

# **CITY OF IMPERIAL BEACH PALM AVENUE LOW-FLOW URBAN RUNOFF DIVERSION PROJECT**

## **FINAL REPORT**

**January 20, 2010**

**Proposition 50  
Grant Agreement No. # 07-575-550-0**

**Clean Beaches Initiative Program**

**Prepared For:**



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# Executive Summary

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## ES.1 Project Description and Purpose

This project was envisioned as a way to eliminate the urban runoff and first-flush source of bacterial contamination to the City's beaches in the vicinity of Palm Avenue and to reduce the number of beach closure events and days during dry weather. The Palm Avenue Low-Flow Urban Runoff Diversion Project (Palm Avenue Diverter) consists of the construction of storm drain to sanitary sewer diversion structure that eliminates the discharge to the Pacific Ocean of low-flow urban runoff and first-flush flows during a storm event.

The construction phase was followed by an 11-month water quality monitoring phase that documents the bacteria levels and flows of urban runoff diverted to the sanitary sewer.

The City of Imperial Beach has prepared this report to present its water quality monitoring findings on the Palm Avenue Low-Flow Urban Runoff Diversion Project from January 1 through December 1, 2009.

This report summarizes the City's last project funded by the State Water Resources Control Board Grant Program under Proposition 50 Clean Beaches and consists of water quality monitoring data results, interpretation of data, information on the project's status, highlights and results of quality control assessments, internal review and project achievements. The monitoring efforts were conducted by the City of Imperial Beach through its consultant PBS&J, an environmental and engineering consulting firm, pursuant to grant agreement number 07-575-550-0 between the State Water Resources Control Board (State Water Board) and the City of Imperial Beach (City).

## ES.2 Effectiveness and Benefits

- Bacterial data collected during the monitoring phase shows that, in the absence of the Palm Avenue Diverter, low-flow urban runoff and first-flush stormwater with high levels of bacteria would have been discharged to the receiving waters.
- Comparison of the concentration of bacteria in the wet well with the AB411 water quality benchmarks indicates that for total coliform 98% of the samples exceeded benchmarks, and for *Enterococcus* 91% of the readings exceeded the benchmarks.
- Data analysis shows that 100% of the samples collected at the diverter wet well exceeded at least one of the bacterial indicator benchmarks.
- The Palm Avenue Diverter directs an average of 23,000 gallons per month of urban runoff to the sanitary sewer.
- Only the Carnation Avenue receiving water sampling station had exceedances of bacterial indicators during the project's monitoring period. On February 17 and 18, 2009, during a storm event greater than 1/10<sup>th</sup> of an inch, when the diverter operated in storm discharge mode, water quality exceeded AB411 benchmarks. During the same period,

the southern-most sampling location at Seacoast Drive also provides evidence of high bacteria levels likely originating from other sources including the Tijuana River Valley and Mexico.

- This project was successful in combining access to recreation, aesthetic improvements, public infrastructure, and water quality benefits. It received the “Project of the Year” award from the San Diego & Imperial Counties Section of the American Public Works Association (APWA).

### **ES.3 Involved Public Agency/Private Partners**

- State Water Resources Control Board (SWRCB)
- Port of San Diego
- City of Imperial Beach

### **ES.4 Additional Information**

Total Project Cost: \$1.54 million with \$1.292 million from the SWRCB

Project Funding Source(s): SWRCB Proposition 50 – Clean Beaches Initiative Grant, Port of San Diego and the City of Imperial Beach.

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# Section 1

## Introduction and Overview

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The City of Imperial Beach has prepared this report to present its water quality monitoring findings on the Palm Avenue Low-Flow Urban Runoff Diversion Project from January 1 through December 1, 2009.

