City of Newport Beach
Water Quality/Coastal Tidelands Committee Minutes

Date: May 8, 2014
Time: 3:00 p.m.
Location: Newport Coast Conference Room, 2nd Floor, Bay E

1. **Welcome/Self Introductions**
   Committee Members present:
   Chairwoman/Council Member Nancy Gardner
   Dennis Baker
   Carl Cassidy
   George Robertson
   Lou Denger
   Fred Galluccio

   Guests present:
   Monica Mazur, resident
   Jim Mosher, resident
   Jeff Coffman, Clean Green Technology
   Nancy and Jack Skinner, residents
   Philip Bettencourt, Bettencourt & Associates
   John Olivier, Fuscoe Engineering
   Ian Adam, Fuscoe Engineering
   Jeff Armstrong, OCSD
   Frank Miranda, OCSD
   Sam Choi, OCSD
   Ed Torres, OCSD
   Ron Coss, OCSD
   Faviola Miranda, OCSD
   Mike Von Winckelmann, OCSD
   Robyn Vettraino, Newport Banning Land Trust
   Wajih Malki, resident
   Diane Dixon, resident

   Staff present:
   Patrick Alford, Planner Manager
   John Kappeler, Water Quality Manager
   Shari Rooks, Public Works Specialist

   The agenda for the Water Quality/Coastal Tidelands Committee was posted at 11:59 am on May 5, 2014, in the binder located in the entrance of the Council Chambers at 100 Civic Center Drive.

2. **Approval of Previous Meeting's Minutes**
   The April 10th meeting minutes were approved with several minor corrections.

3. **Old Business**

   a. **Bay and Ocean Bacteriological Test Results**
   Monica Mazur reviewed recent water quality test results within Newport Bay and along the ocean shoreline.

   b. **2014 Committee Goals and Priorities**
   John Kappeler updated the Committee regarding the dry weather sampling scheduled to take place during the low tide events occurring the third week of May and the third week of June. Results of the study will be reported to Committee in June or July.

4. **New Business**

   a. **Banning Ranch Draft Environmental Impact Report (DEIR).**
   - **Patrick Alford** gave the Committee a brief update on the sections of the Banning Ranch DEIR related to water quality and hydrology conditions and mitigation measures. Please see attached pages 11-14 of that document.
   - **John Olivier** of Fuscoe Engineering gave the Committee a brief overview of the Newport Banning Ranch Project that was approved by City Council, focusing on pre/post hydrologic conditions, storm water management and water quality features. Please see attached presentation.
   - **Robyn Vettraino** gave the Committee an update on the **Newport Banning Land Trust, (NBLT)**, the newest addition to the project. The NBLT is a separate non-profit group that has a Memorandum of Understanding (MOU) with the property owners to manage the entire open space conservation use of the Banning Ranch Project. The NBLT will be onsite and provide stewardship and oversight on the open space property long term as well as establishing educational programs. Please see attached presentation.

   b. **Orange County Sanitation District's (OCSD's) Wastewater Disinfection.**
   - **Ron Coss** discussed the history of the OCSD's ocean discharge disinfection process. OCSD treats approximately 89 percent of the wastewater generated in the County of Orange. Full secondary treatment was achieved in March of 2011.
     - **Dennis Baker** asked about how pharmaceuticals and biosolids were being managed. Biosolids are currently being used for land application composting. One of the requirements that was added the OCSD's permit in 2012 was to monitor for pharmaceuticals and OCSD is developing methods to monitor for those compounds.
   - **Jeff Armstrong, Ph.D.,** discussed the offshore biological community near the OCSD outfall and the effects of disinfection byproducts.
     - In August 2002 OCSD began disinfecting and in 2005 they began seeing slight changes in the population structure within the mixing zone. It increased over time in the intensity of the changes and the spatial distribution within the area and the rate of change greatly accelerated in 2008-2009 upcoast and offshore.
     - Studies showed that effluent disinfection with chlorine bleach produced toxic by-products and concentration of the final effluent at low-flow periods was likely decreasing dilution in the receiving water and altering exposure to animals near the outfall.

- Present status shows recovery in progress and stations outside the mixing zone show normal communities with lessened use of chlorine. The National Water Resources Institute (NWRI) convened a panel of experts to look at OCSD's disinfection practices in March of this year and we are awaiting their recommendations as to how we should proceed. If the NWRI determines that there is no human health benefit the goal may be to eliminate chlorination entirely.
- Biological monitoring and ocean current studies continue as part of OCSD's Ocean Monitoring Program as well as Regional efforts.
- OCSD will be sending 30 million more gallons per day of treated wastewater to Ground Water Replenishment System (GWRS) in approximately one year.

- **Sam Choi, Ph.D.,** discussed the 14-year historic perspective of beach water quality and treatment impacts to bacterial levels at local beaches. Please see attached presentation.
  - Beach monitoring began in 1969. Up until 1998 OCSD was monitoring beaches for total coliforms only and when the Orange County Health Agency (OCHA) implemented AB411 standards they adopted two additional indicators: fecal coliform and enterococcus.
  - The following summer they began to see elevated levels of enterococcus, particularly at Huntington Beach. Several potential sources were investigated and testing beginning in 2000: Urban dry weather runoff; OCSD ocean outfall; infrastructure (OCSD trunk line); Huntington Beach Generating Station; bird droppings and Groundwater Transport (spring tides.) It was determined that the most likely source was dry weather runoff.
  - OCSD began diverting runoff from the Santa Ana River at Talbert Channel to their treatment plant for treatment before discharge into the ocean. In 2001 a US Department of Agricultural (USDA) study concluded there was no indication of OCSD's plume at the beach and as a precautionary measure, OCSD began disinfection in 2002.
  - In 2011 OCSD achieved full secondary treatment. In 2012 they conducted some special studies that prompted the major repair to their ocean outfall and during that process ramped up chlorination to the point of killing off all bacteria to non-detect levels.
  - Based on 10 years of disinfection they compared enterococcus data from pre-disinfection and post disinfection and found that there really was no difference in enterococcus concentrations except for at stations 3 North, 6 North and 9 North all upstream of the OCSD's outfall. Studies led them to believe that the sources were local and natural (land based) sources and included the Santa Ana River and the Talbert Marsh.
  - Conclusion was that disinfection has no benefit to beach water quality.

5. **Public Comments on Non-Agenda Items**

Dennis Baker suggested two items for consideration as topics on future agendas:

(1) Contacting Homeowner Associations regarding turf replacement of private slopes, etc., adjacent to City property.

(2) Revisiting AB411 and what agencies if any are challenging it.

6. **Topics for Future Agendas**
   (a) Bacteriological Dry-Weather Runoff Gutter Study (Phase III)
   (b) Prop 84 ASBS Grant Program
   (c) Senate Bill – SB 1447
   (d) Eelgrass Program
   (e) Trash Project for Storm Drains
   (f) Harbor Commission Copper Report
   (g) Orange County Coastal Regional Sediment Management Plan
   (h) Sediment Quality Objectives (SOQs)
   (i) NPDES Fifth Term Draft Permit
   (j) Adopting a Natural Source Exclusion
   (k) Banning Ranch
   (l) Grey Water

7. **Set Next Meeting Date**
   The next meeting date was set for June 12th, at 3 PM in the **Newport Coast Conference Room, Bay E, 2nd Floor.**

8. **Adjournment**
   The meeting was adjourned at 4:50 pm.

Chairwoman / Nancy Gardner

Health Care Agency / Environmental Health Newport Bay Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform, Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		12/23/13	12/30/13	1/6/14	1/13/14	1/21/14	1/27/14	2/3/14	2/10/14	2/18/14	2/24/14	3/3/14	3/10/14	3/17/14	3/24/14	3/31/14	4/7/14	4/14/14	4/21/14	4/28/14	5/5/14
NEWPORT BAY (Lower Bay)									RAIN				RAIN								RAIN	
BNB09	43rd Street Beach	TC	40	50	20	370	20	10	140	20	50	10	>1340	190	>30	>110	>10	60	10	10	100	>10
		FC	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	4	2	6	2	<2	6	26	10	2	8	20	20	2	6	<2	<2	2	6	2	2
BNB10	38th Street Beach	TC	<10	>390	<10	50	10	110	>8600	10	<10	>820	>720	80	<10	>200	<10	<10	<10	<10	>290	>10
		FC	<10	<10	<10	<10	<10	<10	330	<10	<10	10	<10	<10	<10	10	<10	<10	<10	<10	10	<10
		ENT	2	246	2	8	2	4	180	2	4	86	4	28	<2	46	4	10	<2	6	120	4
BNB11	33rd Street Channel	TC	330	130	<10	2000	<10	170	>840	>1420	40	80	270	>210	10	110	<10	30	>360	80	>60	>40
		FC	<10	50	<10	<10	<10	<10	70	50	<10	<10	10	20	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	2	46	4	10	2	4	10	56	8	4	4	84	<2	22	2	6	10	<2	64	32
BNB32	Lido Yacht Club Beach	TC	<10	40	<10	<10	<10	30	<10	240	<10	20	6000	30	>10	>21600	<10	<10	>10	<10	10	>100
		FC	<10	<10	<10	<10	<10	<10	<10	<10	10	<10	50	<10	<10	80	<10	<10	<10	<10	10	<10
		ENT	<2	<2	<2	4	2	<2	<2	<2	<2	4	28	<2	<2	1000	2	<2	2	<2	2	8
BNB07	Via Genoa Beach	TC	30	220	20	<10	<10	10	300	10	10	10	8600	<10	<10	10	10	20	30	<10	30	<10
		FC	<10	50	<10	<10	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	<10	<10	<10	10	<10
		ENT	4	>56	10	<2	2	20	20	<2	<2	4	96	2	<2	<2	2	<2	6	<2	8	<2
BNB35	Newport Blvd. Bridge	TC	10	>8000	2800	>560	>1530	>40000	>1000	>6800	>1300	>17000	880	>8000	>400	>570	80	>6200	10	>95	>70	70
		FC	<10	160	<10	20	50	9200	130	180	130	1170	70	450	<10	95	<10	260	<10	20	20	<10
		ENT	10	2000	2	228	4	8400	24	250	32	2000	10	226	2	226	<2	251	2	20	<2	6
BNB12	Rhino Channel	TC	400	40	70	<10	10	>530	<10	180	70	20	>700	20	10	>350	60	20	<10	10	30	>60
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	50	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	<2	<2	<2	<2	4	26	<2	<2	<2	2	<2	<2	<2	20	<2	6	<2	4	10	4
BNB14	19th Street Beach	TC	10	<10	<10	<10	<10	<10	<10	<10	260	<10	4800	<10	10	10	150	10	<10	<10	10	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	80	<10	150	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	<2	2	<2	<2	<2	<2	<10	<2	4	<2	20	<2	<2	<2	2	<2	<2	<2	<2	2
BNB15	15th Street Beach	TC	10	>100	30	120	<10	>940	40	>40	<10	30	4600	>440	40	>60	<10	30	10	<10	20	80
		FC	10	>80	<10	<10	<10	<10	<10	>10	<10	<10	140	<10	<10	10	<10	<10	<10	<10	10	<10
		ENT	<2	50	<2	<2	<2	4	10	2	6	<2	36	26	2	2	4	<2	<2	<2	<2	2
BNB17	10th Street Beach	TC	10	10	10	95	10	30	80	<10	20	10	6000	20	10	>20	10	<10	<10	<10	10	<10
		FC	<10	<10	<10	10	<10	10	<10	<10	<10	<10	220	<10	<10	<10	<10	<10	10	<10	<10	<10
		ENT	2	<2	<2	<2	<2	46	2	2	2	<2	32	<2	4	2	20	<2	10	<2	2	2
BNB18	Alvarado/ Bay Isle Beach	TC	30	2200	40	10	20	<10	10	40	10	20	13000	20	10	<200	10	100	>10	<10	>50	20
		FC	<10	2400	20	<10	<10	<10	<10	<10	10	<10	290	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	2	2000	4	6	2	2	4	22	8	<2	100	4	10	20	<2	10	10	<2	110	10
BNB22	N Street Beach	TC	10	>150	10	20	<10	<10	10	30	20	<10	920	20	20	50	<10	30	<10	<10	<10	220
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	10	20	<10	<10	<10	<10	<10	<10	<10	130
		ENT	<2	130	<2	<2	<2	<2	2	<2	<2	<2	2	28	<2	4	<2	4	<2	2	2	54
BNB31	Garnet Avenue Beach	TC	20	60	<10	10	20	30	>440	40	30	70	8000	40	190	>70	10	>270	<10	30	150	>30
		FC	<10	<10	<10	<10	<10	<10	200	<10	10	10	180	20	<10	<10	<10	110	20	<10	<10	<10
		ENT	<2	279	8	2	2	24	10	2	4	26	54	2	38	<2	74	6	10	130	6	58
BNB03	Ruby Avenue Beach	TC	100	330	<10	10	20	130	>310	<10	10	<10	6600	<10	50	>30	30	<10	10	70	20	10
		FC	20	50	<10	<10	<10	40	<10	<10	<10	<10	95	<10	<10	10	<10	<10	<10	10	<10	<10
		ENT	<2	6	2	2	10	80	20	26	<2	<2	32	6	2	10	<2	6	2	<2	2	<2
BNB20	Sapphire Avenue Beach	TC	50	40	130	10	30	130	10	<10	40	10	700	>50	>40	120	>100	NS	10	>30	>140	>20
		FC	<10	<10	80	10	<10	30	<10	<10	<10	<10	30	<10	10	<10	10	NS	10	20	<10	10
		ENT	2	10	2	2	<2	50	<2	2	4	8	10	10	10	20	4	NS	4	66	24	266
BNB34	Grand Canal	TC	100	80	360	10	20	50	120	290	<10	>20	4000	>310	70	460	40	100	>20	320	10	>130
		FC	70	<10	<10	<10	<10	<10	<10	160	<10	<10	100	80	<10	340	60	95	<10	10	<10	70
		ENT	<2	36	20	4	<2	6	2	24	6	36	22	22	<2	20	2	4	4	<2	<2	2
BNB21	Abalone Avenue Beach	TC	20	60	<10	10	40	20	170	10	20	<10	670	50	>270	>50	>260	10	10	20	40	>200
		FC	<10	<10	<10	<10	20	30	20	<10	<10	10	110	<10	<10	10	<10	<10	<10	20	<10	80
		ENT	2	6	2	<2	4	20	4	2	6	6	20	2	8	20	36	10	<2	2	4	90
BNB01	Park Avenue Beach	TC	20	50	<10	50	10	40	110	30	<10	20	6000	70	20	70	<10	10	80	<10	10	10
		FC	<10	<10	<10	<10	<10	10	<10	<10	10	<10	95	10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	<2	<2	2	<2	2	<2	8	2	<2	<2	34	10	<2	2	2	<2	<2	2	2	2
BNB02	Onyx Avenue Beach	TC	80	150	30	30	30	110	>240	<10	20	<10	5000	20	<10	>10	10	<10	10	80	30	<10
		FC	<10	10	<10	<10	<10	10	10	<10	20	<10	100	10	<10	10	<10	<10	<10	<10	<10	<10
		ENT	2	150	4	2	2	52	10	520	10	<2	34	10	2	20	<2	<2	<2	10	<2	2
BNB29	Promontory Point Channel	TC	<10	<10	10	<10	5800	<10	<10	60	<10	<10	800	10	10	>10	<10	<10	<10	<10	<10	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	20	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	<2	<2	<2	<2	4	<2	<2	2	2	<2	8	<2	2	26	<2	2	<2	2	<2	2
BNB33	Bayside Drive Beach	TC	20	160	40	50	40	60	30	110	30	>80	730	>140	>50	>210	>100	>10	40	>10	8000	>110
		FC	<10	150	<10	<10	<10	<10	<10	40	20	<10	20	10	<10	50	10	<10	20	<10	7800	<10
		ENT	6	10	2	10	2	36	4	10	32	10	<2	10	20	140	10	<2	2	20	3000	54
BNB23	Rocky Point Beach	TC	20	80	10	<10	10	10	280	70	20	<10	>790	30	10	60	380	10	<10	<10	<10	>30
		FC	<10	10	<10	<10	<10	<10	20	<10	<10	<10	40	20	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	2	8	<2	4	<2	2	44	4	2	2	190	6	6	2	68	2	<2	4	2	4

