliance with water-contact recreation bacterial objectives in the summer.

Data collected by the OCHCA demonstrate that tributary inflows, composed of urban and agricultural runoff, including stormwater, are the principal sources of coliform input to the Bay. As expected, there are more violations of bacterial standards in the Bay during wet weather, when tributary flows are higher, than in dry weather. There are few data on the exact sources of the coliform in this runoff. Coliform has diverse origins, including: manure fertilizers which may be applied to agricultural crops and to commercial and residential landscaping; the fecal wastes of humans, household pets and wildlife; and other sources. Special investigations by OCHCA have demonstrated that food wastes are a significant source of coliform. Many restaurants wash down equipment and floor mats into storm drains tributary to the Bay and may improperly dispose of food waste such that it eventually washes into the Bay. Such discharges likely contribute to the chronic bacterial quality problems in certain parts of the Bay.

Another source of bacterial input to the Bay is the discharge of vessel sanitary wastes. Newport Bay has been designated a no-discharge harbor for vessel sanitary wastes since 1976. Despite this prohibition, discharges of these wastes have continued to occur. Since these wastes are of human origin, they pose a potentially significant public health threat.

The Regional Board, the City of Newport Beach (City), the County of Orange, the City of Newport Beach Harbor Quality Committee, and other parties have taken or stimulated actions to enforce the vessel waste discharge prohibition. The principal focus of these efforts has been to make compliance with the prohibition convenient and therefore more likely. Vessel waste pumpouts have been installed at key locations around the Bay and are inspected routinely by the OCHCA. A City ordinance addresses people-intensive boating activities to ensure proper disposal of sanitary wastes. The ordinance requires that sailing clubs, harbor tour, and boat charter operations install pumpouts for their vessels. Another City ordinance addresses vessel waste disposal by persons living on their boats. Efforts have also been made to ensure that there are adequate public rest rooms onshore. The City also sponsors an extensive public education campaign designed to advise both residents and visitors of the discharge prohibition, the significance of violations, and of the location of pumpouts and rest room facilities. The effectiveness of these extensive vessel waste control efforts is not known.

As noted, the fecal waste of wildlife, including waterfowl that inhabit the Bay and its environs, is a source of coliform input. The fecal coliform from these natural sources may contribute to the violations of water quality objectives and the loss of beneficial uses, but it is currently unknown to what extent these natural sources contribute to, or cause, the violations of bacterial quality objectives in Newport Bay.

Reports prepared by Regional Board staff describe the bacterial quality problems in the Bay in greater detail and discuss the technical basis for the fecal coliform TMDL that follows (21, 22). Implementation of this TMDL is expected to address these bacterial quality problems and to assure attainment of water quality standards, that is, compliance with water quality objectives and protection of beneficial uses.

3.a. Fecal Coliform TMDL

A prioritized, phased approach to the control of bacterial quality in the Bay is specified in this TMDL. This approach is appropriate, given the complexity of the problem, the paucity of relevant data on bacterial sources and fate, the expected difficulties in identifying and implementing appropriate control measures, and uncertainty regarding the nature and attainability of the SHEL use in the Bay. The phased approach is intended to allow for additional monitoring and

assessment to address areas of uncertainty and for future revision and refinement of the TMDL as warranted by these studies.

Table 5-9f summarizes the TMDL, Waste Load Allocations (WLAs) for point sources of fecal coliform inputs and Load Allocations (LAs) for nonpoint source inputs. As shown, the TMDL, WLAs and LAs are established to assure compliance with water contact recreation standards no later than December 30, 2014 and with shellfish standards no later than December 30, 2019. WLAs are specified for vessel waste and urban runoff, including stormwater, the quality of which is regulated under a County-wide NPDES permit issued by the Regional Board. This runoff is thus regulated as a point source, even though it is diffuse in origin. LAs are specified for fecal coliform inputs from agricultural runoff, including stormwater, and natural sources. The TMDL is to be adjusted, as appropriate, based upon completion of the studies contained in Table 5-9g. Upon completion of these studies, an updated TMDL report will be prepared summarizing the results of the studies and making recommendations regarding implementation of the TMDL. The results of the studies may lead to recommendations for changes to the TMDL specified in Table 5-9f to assure compliance with existing Basin Plan standards (objectives and beneficial uses). The study results may also lead to recommendations for changes to the Basin Plan objectives and/or beneficial uses. If such standards changes are approved through the Basin Plan amendment process, then appropriate changes to the TMDL would be required to assure attainment of the revised standards. Revision of the TMDL, if appropriate, would also be considered through the Basin Plan amendment process.