This report summarizes the last phase of the State Water Resources Control Board (SWRCB) Grant Program project under Proposition 50 Clean Beaches Initiative and consists of water quality monitoring data results, interpretation of data, information on the project's status, highlights and results of quality control assessments, internal review and project achievements. The monitoring efforts were conducted by the City of Imperial Beach through its consultant PBS&J, an environmental and engineering consulting firm, pursuant to grant agreement number 07-575-550-0 between the State Water Resources Control Board (State Water Board) and the City of Imperial Beach (City).

### 1.1 Problem Statement and Existing Conditions

This project was envisioned as a way to eliminate the urban runoff and first-flush sources of bacterial contamination to the City's beaches in the vicinity of Palm Avenue and to reduce the number of beach closure events and days during dry weather. The Palm Avenue Low-Flow Urban Runoff Diversion Project (Palm Avenue Diverter) consists of the construction of a storm drain to sanitary sewer diversion structure that when completed eliminates the discharge to the Pacific Ocean beaches of low-flow urban runoff and the first-flush flows during storm events. The construction phase was followed by an 11-month water quality monitoring phase that documents the bacteria levels and flows of urban runoff diverted to the sanitary sewer. This report summarizes the water quality monitoring data and data analysis.

**Figure 1. Old pump station at the end of Palm Avenue**



Studies have shown that one significant source of bacteria is urban runoff flowing into storm drains that eventually discharge onto beaches. Diversion projects have proven successful in reducing trash, sediment and bacteria loading to beaches within their respective drainage basins. To reduce bacteria loading to the City's beaches, the City of Imperial Beach constructed a low-flow diversion project that diverts 100% of the dry weather flows from

approximately 72 acres of mixed residential and commercial zoned land. Prior to completion of the Palm Avenue Diverter, urban runoff flows entered a pump station and wet well designed to

pump the collected waters directly to the Pacific Ocean (Figure 1). During dry weather periods, the old station was turned off and 16,000 to 20,000 gallons of urban runoff were collected per week and pumped using portable pumps and hoses into the sewer system.

In conclusion, the project's monitoring plan was designed to answer these study questions:

- What are the characteristics of urban runoff diverted from the receiving waters during dry weather through the low-flow urban runoff diverter and to the sanitary sewer?
- What volume of contaminated urban runoff flow was diverted to the sanitary sewer?
- What level of bacterial contamination is found in the diverted flows?
- What improvements in water quality of the receiving waters can be quantified as a result of implementing the Palm Avenue Low-Flow Urban Runoff Diversion Project?