NS - NOT SAMPLED
LA - LAB ACCIDENT
Cw/(o)C- CONFLUENT GROWTH WITH(OUT) COLIFORMS
TNTC - TOO NUMEROUS TO COUNT

SINGLE SAMPLE STANDARDS:
Total Coliforms - 10,000 organisms per 100 milliliters sample.
Fecal Coliforms - 400 organisms per 100 milliliters sample.
Enterococci - 104 organisms per 100 milliliters sample.
Fecal:Total Ratio - >1000 total coliforms if ratio exceeds 0.1.

New Data
Single Sample Standard Violation.
Long-term Posting Location.
Creek/Drain Sample Location.
Rain Influenced Data.

30-DAY LOG MEAN STANDARDS (of five weekly samples)
Total Coliforms - 1,000 organisms per 100 milliliters sample.
Fecal Coliforms - 200 organisms per 100 milliliters sample.
Enterococci - 35 organisms per 100 milliliters sample.

Health Care Agency / Environmental Health Newport Bay Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		12/2/13	12/30/13	1/6/14	1/13/14	1/21/14	1/27/14	2/3/14	2/10/14	2/18/14	2/24/14	3/3/14	3/10/14	3/17/14	3/24/14	3/31/14	4/7/14	4/14/14	4/21/14	4/28/14	5/5/14
NEWPORT BAY (Upper Bay)			RAIN						RAIN				RAIN								RAIN	
BNB24	Newport Dunes - Middle	TC	>340	30	20	95	30	>680	>330	100	30	720	4800	>40	>80	>110	10	4400	>320	>170	>740	>20
		FC	<10	<10	<10	40	30	30	240	<10	<10	150	160	20	10	80	<10	390	230	<10	640	<10
		ENT	4	<2	10	8	4	24	60	8	10	80	130	20	4	8	4	68	20	2	4	<2
BNB24	Newport Dunes - West	TC	>320	20	80	130	60	180	>390	20	30	560	9800	>150	80	>400	20	>390	>50	>190	3000	70
		FC	10	10	<10	40	10	60	70	10	<10	270	150	40	10	360	<10	190	<10	20	120	10
		ENT	2	8	8	20	4	28	246	50	8	84	130	20	6	10	6	110	46	20	6	2
BNB24	Newport Dunes - East	TC	250	<10	80	40	<10	50	130	110	20	>80	>1210	>260	>220	>40	>30	>30	>10	>50	>3000	>70
		FC	80	10	10	20	<10	10	<10	<10	10	30	70	170	80	10	10	80	<10	10	460	40
		ENT	22	20	20	20	20	6	98	10	4	24	160	38	32	10	6	10	4	<2	10	10
BNB24	Newport Dunes - North	TC	>320	50	70	50	30	60	30	60	40	>130	3400	>270	>20	>95	>60	10	>10	>10	>5600	<10
		FC	20	50	10	50	<10	10	10	20	70	<10	200	160	10	10	<10	20	10	10	930	<10
		ENT	6	4	10	10	6	22	<2	8	24	10	30	32	4	10	6	48	6	2	6	26
BNB25	Vaughn's Launch	TC	300	<10	NS	10	NS	NS	NS	40	NS	NS	NS	NS	20	NS	>30	NS	>10	NS	>220	>330
		FC	40	30	NS	30	NS	NS	NS	10	NS	NS	NS	NS	<10	NS	10	NS	<10	NS	30	10
		ENT	80	10	NS	60	NS	NS	NS	38	NS	NS	NS	NS	10	NS	10	NS	2	NS	10	48
BNB26	Ski Zone	TC	>170	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		FC	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		ENT	44	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BNB28	North Star Beach	TC	>250	110	20	30	<10	70	20	400	<10	20	6000	>420	>60	>70	60	>20	30	>20	1000	<10
		FC	40	20	<10	10	10	20	<10	260	<10	<10	70	40	<10	<10	10	<10	10	<10	70	<10
		ENT	8	2	4	6	8	30	6	66	4	4	5000	90	56	8	22	2	4	10	10	10
BNB30	De Anza	TC	80	20	10	10	10	30	80	<10	10	20	9600	60	10	20	<10	50	30	<10	>210	10
		FC	20	<10	10	<10	<10	<10	<10	<10	<10	10	160	<10	<10	10	<10	<10	<10	<10	<10	<10
		ENT	<2	<2	4	2	4	8	20	<2	<2	8	120	10	<2	<2	<2	2	<2	4	<2	4
BNB05	Bayshore Beach	TC	70	<10	<10	30	<10	10	100	20	10	20	7800	20	10	30	110	50	30	<10	50	30
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	140	<10	<10	<10	<10	10	<10	<10	<10	<10
		ENT	4	<2	<2	<2	4	2	10	<2	4	2	94	10	2	8	4	2	2	4	<2	8
NEWPORT BAY TRIBUTARIES																						
CNBCD	San Diego Creek - Campus Dr.	TC	>4300	>3400	>2200	>310	>340	>540	>300	>3800	>2600	>1800	>115000	>13000	>2600	>1100	>1800	>2600	>1400	>400	>58000	>1400
		FC	240	700	300	<10	<10	10	10	80	60	40	3000	>330	80	30	50	30	<10	60	2000	50
		ENT	44	54	68	20	8	6	38	26	72	88	4600	293	68	64	64	46	42	74	130	>52
CNBSA	Santa Ana Delhi Channel	TC	>7400	>3800	>930	30000	>4900	>3000	>200000	7700	>2100	>2000	>72000	>5400	>770	>4800	>470	>26000	>1400	>400	>97000	>3300
		FC	170	280	80	7800	260	500	11000	120	220	40	>900	70	40	>200	140	170	20	60	970	>50
		ENT	311	228	76	226	190	170	27800	279	275	48	1000	600	44	170	46	170	120	88	130	170
CNBBC	Big Canyon Creek	TC	>720	>290	>300	>640	>390	>470	>940	>480	>800	>420	NS	>380	>600	>250	>360	>3200	>460	>100	>440	>460
		FC	190	80	20	20	20	60	250	50	100	20	NS	80	80	10	10	10	130	30	40	250
		ENT	86	78	62	130	84	110	271	66	78	100	NS	180	100	92	66	150	190	70	62	120
CNBND	Backbay Drive Pipe	TC	>1230	>510	>570	>1600	>1970	>3200	>740	>900	>11000	>5800	>410	>780	>5600	>7800	>5000	>3000	>40000	>990	>600	>1100
		FC	110	30	10	10	<10	40	180	30	50	120	40	10	40	190	300	210	>40000	120	10	<10
		ENT	>200	96	76	150	110	1000	400	140	200	2600	234	74	190	600	232	86	1000	289	1000	1000
NEWPORT SLOUGH																						
BNS01	Lancaster Street &	TC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	>19000	<10	>30	>20	>330	NS
	61st Street	FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	200	<10	<10	<10	<10	NS
		ENT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	86	<2	34	20	44	NS
BNS02	Lancaster Street &	TC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	>10000	>30	10	>10	10	NS
	Canal Street	FC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10	10	10	<10	<10	NS
		ENT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	10	4	6	6	10	NS

NS - NOT SAMPLED
LA - LAB ACCIDENT
Cw/(o)C- CONFLUENT GROWTH WITH(OUT) COLIFORMS
TNTC - TOO NUMEROUS TO COUNT

SINGLE SAMPLE STANDARDS:
Total Coliforms - 10,000 organisms per 100 milliliters sample.
Fecal Coliforms - 400 organisms per 100 milliliters sample.
Enterococci - 104 organisms per 100 milliliters sample.
Fecal:Total Ratio - >1000 total coliforms if ratio exceeds 0.1.

New Data
Single Sample Standard Violation.
Long-term Posting Location.
Creek/Drain Sample Location.
Rain Influenced Data.