Upon completion and consideration of the studies and any appropriate Basin Plan amendments, a plan for compliance with the TMDL specified in Table 5-9f, or with an approved amended TMDL, shall be established. It is expected that this plan will specify a phased compliance approach, based on consideration of such factors as geographic location, the priority assigned by the Regional Board to specific locations for control actions (see Section 3.a.ii, "Beneficial Use Assessment"), season, etc. Interim WLAs, LAs and compliance dates that lead to ultimate compliance with the TMDL will be established.
The TMDL and its allocations contain a significant margin of safety. The margin of safety can be either incorporated implicitly through analytical approaches and assumptions used to develop the TMDL or added explicitly as a separate component of the TMDL. A substantial margin of safety is implicitly incorporated in the TMDL in the fact that the TMDL does not apply criteria for dilution, natural die-off, and tidal flushing. The TMDL, WLAs, and LAs are established at concentrations equivalent to the water quality objectives.

Table 5-9f: **Total Maximum Daily Load, Waste Load Allocations, and Load Allocations for Fecal Coliform in Newport Bay**

Total Maximum Daily Load for Fecal Coliform In Newport Bay	Waste Load Allocations for Fecal Coliform in Urban Runoff, including stormwater, Discharges to Newport Bay	Load Allocations for Fecal Coliform in Agricultural Runoff, including stormwater, Discharges to Newport Bay	Load Allocations for Fecal Coliform from Natural Sources in all Discharges to Newport Bay	Waste Load Allocations for Vessel Waste
As soon as possible but no later than December 30, 2013			**In Effect**	**In Effect**
5-Sample/30-days Geometric Mean less than 200 organisms/100 mL, and not more than 10% of the samples exceed 400 organisms/ 100 mL for any 30-day period.	5-Sample/30-days Geometric Mean less than 200 organisms/100 mL, and not more than 10% of the samples exceed 400 organisms/ 100 mL for any 30-day period.	5-Sample/30-days Geometric Mean less than 200 organisms/ 100 mL, and not more than 10% of the samples exceed 400 organisms/ 100 mL for any 30-day period.	5-Sample/30-days Geometric Mean less than 200 organisms/100 mL, and not more than 10% of the samples exceed 400 organisms/ 100 mL for any 30-day period.	0 MPN/100 mL No discharge.
As soon as possible but no later than December 30, 2019				**In Effect**
Monthly Median less than 14 MPN/100 mL, and not more than 10% of the samples exceed 43 MPN/100 mL.	Monthly Median less than 14 MPN/100 mL, and not more than 10% of the samples exceed 43 MPN/100 mL.	Monthly Median less than 14 MPN/100 mL, and not more than 10% of the samples exceed 43 MPN/100 mL.	Monthly Median less than 14 MPN/100 mL, and not more than 10% of the samples exceed 43 MPN/100 mL.	0 MPN/100 mL No discharge.

Table 5-9g: Fecal Coliform Implementation Plan/Schedule Report Due Dates

Task	Description	Compliance Date-As soon As Possible but No Later Than
Task 1	Routine Monitoring Program (Section 3.a.ii.a) a) Submit Proposed Routine Monitoring Plan(s)[1] b) Implement Routine Monitoring Plan(s) c) Submit Monthly and Annual Reports (Reporting Period: April 1-March 31)	a) January 30, 2000 b) Upon Regional Board Approval of Plan(s) c) Monthly within 30 days, Annual Report by September 1
Task 2	Water Quality Model for Bacterial Indicators (Section 3.a.ii.b) a) Submit Proposed Model Development Plan b) Submit Calibrated Model and Model Documentation	a) January 30, 2000 b) 13 months after Regional Board approval of plan(s)
Task 3	Beneficial Use Assessment Plan (Section 3.a.ii.c) Submit Proposed Assessment Plan for: a) REC-1 b) SHEL	a) January 30, 2000 b) March 1, 2001
Task 4	Beneficial Use Assessment Report (3.a.ii.c) Submit Beneficial Use Assessment Report for: a) REC-1 b) SHEL	a) 13 months after Regional Board approval of plan(s) b) 13 months after Regional Board approval of plan(s)
Task 5	Source Identification and Characterization Plan(s) (Section 3.a.ii.d) Submit Proposed Source Identification Plans for: a) The Dunes Resort b) Urban Runoff (including stormwater) c) Agriculture (including stormwater) d) Natural Sources	a) March 1, 2000 b) March 1, 2000 c) April 1, 2000 d) April 1, 2000