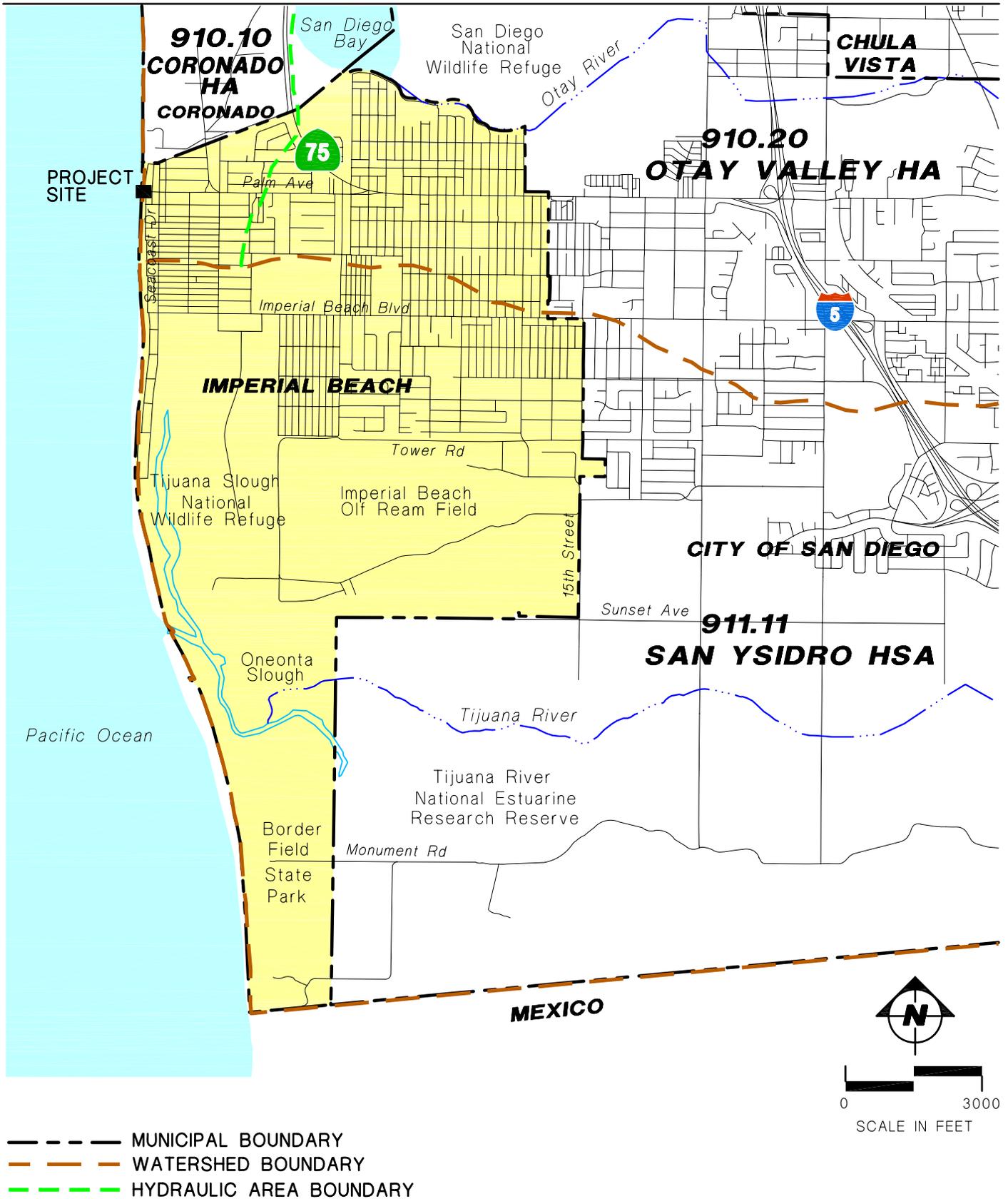
## 1.2 Geographical Setting

The City of Imperial Beach boundaries are to the north with the City of Coronado, San Diego Bay and the San Diego National Wildlife Refuge; to the south the international border with Mexico, and the Tijuana River National Estuarine Research Reserve; to the west the Pacific Ocean; and to the east the City of San Diego as shown in Figure 2. The project is located on the southwest end of the Otay Hydrologic Unit (910.00) and just north of the Tijuana Hydrologic Unit (911.00); as shown in Figure 2. The northeast and east portions of the City of Imperial Beach are located within the Otay Valley hydrologic area (910.20). This hydrologic area includes drainage from the Otay River that empties into San Diego Bay and the San Diego National Wildlife Refuge along the northern edge of the City. The hydraulic area for the project site is Coronado (910.10) which generally drains to the west to the Pacific Ocean as shown in Figure 2.