30-DAY LOG MEAN STANDARDS (of five weekly samples)
Total Coliforms - 1,000 organisms per 100 milliliters sample.
Fecal Coliforms - 200 organisms per 100 milliliters sample.
Enterococci - 35 organisms per 100 milliliters sample.

OCSD Bacteriological Ocea.. Monitoring Program
Total Coliform (TC), Fecal Coliform (FC),
Enterococcus (ENT) Colony Forming Units/100 ml Sample

DATE		12/31	1/7	1/8	1/14	1/15	1/21	1/22	1/28	1/29	2/4	2/5	2/10	2/13	2/18	2/19	2/25	2/26	3/4	3/5	3/11	3/12	3/18	3/19	3/25	3/26	4/1	4/2	4/8	4/9	4/15	4/16	4/22	4/23	4/29	4/30
Location/Tide											RAIN	RAIN							RAIN	RAIN							RAIN	RAIN								
Bolsa Chica	TC		<17		<17		<17		33		130		17		50		<17		270		<17		<17		<17		<17		<17		17		<17		<17	
Beach	FC		<17		<17		<17		67		<17		<17		33		33		<17		17		<17		17		<17		<17		17		<17		<17	
39N	ENT		<2		<2		4		8		<2		14		<2		4		8		<2		<2		2		2		<2		<2		<2		4	
Bolsa Chica	TC		<17		<17		<17		33		17		50		<17		33		150		17		<17		33		<17		<17		<17		<17		17	
Reserve	FC		<17		<17		<17		17		<17		33		<17		33		<17		<17		<17		<17		<17		<17		<17		<17		<17	
33N	ENT		<2		4		4		34		2		8		2		8		18		2		<2		6		<2		<2		2		4		2	
Bluffs	TC		<17		<17		<17		250		50		<17		17		17		83		33		17		33		<17		<17		<17		<17		17	
27N	FC		<17		<17		17		200		33		<17		<17		<17		<17		<17		<17		17		<17		17		17		<17		<17	
	ENT		4		2		8		160		6		100		6		118		24		4		6		8		14		2		2		4		6	
17th Street	TC		<17		<17		<17		83		<17		17		83		33		130		67		50		<17		<17		17		<17		17		33	
21N	FC		<17		<17		<17		100		33		33		67		<17		33		50		<17		<17		<17		<17		<17		<17		<17	
	ENT		6		24		10		58		4		176		38		18		22		48		6		4		12		4		4		<2		2	
Jacks Snack	TC		17		<17		<17		50		17		17		33		<17		50		17		<17		17		17		<17		<17		<17		17	
Bar	FC		50		<17		<17		17		33		17		17		<17		17		<17		<17		17		33		<17		<17		<17		<17	
15N	ENT		26		12		4		32		4		124		6		6		16		4		4		8		4		<2		4		<2		8	
Beach Blvd.	TC		<17		<17		17		83		<17		<17		<17		17		200		<17		<17		17		120		<17		<17		17		<17	
12N	FC		17		<17		<17		33		17		17		17		33		17		<17		<17		17		120		<17		<17		<17		50	
	ENT		<2		2		2		56		6		94		6		10		10		14		4		14		16		<2		4		6		16	
SCE Plant	TC	<17	17	<17	<17	<17	<17	<17	100	17	<17	<17	67	<17	<17	17	<17	180	17	33	<17	33	<17	<17	17	<17	180	67	<17	<17	<17	67	17	33	50	<17
9N	FC	<17	<17	<17	<17	<17	<17	<17	120	<17	<17	<17	83	<17	<17	83	<17	150	<17	<17	17	17	<17	<17	<17	33	230	50	<17	<17	<17	33	<17	50	<17	33
	ENT	12	<2	8	8	4	6	6	42	22	4	4	54	4	4	6	20	82	12	18	2	4	<2	38	12	22	2	2	<2	<2	<2	14	6	12	2	10
Magnolia	TC	<17	67	<17	<17	<17	<17	17	33	67	<17	<17	17	<17	370	480	67	250	17	67	<17	33	<17	<17	17	380	83	33	17	17	<17	33	<17	17	33	100
Street	FC	<17	50	<17	<17	<17	17	17	50	17	17	17	83	<17	220	230	33	200	17	17	17	<17	<17	<17	<17	440	50	17	<17	<17	<17	17	<17	33	17	17
6N	ENT	30	10	<2	6	4	2	2	32	18	6	22	26	4	2	334	64	132	4	12	10	10	8	26	12	102	14	8	<2	2	<2	14	8	4	16	>400
Brookhurst	TC	620	33	33	<17	170	<17	<17	17	320	1000	300	130	1300	33	120	83	480	300	130	400	130	17	280	17	2000	1100	1000	50	150	150	7000	33	50	620	33
3N	FC	420	50	33	<17	150	17	17	33	330	1100	250	100	1800	17	67	83	300	200	67	170	83	50	170	<17	1900	1200	1200	<17	170	220	5400	50	170	500	<17
	ENT	102	4	16	46	64	4	22	28	132	44	40	114	>400	102	48	72	192	60	8	54	110	26	26	2	216	>400	16	4	12	40	>400	6	76	182	4
Santa Ana	TC	33	<17	17	<17	<17	<17	380	120	120	350	150	100	33	17	83	17	<17	120	170	220	<17	2000	100	120	130	120	600	33	170	<17	100	50	170	<17	50
River Mouth	FC	17	<17	17	<17	<17	67	320	150	50	<17	33	67	33	50	50	33	<17	<17	17	130	17	1500	170	83	400	<100	400	33	170	17	67	33	170	<17	50
0	ENT	24	<2	22	14	14	2	16	124	36	18	16	52	60	6	20	10	4	34	36	38	6	>400	14	28	112	28	26	<2	2	2	48	6	56	2	68
Orange	TC	17		67		17		67		120		1100		17		50		<17		400		67		50		250		CWS		120		17		120		<17
Street	FC	17		50		17		<17		50		67		17		120		<17		17		<17		50		200		CWB		50		100		150		<17
3S	ENT	8		22		6		12		90		26		10		48		4		34		24		40		104		110		8		26		34		4
52nd/53rd	TC	33		<17		33		17		50		200		17		33		<17		200		<17		17		100		CWS		<17		67		33		<17
Street	FC	33		<17		<17		<17		33		33		17		17		<17		<17		<17		<17		130		11000		<17		17		50		<17
6S	ENT	4		<2		22		8		12		24		20		2		6		84		14		14		58		10		<2		32		16		<2
38th Street	TC	<17		<17		<17		<17		33		17		17		<17		33		50		67		33		67		280		<17		<17		17		<17
9S	FC	<17		<17		17		<17		33		83		17		17		17		<17		17		<17		33		50		<17		<17		<17		<17
	ENT	6		8		2		6		256		16		8		6		8		50		<2		6		20		8		<2		6		10		<2
15th/16th	TC	<17		<17		<17		<17		440		<17		<17		17		<17		17		50		<17		17		17		<17		<17		17		<17
Street	FC	<17		<17		33		<17		500		<17		<17		<17		<17		17		33		<17		33		67		<17		<17		130		<17
15S	ENT	2		2		<2		<2		118		2		6		6		<2		4		2		<2		14		2		<2		8		2		<2
Balboa Pier	TC	<17		17		<17		<17		180		17		<17		<17		<17		33		33		<17		100		33		<17		33		<17		<17
21S	FC	<17		50		<17		<17		220		<17		<17		<17		<17		17		17		<17		17		17		<17		17		33		<17
	ENT	2		2		2		<2		108		8		2		<2		30		8		<2		<2		38		10		<2		16		4		6
The Wedge	TC	<17		<17		<17		<17		<17		<17		<17		<17		<17		17		<17		<17		33		<17		<17		<17		<17		<17
27S	FC	<17		<17		<17		<17		<17		17		<17		<17		<17		33		<17		<17		50		50		<17		<17		200		<17
	ENT	<2		2		2		2		<2		2		<2		6		4		4		<2		6		32		6		<2		<2		10		<2
Corona Del	TC	<17		2300		17		<17		100		33		<17		<17		150		17		<17		17		370		<17		17		200		120		17
Mar Beach	FC	17		17		17		17		33		<17		<17		<17		83		<17		33		17		540		17		<17		83		200		<17
29S	ENT	<2		2		<2		<2		26		4		6		<2		54		<2		14		8		44		2		<2		68		56		6
Crystal Cove	TC	<17		<17		<17		<17		17		<17		17		<17		<17		17		<17		<17		17		<17		<17		<17		17		<17
39S	FC	<17		<17		<17		<17		17		<17		<17		<17		<17		17		17		<17		<17		<17		<17		<17		<17		<17
	ENT	<2		2		<2		<2		6		<2		2		<2		2		2		2		<2		<2		<2		<2		<2		<2		<2

SPRING TIDES
NEW DATA
SINGLE SAMPLE STANDARD VIOLATION

N/S	NO SAMPLE / NO DATA
CWOS	CONFULENT GROWTH WITHOUT SHEEN
CWS	CONFULENT GROWTH WITH SHEEN
CWB	CONFULENT GROWTH WITH BLUE (FECAL INDICATOR)

NEWPORT BANNING RANCH PROJECT (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM

Timing	Project Design Features/Conditions of Approval/ Mitigation Measures	Responsible for Approval/Monitoring/ Implementation	Completion	
			Date	Initials
Hydrology and Water Quality				
Timing of construction as part of conditions of approval for Tentative Tract Map No.17308 As part of Community Park Improvement Plans As part of grading permits for open space	**PDF 4.4-1** The Master Development Plan requires that two water quality basins (one in the Community Park and one in the Open Space Preserve) be constructed to treat off-site urban runoff from Costa Mesa and Newport Beach and Project runoff that drains into the Lowland area.	Municipal Operations Director; Public Works Director; Community Development Director		
Timing of construction as part of conditions of Approval for Tentative Tract Map No.17308 As part of grading permit for open space	**PDF 4.4-2** The Master Development Plan includes a water quality basin and a diffuser basin located within the Open Space Preserve to provide for storm water control, energy dissipation, and natural water quality treatment.	Municipal Operations Director; Public Works Director; Community Development Director		
Conditions of approval of Tentative Tract Map No.17308 As part of subdivision improvement plans	**PDF 4.4-3** The Master Development Plan requires that public arterials and some selected collector roadways within the Project site be designed with "Green Street" and other Low Impact Development (LID) features, such as bioswales and bio-cells. Green Streets are designed to incorporate sustainable design elements such as narrower pavement widths, canopy street trees, traffic-calming features, and minimal use of street lighting. Landscaping along the street edges will be selectively used to treat storm water runoff from the streets and adjacent development areas.	Public Works Director, Community Development Director		
Conditions of approval of Tentative Tract Map No.17308 consistent with the approved Habitat Restoration Plan	**PDF 4.4-4** The Master Development Plan requires that arroyos be planted with native riparian vegetation as part of the restoration effort to minimize potential erosion and to enhance the water-cleansing function.	Public Works Director; Community Development Director Qualified Biologist designated by the Community Development Director		

NEWPORT BANNING RANCH PROJECT (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM

Timing	Project Design Features/Conditions of Approval/ Mitigation Measures	Responsible for Approval/Monitoring/ Implementation	Completion	
			Date	Initials
Conditions of approval of Tentative Tract Map No. 17308 consistent with the Habitat Restoration Plan Application for Site Development Review for development of land uses within the Residential Districts; Visitor-Serving Resort and Residential District; Mixed-Use and Residential District; and the Parks and Recreation District As part of subdivision improvement plans	**PDF 4.4-5** The Master Development Plan requires development of a drainage plan to ensure that runoff systems from the Project site to West Coast Highway and the Semeniuk Slough will be stabilized and maintained through the Project's drainage system.	Public Works Director; Community Development Director		
Conditions of approval of Tentative Tract Map No. 17308 and subsequent subdivision maps for development purposes Submittal of approved Project-level Water Quality Management Plan and Storm Water Pollution Prevention Plan with application for Site Development Review for development of land uses within the Residential Districts; Visitor-Serving Resort and Residential District; Mixed-Use and Residential District; and the Parks and Recreation District As part of Community Park improvement plan As part of subdivision improvement plans	**PDF 4.4-6** The Master Development Plan requires the use of best management practices (BMPs) for erosion control, sediment control, wind erosion control, storm water and non-storm water management, and waste management/pollution control. These BMPs will be implemented to ensure that potential effects on local site hydrology, runoff, and water quality remain in compliance with all required permits, City policies, and the Project's Water Quality Management Plan (WQMP), and Storm Water Pollution Prevention Plan (SWPPP).	Municipal Operations Director; Public Works Director; Community Development Director		