Table 5-9g: Fecal Coliform Implementation Plan/Schedule Report Due Dates		
Task	**Description**	**Compliance Date-As Soon As Possible but No Later Than**
Task 6	Source Identification and Characterization Reports (Section 3.a.ii.d) Submit Source Identification and Characterization Reports for: a) The Dunes Resort b) Urban Runoff (including stormwater) c) Agriculture (including stormwater) d) Natural Sources	a) 7 months after Regional Board approval of plan(s) b) 13 months after Regional Board approval of plan(s) c) 16 months after Regional Board approval of plan(s) d) 16 months after Regional Board approval of plan(s)
Task 7	Evaluation of Vessel Waste Program (Section 3.a.ii.e) a) Submit Proposed Plan for Evaluating the Current Vessel Waste Program b) Submit Report on the Evaluation of the Vessel Waste Program	a) April 1, 2000 b) 12 months after Regional Board approval of plan
Task 8	TMDL, WLA, and LA Evaluation and Source Monitoring Program (Section 3.a.ii.f) a) Submit Proposed Evaluation and Source Monitoring Program Plan(s) b) Implement Evaluation and Source Monitoring Plan(s) c) Submit Monthly and Annual Reports (Reporting Period: April 1-March 31)	a) 3 months after completion of Tasks 2, 4a, and 6 b) Upon Regional Board approval of plan(s) c) Monthly within 30 days, Annual Report by September 1
Task 9	Updated TMDL Report Submit updated TMDL report for: a) REC-1 b) SHEL	a) 6 months after completion of Tasks 2, 4a, 6, and 7 b) 6 months after completion of Tasks 2, 4b, 6, and 7

Table 5-9g: Fecal Coliform Implementation Plan/Schedule Report Due Dates		
Task	**Description**	**Compliance Date-As Soon As Possible but No Later Than**
Task 10	Adjust TMDL, if necessary; adopt interim WLAs, LAs, and Compliance Dates (Section 3.a.ii.h) a) REC-1 b) SHEL	a) 12 months after completion of Updated TMDL Report for REC-1 (Task 9.a) b) 12 months after completion of Updated TMDL Report for SHEL (Task 9.b)
[1]Note: Provided that the monitoring program plan(s) fulfills the minimum requirements specified in this TMDL, approval of the TMDL shall constitute Regional Board approval of the monitoring program plan(s).		

3.a.i. TMDL Implementation

As soon as possible but no later than the dates specified in Table 5-9g, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach and agricultural operators in the Newport Bay watershed shall submit the plans and schedules shown in Table 5-9g and described in Section 3.a.ii. Subsequent phases of TMDL implementation shall take into account the results of the monitoring and assessment efforts required by the initial study phase of the TMDL implementation plan and other relevant studies.

The following sections describe the requirements for the submittal of plans by dischargers in the Newport Bay watershed to complete specific monitoring, investigations and analyses. In each and every case, the plans submitted by the named dischargers will be considered for approval by the Regional Board at a duly noticed public hearing as specified in Chapter 1.5, Division 3, Title 23 of the California Code of Regulations (Section 647 et seq.). The plans are to be implemented upon Regional Board approval and completed as specified in Table 5-9g.

3.a.ii. Monitoring and Assessment

Routine monitoring and special investigations and analyses are an important part of this phased TMDL. Routine monitoring is necessary to assess compliance with the bacterial quality objectives in the Bay and with the WLAs and LAs specified in the TMDL. Special investigations and analyses are needed to identify and characterize sources of fecal coliform input and to determine their fate in the Bay so that appropriate control measures can be developed and implemented. The effectiveness of current and future bacterial control measures needs to be evaluated. The results of these studies may warrant future changes to this TMDL.

3.a.ii.a. Routine Monitoring

By January 30, 2000, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay watershed shall propose a plan for routine monitoring to determine compliance with the bacterial quality objectives in the Bay. At a minimum, the proposed plan shall include the collection of five (5) samples/30-days at the stations specified in Table 5-9h and shown in Figure 5-1

and analysis of the samples for total and fecal coliform and enterococci. Reports of the collected data shall be submitted monthly. An annual report summarizing the data collected for the year and evaluating compliance with the water quality objectives shall be submitted by September 1 of each year.

In lieu of this coordinated, regional monitoring plan, one or more of the parties identified in the preceding paragraph may submit an individual or group plan to conduct routine monitoring in areas solely within their jurisdiction to determine compliance with the bacterial objectives in the Bay (if appropriate). Any such individual or group plans shall also be submitted by January 30, 2000. Reports of the data collected pursuant to approved individual/group plan(s) shall be submitted monthly and an annual report summarizing the data and evaluating compliance with water quality objectives shall be submitted by September 1 of each year.

The monitoring plan(s) shall be implemented upon Regional Board approval.

Table 5-9h

Newport Bay Sampling Stations for Routine Compliance Monitoring with Bacterial Quality Objectives (see Figure 1 for Station Locations)

Ski Zone	33rd Street	Park Avenue
Vaughns Launch	Rhine Channel	Via Genoa
Northstar Beach	De Anza	Alvarado/Bay Is.
Abalone Avenue	Promontory Pt.	10th Street
Dunes East	Bayshore Beach	15th Street
Dunes Middle	Onyx Avenue	19th Street
Dunes West	Garnet Avenue	Lido Island Yacht Club
Dunes North	Ruby Avenue	Harbor Patrol
43rd Street	Sapphire Avenue	N Street Beach
38th Street	Newport Blvd. Bridge	Rocky Point
San Diego Creek @ Campus Dr.	Santa Ana Delhi Channel	Big Canyon Wash
Backbay Dr. Drain		