NEWPORT BANNING RANCH PROJECT (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM

Timing	Project Design Features/Conditions of Approval/ Mitigation Measures	Responsible for Approval/Monitoring/ Implementation	Completion	
			Date	Initials
Condition of approval of Site Development Review for development of land uses within the Residential Districts; Visitor-Serving Resort and Residential District; Mixed-Use and Residential District; and the Parks and Recreation District As part of building permits City maintenance responsibility for Community Park	**SC 4.4-1** All landscape materials and irrigation systems shall be maintained in accordance with the approved Landscape Plan. All landscaped areas shall be kept in a healthy and growing condition and shall receive regular maintenance. All landscaped areas shall be kept free of weeds and debris. All irrigation systems shall be kept operable, including adjustments, replacements, repairs, and cleaning as part of regular maintenance.	Public Works Director; Community Development Director		
Ongoing	**SC 4.4-2** The development shall be kept free of litter and graffiti. The owner or operator shall provide for removal of trash, litter debris, and graffiti from the premises and on all abutting sidewalks.	Community Development Director		
Prior to the issuance of grading permits	**SC 4.4-3** Prior to the issuance of grading permits, an SWPPP and Notice of Intent (NOI) to comply with the General Permit for Construction Activities shall be prepared, submitted to the State Water Resources Control Board (SWRCB), and made part of the construction program. This SWPPP shall detail measures and practices that would be in effect during construction to minimize the Project's impact on water quality and storm water runoff volumes.	Public Works Director; Community Development Director State Water Resources Control Board (SWRCB)		
Prior to the issuance of grading permits	**SC 4.4-4** Prior to issuance of grading permits, the Project Applicant shall prepare and submit a Water Quality Management Plan (WQMP) for the project, subject to the approval of the Community Development Department, Building Division and Code and Water Quality Enforcement Division. The WQMP shall include appropriate BMPs to ensure project runoff is adequately treated.	Community Development Director; Water Quality Enforcement Division		
As a part of grading and building permits	**SC 4.4-5** Prior to issuance of grading permits a list of "good housekeeping" practices, consistent with the approved Water Quality Management Plan, shall be submitted by the contractor for incorporation into the long-term post-construction operation of the site to minimize the likelihood that pollutants would be used, stored, or spilled on the site that could impair water quality. These may include frequent parking area vacuum truck sweeping, removal of wastes or spills, limited use of harmful fertilizers or pesticides, and the diversion of storm water away from potential sources of pollution (e.g., trash receptacles and parking structures). The WQMP shall list and describe all structural and non-structural	Public Works Director; Community Development Director		

NEWPORT BANNING RANCH PROJECT (Continued)
MITIGATION MONITORING AND REPORTING PROGRAM

Timing	Project Design Features/Conditions of Approval/ Mitigation Measures	Responsible for Approval/Monitoring/ Implementation	Completion	
			Date	Initials
	BMPs. In addition the WQMP must also identify the entity responsible for the long term inspection, maintenance, and funding for all structural (and if applicable treatment-control) BMPs.			
Hazards and Hazardous Materials				
Prior to the issuance of grading permits As a part of grading and construction permits	**PDF 4.4-6** The Master Development Plan requires the use of best management practices (BMPs) for erosion control, sediment control, wind erosion control, storm water and non-storm water management, and waste management/pollution control. These BMPs will be implemented to ensure that potential effects on local site hydrology, runoff, and water quality remain in compliance with all required permits, City policies, and the Project's Water Quality Management Plan (WQMP), and Storm Water Pollution Prevention Plan (SWPPP).	Public Works Director; Community Development Director State Water Resources Control Board (SWRCB)		
Condition of approval of Tentative Tract Map No. 17308 and subsequent subdivision maps for development purposes Prior to issuance of precise grading permits for development and building permits for Residential Districts, Visitor Serving Resort/Residential District, Public Parks/Recreation District, Mixed Use/Residential District Annual Development Agreement review	**PDF 4.5-1** The Master Development Plan requires existing oil operations to be consolidated into two areas within the Open Space Preserve designated as "Interim Oil Facilities", in accordance with the land use districts established for the Project site in the Newport Banning Ranch Planned Community Development Plan, totaling approximately 17 acres including the service access road. This use will ultimately revert to an Open Space land use at the end of the oilfield's useful life.	Community Development Director		
Prior to issuance of demolition permit Verification: prior to the issuance of the first grading permit	**SC 4.5-1** Prior to demolition, testing for all structures for presence of lead-based paint (LBP) and/or asbestos-containing materials (ACMs) shall be completed. The Asbestos-Abatement Contractor shall comply with notification and asbestos-removal procedures outlined in the South Coast Air Quality Management District's (SCAQMD's) Rule 1403 to reduce asbestos-related air quality health risks. SCAQMD Rule 1403 applies to any demolition or renovation activity and the associated disturbance of ACMs. This requirement shall be included on the contractors' specifications and verified by the Director of Community Development. All demolition activities that may expose construction workers	Community Development Director South Coast Air Quality Management District (SCAQMD), as applicable		

FUSCOE

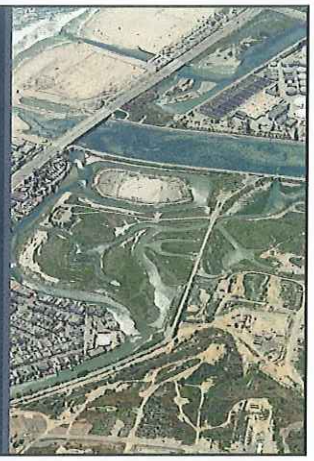
NEWPORT BANNING RANCH

Storm Water Management Overview

presented by
Fuscoe Engineering, Inc.

May 8, 2014

full circle thinking®



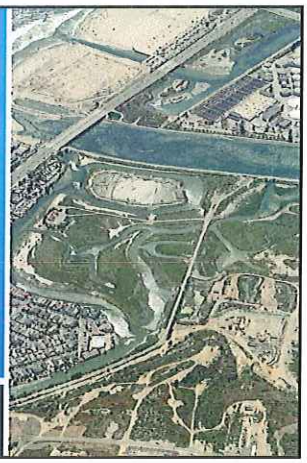
NEWPORT BANNING RANCH

SITE PLAN

FUSCOE

AGENDA

- Pre/Post Hydrologic Conditions
- Storm Water Management Features
- Water Quality



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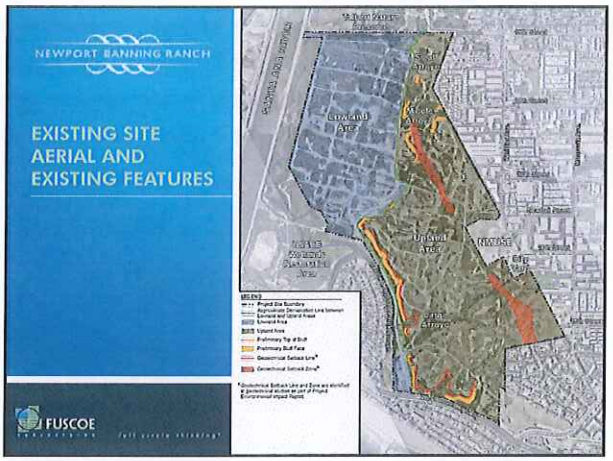
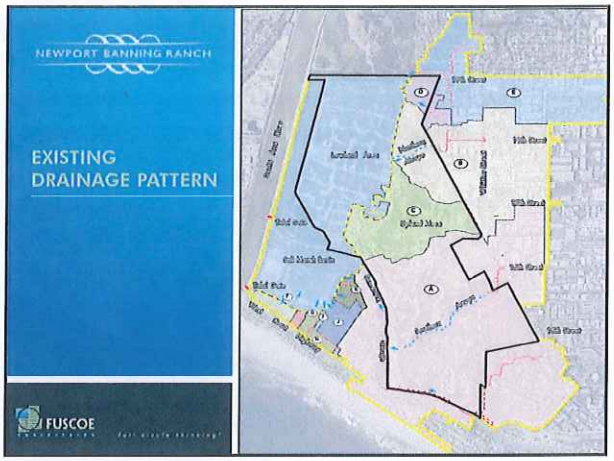
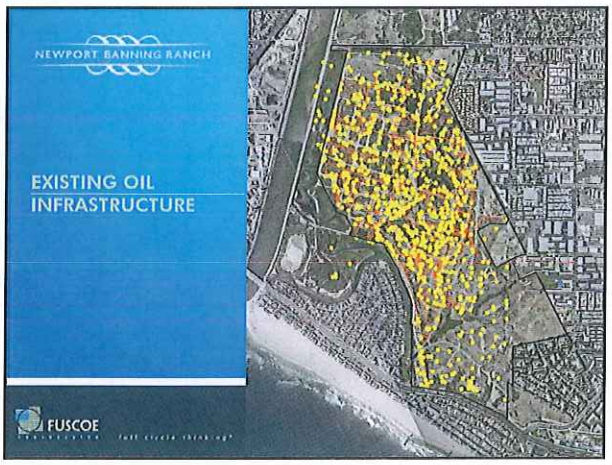
NEWPORT BANNING RANCH

FUSCOE

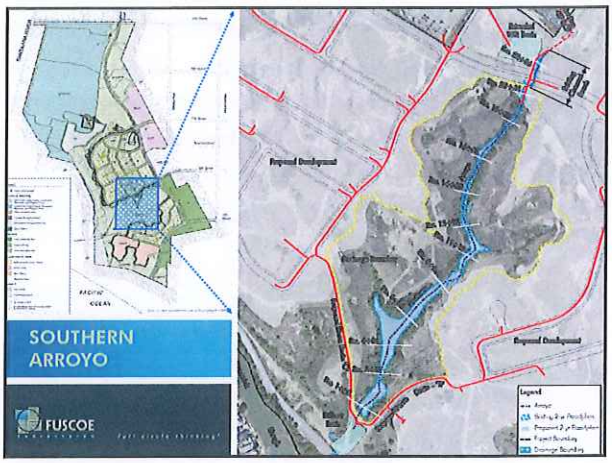

NEWPORT BANNING RANCH
EXISTING SITE AERIAL AND EXISTING FEATURES
FUSCOE


NEWPORT BANNING RANCH
EXISTING DRAINAGE PATTERN
FUSCOE

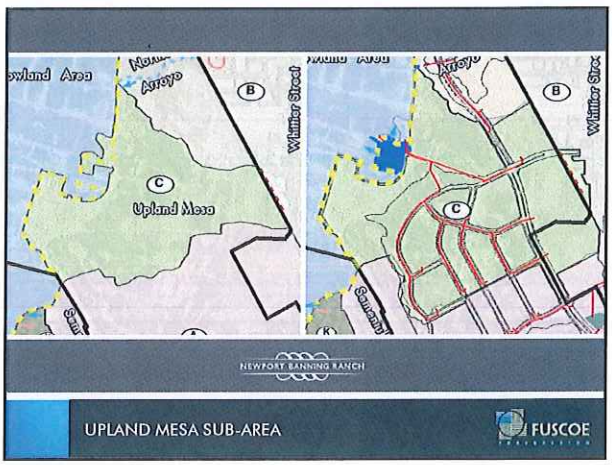

NEWPORT BANNING RANCH
EXISTING OIL INFRASTRUCTURE
FUSCOE

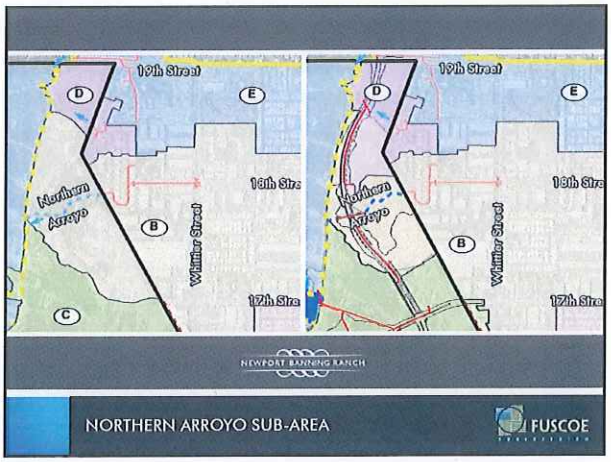
NEWPORT BANNING RANCH
PROPOSED DRAINAGE AREAS
FUSCOE

NEWPORT BANNING RANCH
SEMENUIK SLOUGH SUB-AREA
FUSCOE

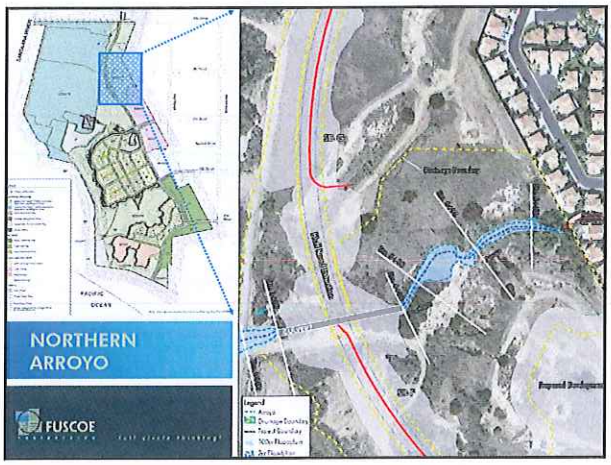

SOUTHERN
ARROYO
FUSCOE

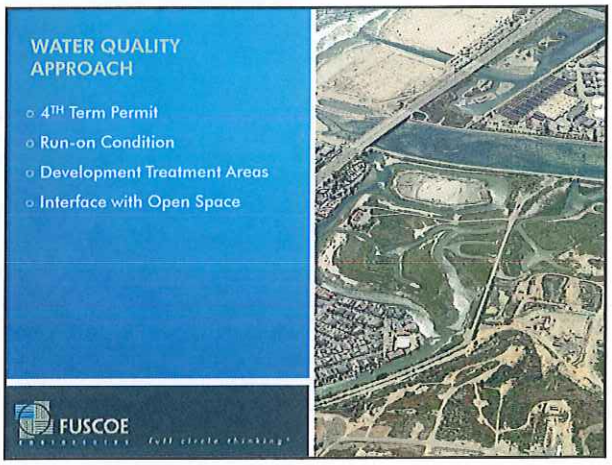
ARROYO TRIBUTARY INSTABILITY
FUSCOE


Upland Mesa
Whittier Street
NEWPORT BANNING RANCH
UPLAND MESA SUB-AREA
FUSCOE


19th Street
18th Stre
17th Stre
Northern Arroyo
Whittier Street
NEWPORT BANNING RANCH
NORTHERN ARROYO SUB-AREA
FUSCOE

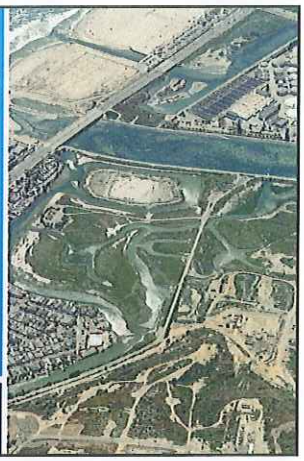
19th Street
18th Street
NEWPORT BANNING RANCH
19TH STREET SUB-AREA
FUSCOE


NORTHERN ARROYO
FUSCOE


WATER QUALITY APPROACH
4TH Term Permit
Run-on Condition
Development Treatment Areas
Interface with Open Space
FUSCOE

WATER QUALITY STRATEGY

- Infiltration Constrained
- Harvest & Use Demands Limited
- Bio-treatment within Mesa Areas
- Evaptranspiration/Infiltration in Lowlands



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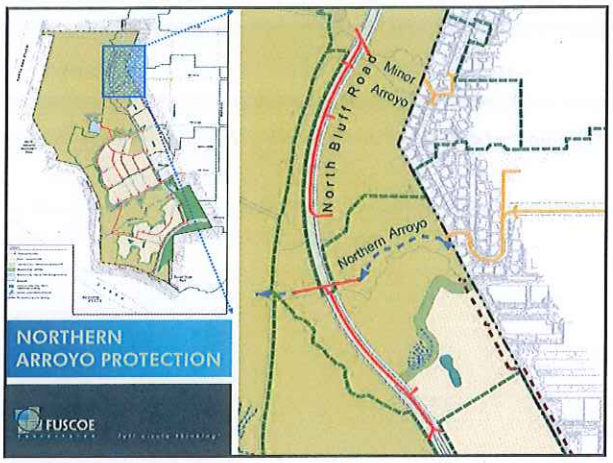
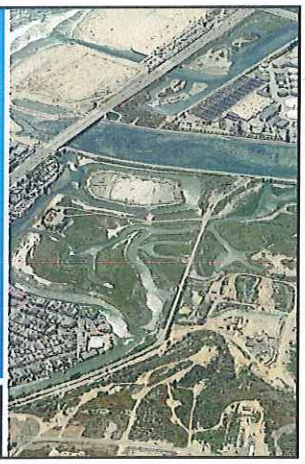


NORTHERN ARROYO PROTECTION

FUSCOE

WATER QUALITY TREATMENT TRAIN

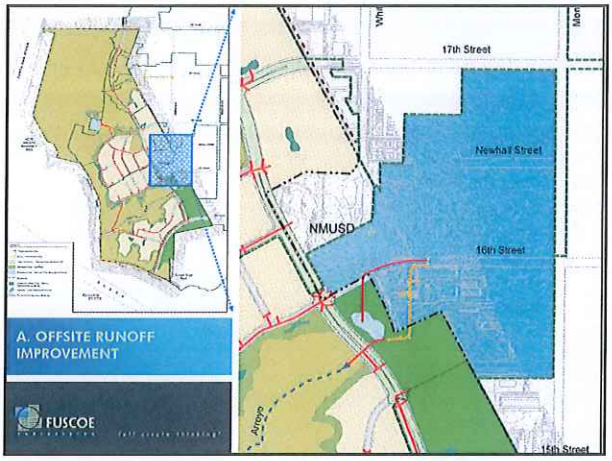
A. Off-site Runoff Improvement
B. On-Lot HSC's
C. Green Streets & Community Based Biotreatment BMPs
D. Water Polishing

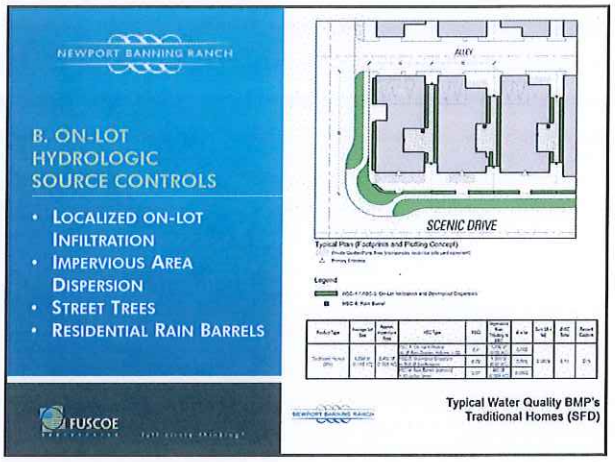


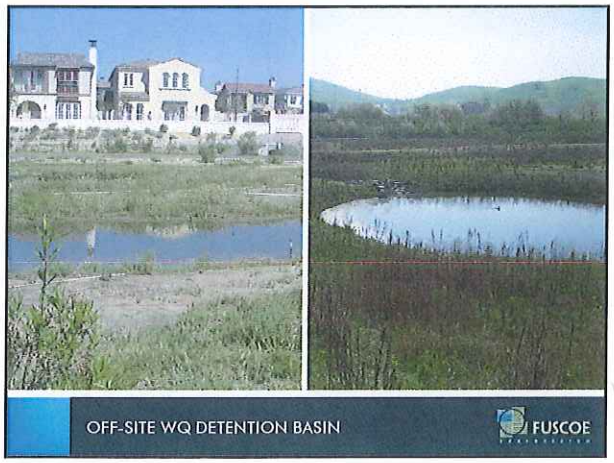
FUSCOE

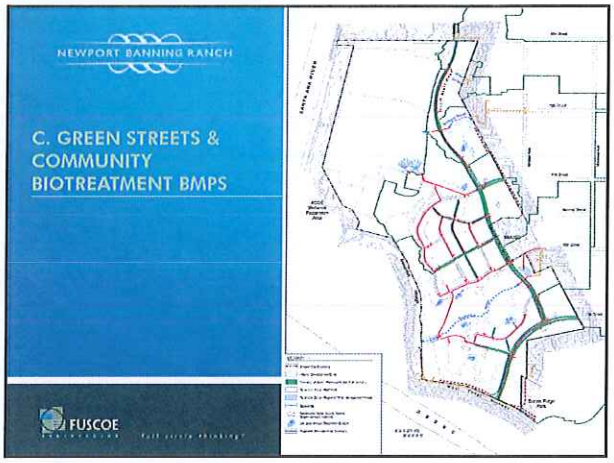
NORTHERN ARROYO PHOTOS

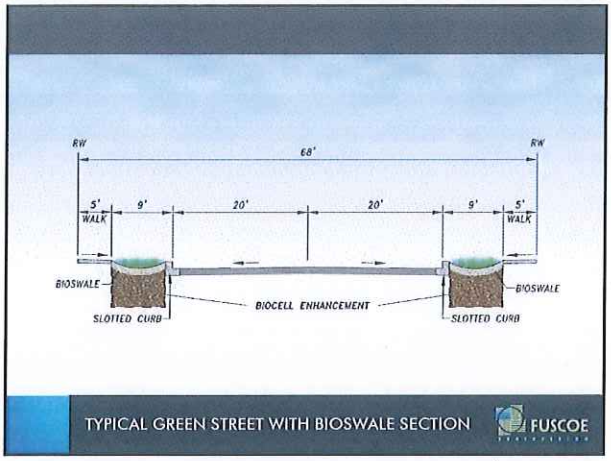
FUSCOE

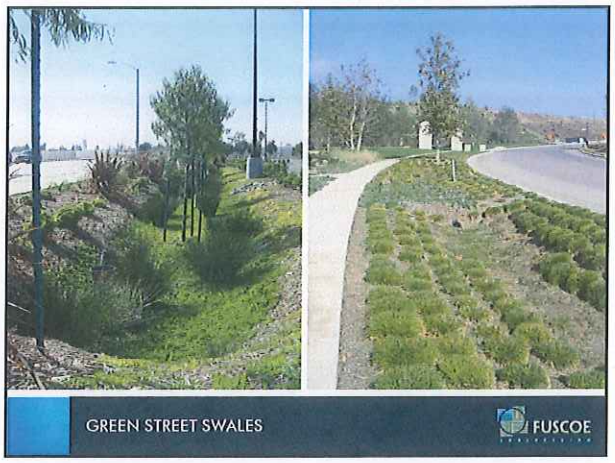

17th Street
Newhall Street
NMUSD
16th Street
Arroyo
15th Street
A. OFFSITE RUNOFF IMPROVEMENT
FUSCOE

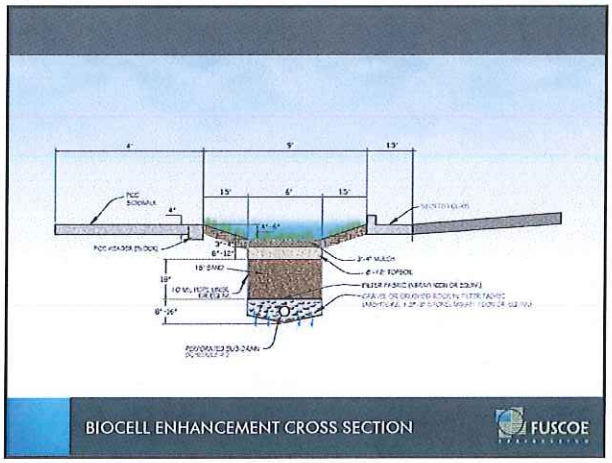

NEWPORT BANNING RANCH
B. ON-LOT HYDROLOGIC SOURCE CONTROLS
• LOCALIZED ON-LOT INFILTRATION
• IMPERVIOUS AREA DISPERSION
• STREET TREES
• RESIDENTIAL RAIN BARRELS
ALLEY
SCENIC DRIVE
Typical Water Quality BMP's Traditional Homes (SFD)
FUSCOE