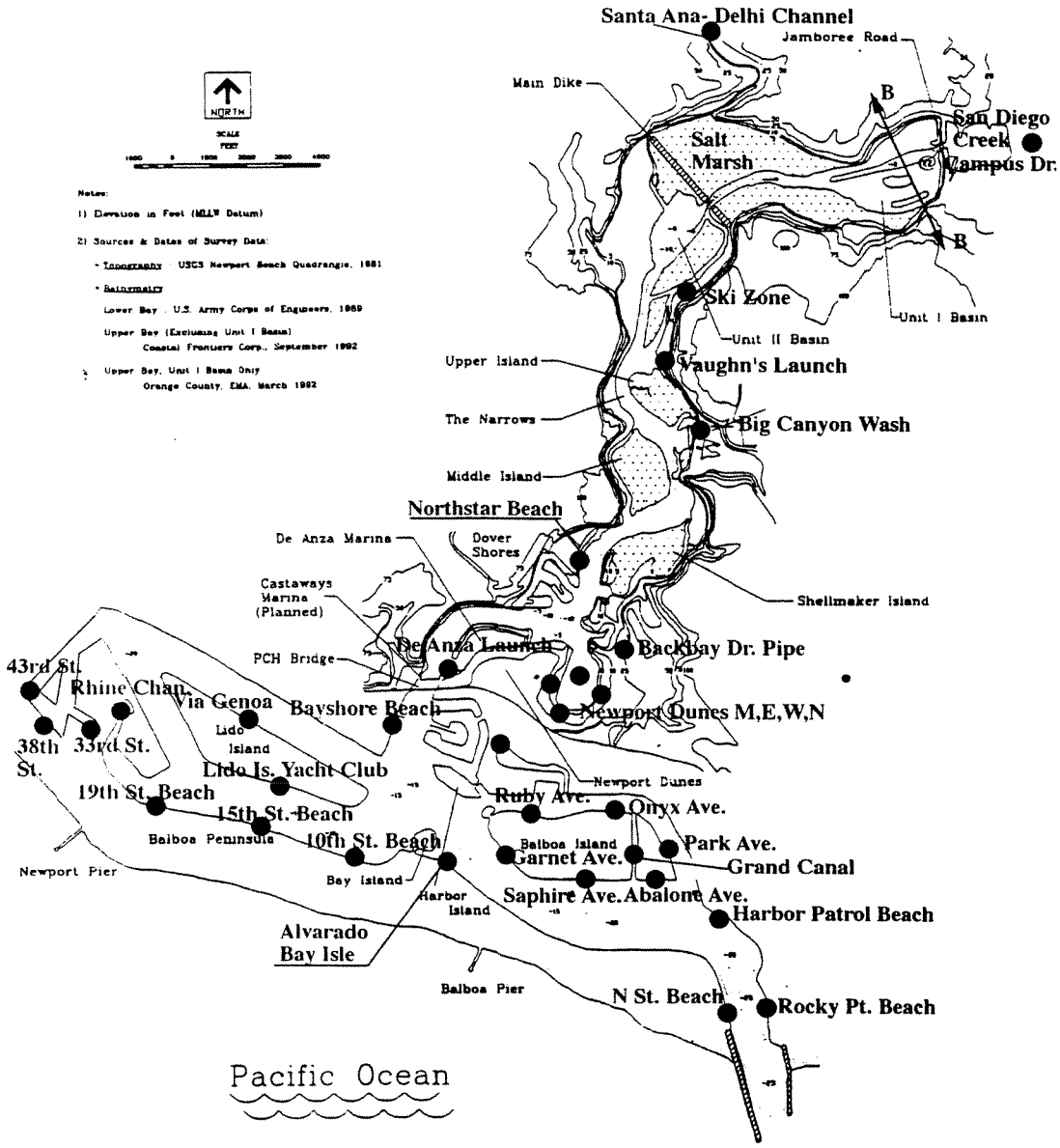

Figure 5-1: Newport Bay Bacterial Quality Monitoring Stations

3.a.ii.b. Fate of Bacterial Inputs

By January 30, 2000, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach and the agricultural operators in the Newport Bay watershed shall submit a plan for the development and submittal of a water quality model to be completed by 13 months after Regional Board approval of the plan. The model shall be capable of analysis of fecal coliform inputs to Newport Bay, the fate of those inputs, and the effect of those inputs on compliance with bacterial quality objectives in the Bay.

3.a.ii.c. Beneficial Use Assessment

By January 30, 2000, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach shall submit a plan to complete, by 13 months after Regional Board approval of the plan, a beneficial use assessment to identify and quantify water contact recreation activities in Newport Bay. By 13 months after Regional Board approval of the beneficial use assessment plan, these parties shall submit a report of the results of the water contact recreation beneficial use assessment.

By March 1, 2001, the County of Orange , the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach shall submit a plan to complete, by 13 months after Regional Board approval of the plan, a beneficial use assessment to identify and quantify shellfish harvesting activities in Newport Bay. By 13 months after Regional Board approval of the beneficial use assessment plan, these parties shall submit a report of the results of the shellfish harvesting beneficial use assessment.

The beneficial use assessment reports shall contain recommendations for prioritizing areas within Newport Bay for purposes of evaluation and implementation of cost-effective and reasonable control actions as part of the TMDL process. The Regional Board will consider these recommendations and make its determinations regarding high priority water contact recreation and shellfish harvesting areas at a duly noticed public hearing. These determinations will be considered in establishing interim WLAs and LAs and compliance dates (Task 10, Table 5-9g).

3.a.ii.d. Source Identification and Characterization

By March 1, 2000, the County of Orange and the City of Newport Beach shall submit a proposed plan for a program, to be completed within 7 months after Regional Board approval of the plan to identify and characterize fecal coliform inputs to The Dunes Resort. In lieu of this coordinated plan, each of these parties may submit an individual plan to identify and characterize fecal coliform inputs to The Dunes Resort. Any such individual plan shall also be submitted by March 1, 2000 and completed within 7 months after Regional Board approval of the plan(s).

By March 1, 2000, the County of Orange and the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach shall submit a proposed plan for a program, to be completed within 13 months after Regional Board approval of the plan to identify and characterize fecal coliform inputs to Newport Bay from urban runoff, including stormwater. In lieu of this coordinated, regional plan, one or more of these parties may submit an individual or group plan to identify and characterize fecal coliform inputs to the Bay from urban runoff from areas within its jurisdiction. Any such individual or group plan shall also be submitted by March 1, 2000 and completed within 13 months after Regional Board approval of the plan(s).

By April 1, 2000, the agricultural operators in the Newport Bay watershed shall submit a proposed plan for a program, to be completed within 16 months after Regional Board approval of the plan, to identify and characterize fecal coliform inputs to Newport Bay from agricultural runoff, including stormwater. In lieu of this coordinated plan, one or more of the agricultural operators may submit an individual or group plan to identify and characterize fecal coliform inputs to the Bay from agricultural runoff from areas within their jurisdiction. Any such individual or group plan shall also be submitted by April 1, 2000, and completed within 16 months after Regional Board approval of the plan(s).