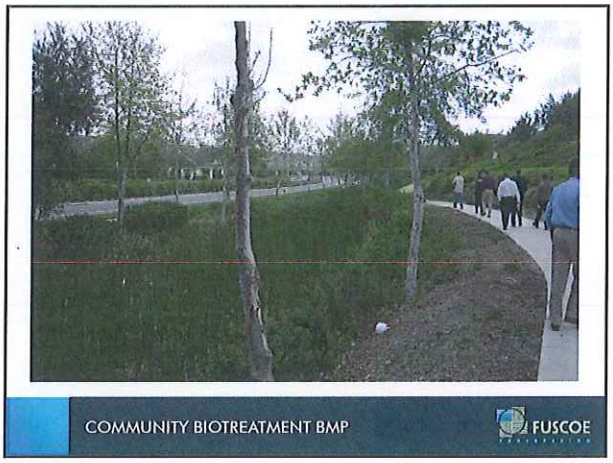

OFF-SITE WQ DETENTION BASIN
FUSCOE

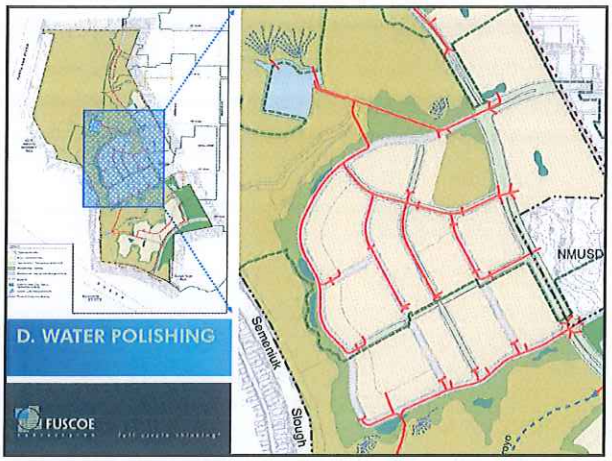

NEWPORT BANNING RANCH
C. GREEN STREETS & COMMUNITY BIOTREATMENT BMPS
FUSCOE

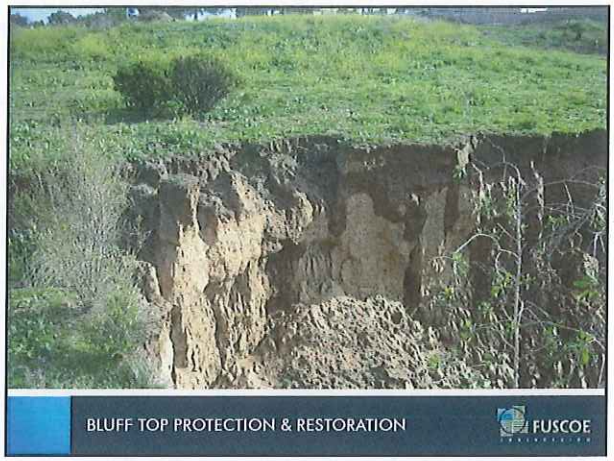

RW
68'
RW
5'
WALK
9'
20'
20'
9'
5'
WALK
BIOSWALE
BIOSWALE
BIOCELL ENHANCEMENT
SLOTTED CURB
SLOTTED CURB
TYPICAL GREEN STREET WITH BIOSWALE SECTION
FUSCOE


GREEN STREET SWALES
FUSCOE


BIOCELL ENHANCEMENT CROSS SECTION
FUSCOE


COMMUNITY BIOTREATMENT BMP
FUSCOE


NMUSD
Semenuk
Slough
D. WATER POLISHING
FUSCOE


BLUFF TOP PROTECTION & RESTORATION
FUSCOE

REGIONAL POLISHING BASINS
FUSCOE

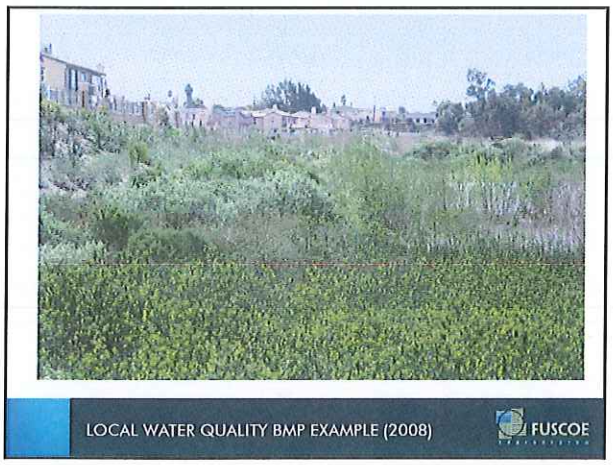
LOCAL WATER QUALITY BMP EXAMPLE
FUSCOE

LOCAL WATER QUALITY BMP EXAMPLE (2006)

FUSCOE

LOCAL WATER QUALITY BMP EXAMPLE (YESTERDAY)

FUSCOE



LOCAL WATER QUALITY BMP EXAMPLE (2008)

FUSCOE

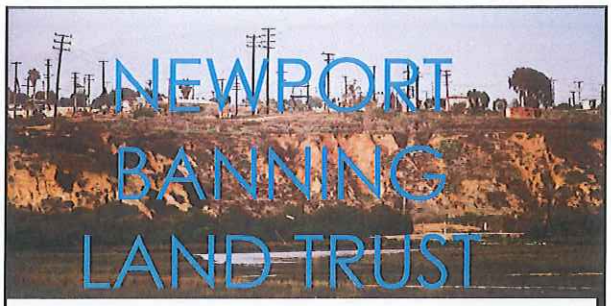
LOCAL WATER QUALITY BMP EXAMPLE

FUSCOE

LOCAL WATER QUALITY BMP EXAMPLE (YESTERDAY) FUSCOE

LOCAL WATER QUALITY BMP EXAMPLE (YESTERDAY) FUSCOE

LOCAL WATER QUALITY BMP EXAMPLE FUSCOE



NEWPORT BANNING LAND TRUST

CITY OF NEWPORT BEACH
WATER QUALITY/COASTAL TIDELANDS COMMITTEE
MAY 8, 2014
ROBYN VETTRAINO, NBLT EXECUTIVE DIRECTOR

ReClaim ReStore ReCreate

Newport Banning Land Trust.org

NATURAL OPEN SPACE PRESERVE

AS PROPOSED BY DEVELOPER

CENTERPIECE OF ORANGE COAST RIVER PARK, NBLT WILL INCLUDE 25% OF THE TOTAL 1000 ACRE ANTICIPATED PARK

REGIONALLY SIGNIFICANT PARK CONCEPT HAS BEEN LONG ENVISIONED

PROVIDE OPPORTUNITY FOR WATERSHED, HABITAT AND RECREATIONAL CONTINUITY

WATER QUALITY NOW

DEGRADED WETLANDS AND VEGETATION CRISSCROSSED BY ROAD, PIPELINES AND OTHER OIL OPERATIONS

BLUFF AND SLOPE AREAS IMPACTED BY EROSION AND DESTABILIZATION

SEDIMENT ADDITION TO THE SEMENIUK SLOUGH

UNTREATED AND UNCONTROLLED URBAN RUNOFF FROM 146 ACRES IN ADJACENT DEVELOPMENTS

RECLAIM

WATER QUALITY RECLAIMED

PLANNED STEWARDSHIP AND ACTIVE MANAGEMENT IN PERPETUITY FOR:

WATERSHED APPROACH

PROTECT FLOWS & OFF-SITE RUNOFF

PRESERVE & PROTECT DRAINAGE CORRIDORS, REDUCE EROSION AND SEDIMENTATION DEPOSITION

IMPROVE DOWNSTREAM WATER QUALITY

NOURISH FUTURE HABITAT AND WETLAND AREAS

RECLAIM

NATIVE HABITAT RESTORED

RECREATION OF NATIVE HABITAT & REMOVAL OF INVASIVE SPECIES TO:

EXPAND CRUCIAL FAMILIES OF SPECIAL SPECIES TO SUPPORT INCREASES IN POPULATION

FOSTER A SELF-SUSTAINING ENVIRONMENT

ENHANCE TIDAL AND FRESH WATER WETLANDS

RESTORE

NATIVE HABITAT NOW

CURRENTLY MUCH OF THE SITE IS DOMINATED BY NON-NATIVE VEGETATION AND OIL FIELD DEVELOPMENT

HABITAT IS FRAGMENTED

NO ACTIVE STEWARDSHIP FOR NATIVE HABITAT

IMPACTED BY 75 YEARS OF ACTIVE OIL FIELD OPERATIONS AND MAINTENANCE

RESTORE

PUBLIC LEGACY NOW

PRIVATE PROPERTY WITH NO PUBLIC ACCESS

DEAD-END ROADS AND DETOURED TRAILS

COMMUNITY HAS NO ENGAGEMENT WITH SITE

VISUAL IMPACTS OF ACTIVE OIL OPERATIONS

RECREATE

PUBLIC LEGACY RECREATED

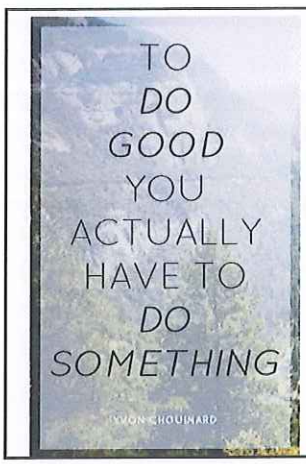
PUBLIC ACCESS AND RECREATON OPPORTUNITIES FOR RESIDENTS AND VISITORS

CRITICAL TRAIL LINKS FOR SANTA ANA RIVER VALLEY AND THE COAST

ENCOURAGE BIKE AND PEDESTRIAN CIRCULATION

ESTABLISH EDUCATIONAL PROGRAMS

PEDESTRIAN BRIDGE ACROSS WEST COAST HIGHWAY



WWW.NEWPORTBANNINGLANDTRUST.ORG

ROBYN@NEWPORTBANNINGLANDTRUST.ORG

COMMUNITY-BASED RESTORATION

EDUCATIONAL

ENGAGES VOLUNTEER AND SURROUNDING COMMUNITY

COLLABORATIVE AND STEWARD-BASED

GOAL TO BE SELF-SUFFICIENT

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Orange County Sanitation District

Orange County Sanitation District Optimization of Disinfection to Ocean Discharge

Ron Coss
Environmental Laboratory & Ocean Monitoring Manager

Orange County Sanitation District We're here for you.

Overview

- OCSD & our ocean discharge – Ron Coss
- Offshore biological community and the effects of disinfection byproducts – Jeff Armstrong, Ph.D.
- Historic perspective of beach water quality and treatment impacts to bacterial levels at local beaches – Sam Choi, Ph.D.
- Questions – Ron Coss, Jeff Armstrong & Sam Choi

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"We protect public health and the environment by providing effective wastewater collection, treatment, and recycling."

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OCSD Service Area
479 square miles
198 MGD inflow
133 MGD ocean discharge
2.5 million population
21 cities, 3 special districts
579 miles sewer lines
15 pumping facilities
2 treatment plants
Orange County
La Habra
Brea
Fullerton
Placentia
Yorba Linda
Buena Park
La Palma
Anaheim
Cypress
Villa Park
Los Alamitos
Stanton
Orange
Garden Grove
Westminster
Santa Ana
Fountain Valley
Tustin
Reclamation Plant No. 1
Costa Mesa
Treatment
Pacific Ocean
Orange County Sanitation District
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OCSD Reclamation Plant No. 1 in Fountain Valley
Orange County Sanitation District
We're here for you.

OCSD Treatment Plant No. 2 in Huntington Beach
Orange County Sanitation District
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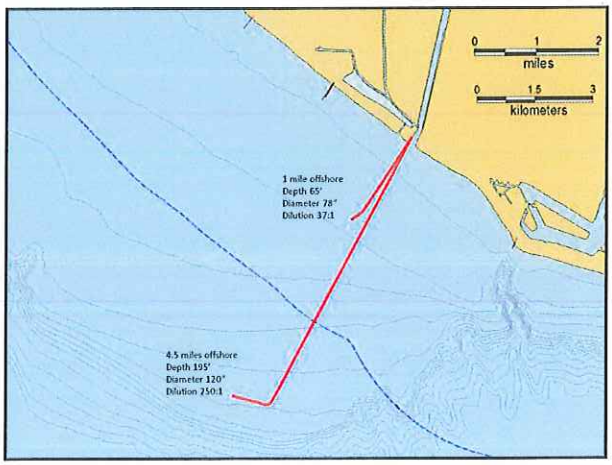
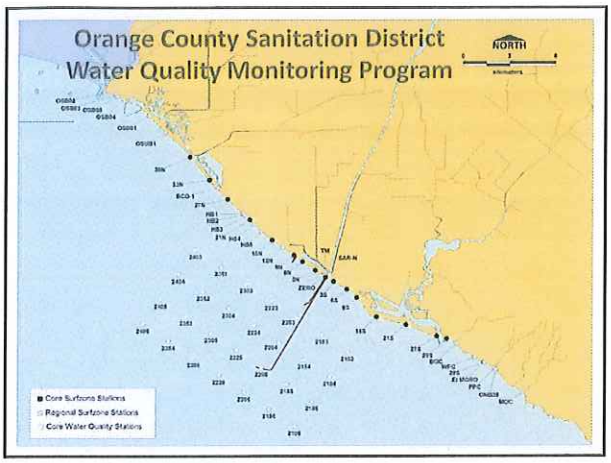

0 1 2
miles
0 1.5 3
kilometers
1 mile offshore
Depth 65'
Diameter 78"
Dilution 37:1
4.5 miles offshore
Depth 195'
Diameter 120"
Dilution 250:1



Water Quality Monitoring

Quarterly Monitoring
Shoreline Microbiology (456)
Off-shore microbiology (175)
Ammonia (549)
Water Quality Monitoring cruises (5)
Water Quality profiles (140)

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OCSD's Commitment to protecting public health and environmental protection

- In mid 2012 OCSD completed all facilities to treat all inflows to secondary standards
- Ocean discharge has surpassed secondary water quality standards since December 2010
- OCSD has treated up to 4 MGD of dry weather urban run-off, recently increased to 10 MGD
- Expanded number of beach monitoring locations to assure greater public safety
- Development of new techniques and indicator organisms to better identify potential issues

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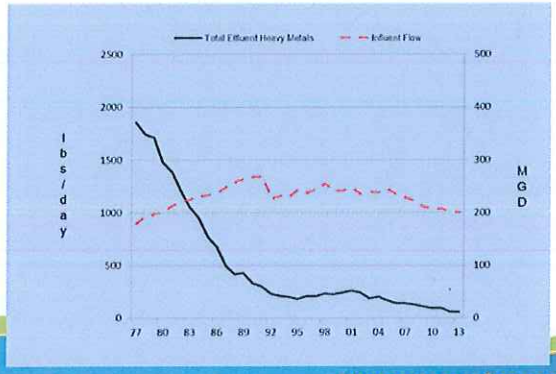
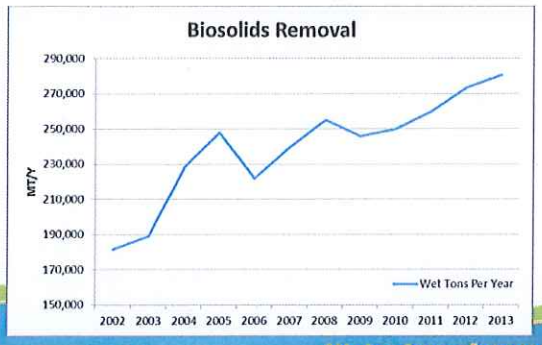
Ocean discharge Improvements

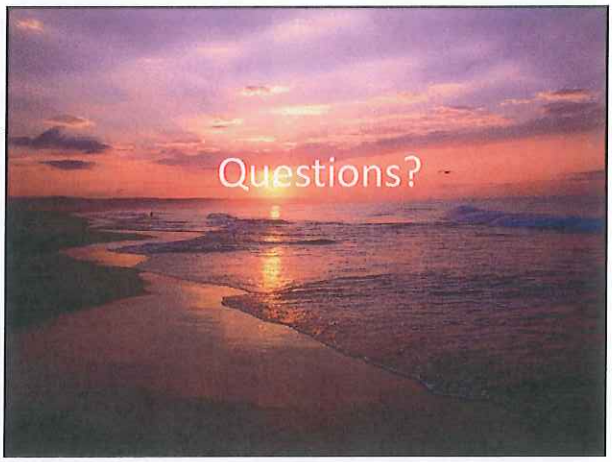


Orange County Sanitation District We're here for you.

Ocean Discharge Improvements



Orange County Sanitation District We're here for you.



Changes in Biological Communities Near the OCSD Outfall

Dr. Jeff Armstrong
Environmental Supervisor
Environmental Laboratory and Ocean Monitoring

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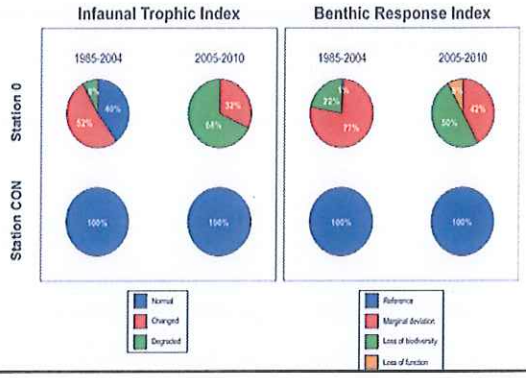
Changes in Treatment Plant Processes: 2002 to 2011

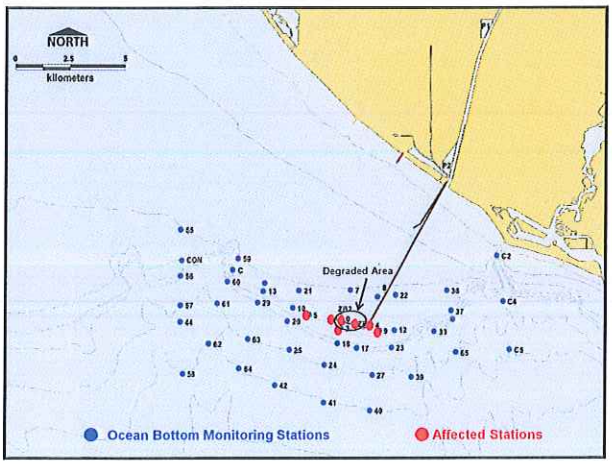
- August 2002: Began effluent disinfection w/bleach
- January 2008: Groundwater Replenishment System (GWRS) online @ 35 million gallon per day (MGD)
- July 2008: GWRS increased to 69 MGD (gradually increased since to 90 MGD)
  - ~15 MGD microfiltration return flow (re-treated)
  - <10 MGD RO reject flow not treated, sent to outfall, mixed with final effluent for ocean discharge
    - Also chlorinated during GWRS process
- March 2011: Full secondary treatment achieved

Changes in Marine Communities

- Began in 2005-06 within the initial mixing zone
- Increased in intensity and in area over time
- Rate of change accelerated in 2008-09
- Invertebrate community health indices showed:
  - Degraded conditions within the initial mixing zone
  - Loss of biodiversity at near outfall stations 1/3 mile away
  - Evidence of community change as far away as 2 3/4 miles
- Fish community change evident only at the outfall

Benthic Community Changes





Two-Phased Approach

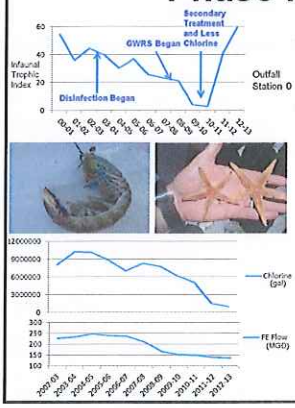
Phase I (2009-10)

- Historical Data Analysis
  - To identify potential causes

Phase II (2011-12)

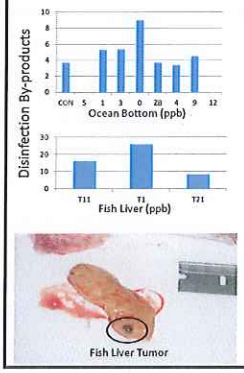
- 6 Focused Studies
  - To investigate potential causes identified in Phase I

Phase I Results



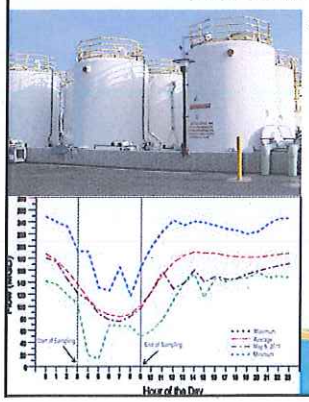
- Marine animal community health decreased post-effluent disinfection and accelerated post-GWRS.
- Animals most affected were those that are sensitive to chlorinated compounds.
- Environmental changes highly correlated with use of chlorine bleach and final effluent flow rate.

Phase II Results



- The outfall is strongly indicated as the source
- Final effluent is concentrated at low-flow periods.
- No significant acute or chronic toxicity in RO reject, final effluent, or sediments.
- Effluent disinfection with chlorine bleach produces toxic by-products.
- Fish collected at the outfall had more liver pathologies than those from the reference site.

Most Likely Causes



- There are two likely causes of the changes in invertebrate communities near the outfall:
  1. The use of hypochlorite bleach for effluent disinfection:
     a. Forming toxic disinfection by-products
     b. Residual chlorine discharge
  2. The concentrating of the final effluent at low-flow periods which is likely decreasing dilution in the receiving water and altering exposure to animals near the outfall.

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Present Status

1. Recovery in progress
   a. Stations outside the mixing zone show normal communities
   b. Stations inside the mixing zone are still recovering
2. Recommendations from NWRI expert panel
3. Continued monitoring as part of OCSD's Ocean Monitoring Program
   - Biological Monitoring
   - Ocean Current Studies
     - Current Modeling Studies
     - Regional Efforts

Orange County Sanitation District

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Summary

- Animal populations changed or degraded near the outfall following effluent chlorination
- Multiple lines of evidence indicate effluent chlorination for disinfection as the primary cause
- Animal populations are in recovery with lessened chlorine use
- Toxic chlorination by-products still being produced, but in lower concentrations
- No additional human health benefit

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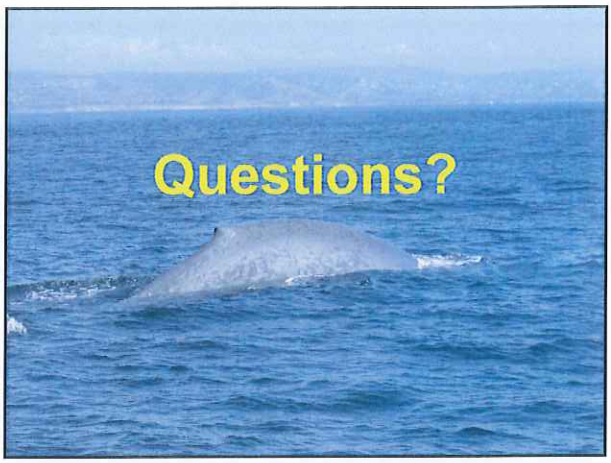

Impact of Orange County Sanitation District Wastewater Disinfection on Beach Water Quality

Presented to City of Newport Beach
May 8th, 2014

Presented By:
Dr. Samuel Choi
Orange County Sanitation District
Environmental Laboratory and Ocean Monitoring

Orange County Sanitation District — We're here for you.