By April 1, 2000, the County of Orange and the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach shall submit a proposed plan for a program, to be completed within 16 months after Regional Board approval of the plan, to identify and characterize fecal coliform inputs to Newport Bay from natural sources. In lieu of this coordinated, regional plan, one or more of these parties may submit an individual or group plan to identify and characterize fecal coliform inputs to the Bay from natural sources from areas within its jurisdiction. Any such individual or group plan shall also be submitted by April 1, 2000 and completed within 16 months after Regional Board approval of the plan(s).

3.a.ii.e. Evaluation of Vessel Waste Control Program

By April 1, 2000, the County of Orange and the City of Newport Beach shall submit a plan to complete, by one year after Regional Board approval of the plan, an assessment of the effectiveness of the vessel waste control program implemented by those agencies in Newport Bay. The plan shall be implemented upon approval by the Regional Board. A report of the study results shall be submitted, together with recommendations for changes to the vessel waste program necessary to ensure compliance with this TMDL.

The Regional Board will consider appropriate changes to the vessel waste control program. These changes shall be implemented in accordance with a schedule to be established by the Regional Board.

3.a.ii.f. TMDL, WLA and LA Evaluation and Source Monitoring Program

By 3 months after completion of Tasks 2, 4a, and 6 as shown in Table 5-9g, the County of Orange, the Cities of Tustin, Irvine, Costa Mesa Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay watershed shall propose a plan for evaluation and source monitoring to determine compliance with the WLAs and LAs specified in Table 5-9f. In lieu of this coordinated, regional plan, one or more of these parties may submit an individual or group plan to conduct TMDL, WLA, LA and Source Evaluation monitoring from areas solely within their jurisdiction. Any such individual or group plan shall also be submitted by 3 months after completion of Tasks 2, 4a, and 6 as shown in Table 5-9g. Reports of the data collected pursuant to approved individual/group plan(s) shall be submitted monthly and an annual report summarizing the data and evaluating compliance with WLAs and LAs shall be submitted by September 1 of each year. The annual report shall also include an evaluation of the effectiveness of control measures implemented to control sources of fecal coliform, and recommendations for any changes to the control measures needed to ensure compliance with the TMDL, WLAs, and LAs.

The evaluation and source monitoring plan(s) shall be implemented upon Regional Board approval.

3.a.ii.g. Updated TMDL Report

The County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Orange, Lake Forest and Newport Beach, and the agricultural operators in the Newport Bay watershed shall submit Updated TMDL Reports as specified in Table 5-9g. These updated TMDL reports shall, at a minimum, integrate and evaluate the results of the studies required in Table 5-9g (Task 1 – 7). The

reports shall include recommendations for revisions to the TMDL, if appropriate and for interim WLAs, LAs and compliance schedules

3.a.ii.h. Adjust TMDL; Adopt Interim WLA, LAs and Compliance Dates

Based on the results of the studies required by Table 5-9g and recommendations made in the Updated TMDL Reports, changes to the TMDL for fecal coliform may be warranted. Such changes would be considered through the Basin Plan Amendment process. Upon completion and consideration of the studies and any appropriate Basin Plan amendments, interim WLAs and LAs that lead to ultimate compliance with the TMDL specified in Table 5-9f, or with an approved amended TMDL, will be established with interim compliance dates. Schedules will also be established for submittal of implementation plans for control measures to achieve compliance with these WLAs, LAs, and compliance dates. These implementation plans will be considered by the Regional Board at a duly noticed public hearing.

The Regional Board is committed to the review of this TMDL every three years or more frequently if warranted by these or other studies. The County of Orange, the Cities of Tustin, Irvine, Costa Mesa, Santa Ana, Lake Forest, and Newport Beach, The Irvine Company and the Irvine Ranch Water District have undertaken to prepare a health risk assessment for Newport Bay for water contact recreation and shellfish harvesting beneficial uses. This study will evaluate whether exceedances of fecal coliform objectives correlates with actual impairment of beneficial uses and may recommend revisions to the Basin Plan objectives and/or beneficial use designations. Because this study is in progress, it is not required by this TMDL implementation plan, but will be considered in conjunction with the studies required by the implementation plan.