OCSD Core and Regional Monitoring Program

21 coastal miles/38 stations

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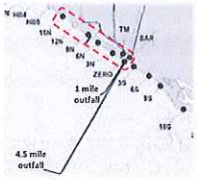
History of OCSD Beach Monitoring Program



Beach monitoring begins 1969

Summers of 1999 and 2000

- Large stretch of Huntington Beach closed or postings due to AB411 exceedances in enterococci bacteria (*FIB*)

Potential sources were investigated:

- Urban dry weather runoff
- OCSD ocean outfall
- Infrastructure
- HBGS - Huntington Beach Generating Station
- Bird droppings
- Groundwater transport (spring tides)

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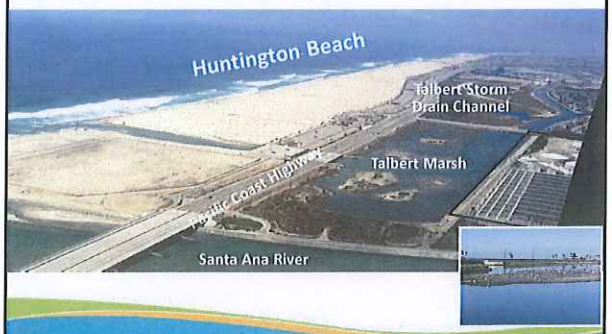
Huntington Beach: Potential Sources



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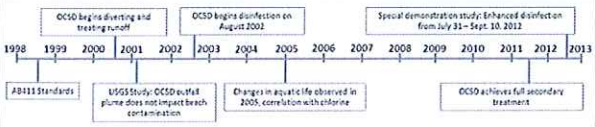
OCSD's Beach Monitoring



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Assessment of Disinfection on Beach Water Quality

After more than 10 years of disinfection:

- Environmental Laboratory and Ocean Monitoring has assessed bacteriological water quality data both at the beaches and in the offshore waters
- Determine if disinfection has had any impact or proved beneficial to improving beach water quality

Compare bacteriological data
Pre-disinfection and during disinfection
Temporally and spatially at beach stations

Special study
Land section and ocean outfall rehabilitation project
Enhanced disinfection from July 31st – October 2, 2012 (2 phases)
Phase 1: Pre-diversion (August 13th – Sept. 10th)
Phase 2: Diversion (Sept. 11th – Oct. 2nd)

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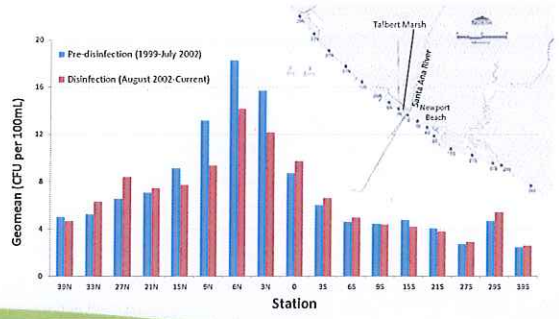
Enterococci



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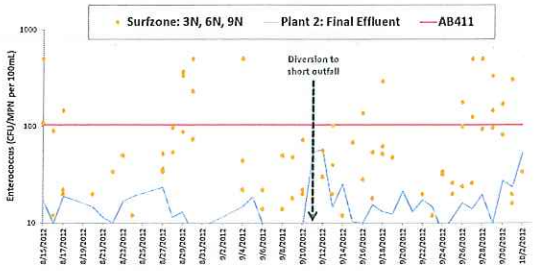
Enhanced Disinfected Final Effluent: Enterococci



- 4 effluent samples collected daily: 4am, 8am, 11am, 2pm
- Minimum Detection Limit: 10 MPN per 100mL

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Impact of Runoff on Huntington Beach

Past: 4 million gallons per day
Current: 10 million gallons per day

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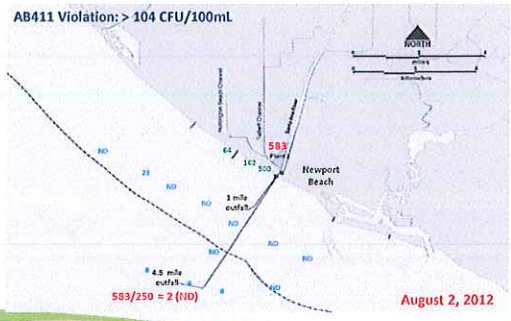
Special Study: Pre-diversion, Enhanced Disinfection



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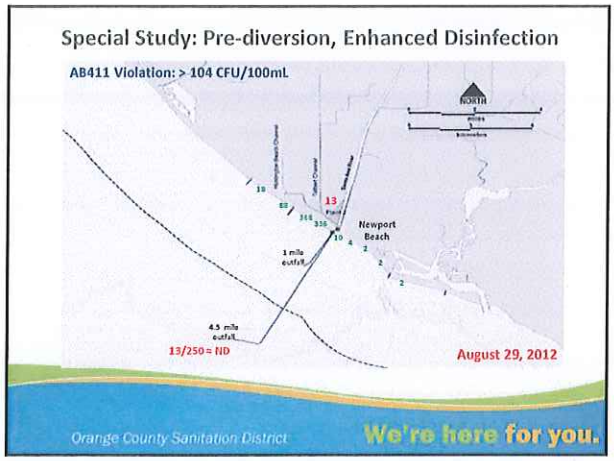
Special Study: Pre-diversion, Enhanced Disinfection
AB411 Violation: > 104 CFU/100mL
NORTH
Newport Beach
1 mile outfall
4.5 mile outfall
13/250 = ND
August 29, 2012
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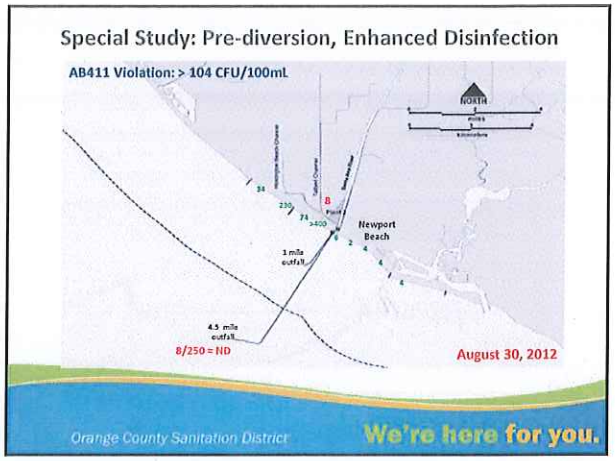
Special Study: Pre-diversion, Enhanced Disinfection
AB411 Violation: > 104 CFU/100mL
NORTH
Newport Beach
1 mile outfall
4.5 mile outfall
8/250 = ND
August 30, 2012
Orange County Sanitation District
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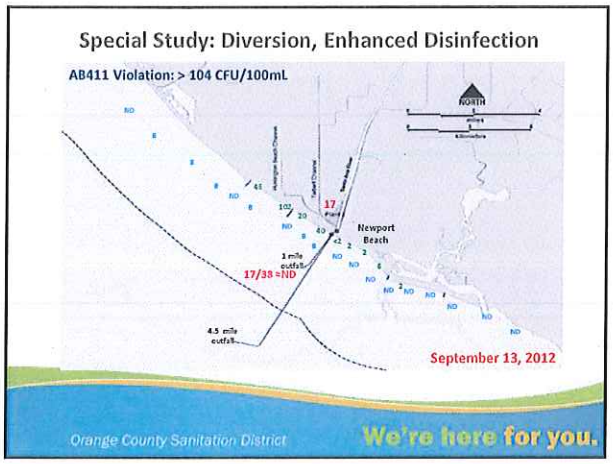
Special Study: Diversion, Enhanced Disinfection
AB411 Violation: > 104 CFU/100mL
NORTH
Newport Beach
1 mile outfall
17/38 = ND
4.5 mile outfall
September 13, 2012
Orange County Sanitation District
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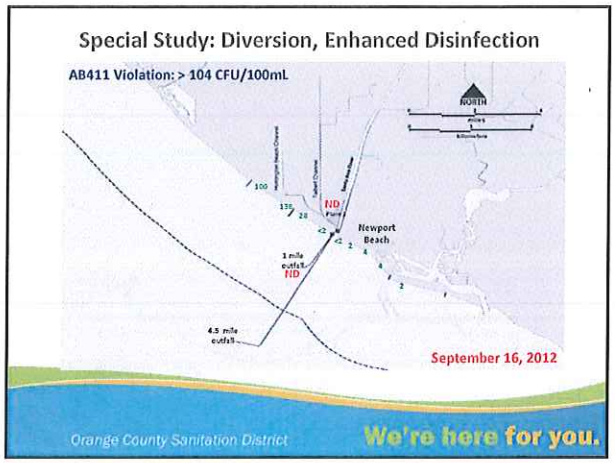
Special Study: Diversion, Enhanced Disinfection
AB411 Violation: > 104 CFU/100mL
NORTH
Newport Beach
1 mile outfall
ND
4.5 mile outfall
September 16, 2012
Orange County Sanitation District
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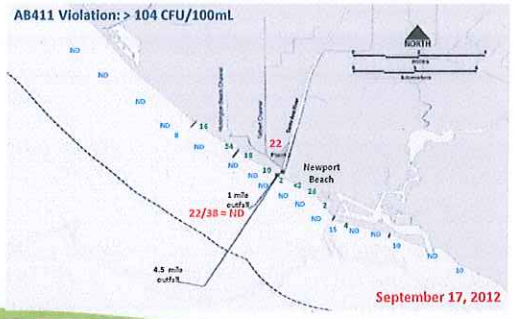
Special Study: Diversion, Enhanced Disinfection

AB411 Violation: > 104 CFU/100mL



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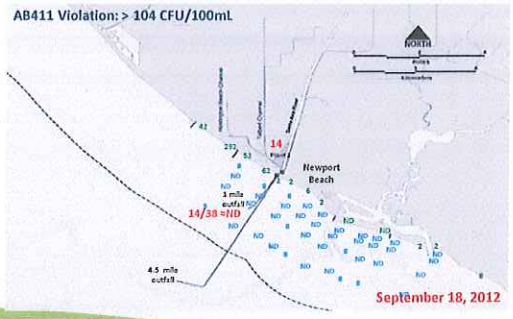
Special Study: Diversion, Enhanced Disinfection

AB411 Violation: > 104 CFU/100mL



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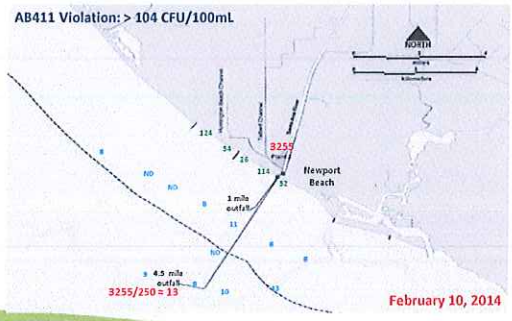
Operational Disinfection: Enterococci

AB411 Violation: > 104 CFU/100mL



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Summary

Our results support previous studies indicating:

- Discharge from OCSD outfall does not impact beach water quality
- Local and natural source(s) is causing infrequent high levels of enterococci bacteria and AB411 violations at Huntington Beach, CA
- Disinfection has no benefit in improving beach water quality

OCSD continues to provide utmost levels of service by going beyond our charter:

- Expanded beach monitoring program by adopting regional beach stations
  - Orange County Health Care Agency and Orange County Public Works
  - Increased from 17 to 38 stations (>2000 additional samples annually)
- Accepting up to 10 MGD of runoff with no additional to cities we serve
- Actively participates in developing and validating advanced methods such as molecular (DNA) methods
  - Southern California Coastal Water Research Project (SCCWRP)
  - United States Environmental Protection Agency (USEPA)
- In 2013, Orange County beaches received A to A+ grades across most monitored stations during summer-dry months (April-October) – *Heal the Bay*

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Questions?

OCSD's Mission

"We protect public health and the environment by providing effective wastewater collection, treatment, and recycling."

Orange County Sanitation District **We're here for you.**