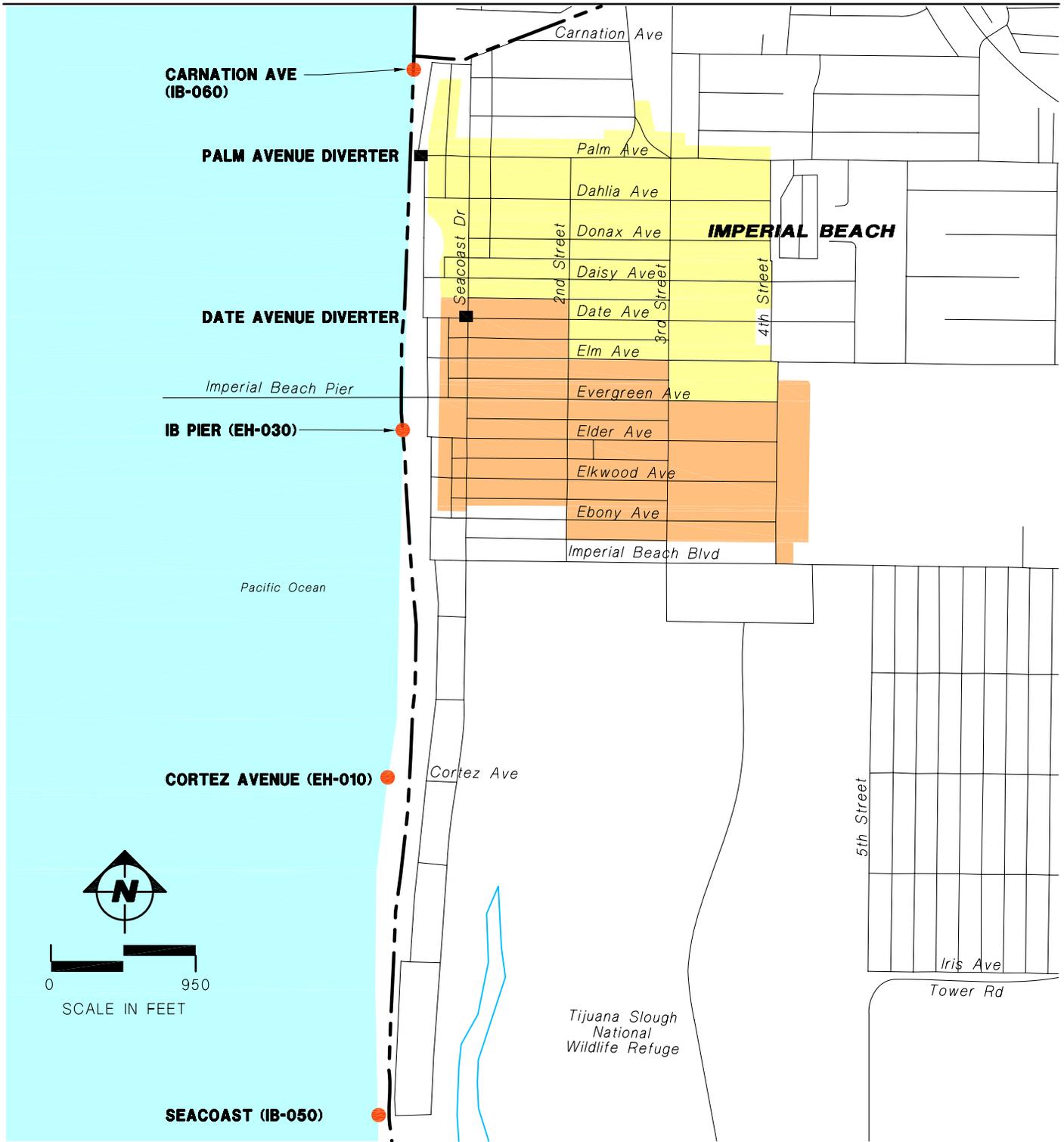
The Palm Avenue Diverter is located at the west end of Palm Avenue at Seacoast Drive in the City of Imperial Beach. The structure is at the end of the Palm Avenue drainage basin and the storm drain collection system. The other City diverter is located just south at the end of Date Avenue as shown in Figure 3.

The City of Imperial Beach jurisdiction covers 4.5 square miles or 2,880 acres of which approximately 60% is urbanized area and 40% is reserved for open space, parkland, and other conservation related uses. The City's urban areas are predominately residential and light commercial land use of which approximately 72 acres are in the drainage and storm drain system that connects to the outfall at the end of Palm Avenue. The Palm Avenue Diverter accounts for diversion of a significant portion of the City's low-flow urban runoff and first-flush stormwater to the Pacific Ocean

The surrounding area in the immediate vicinity of the project site is urban without habitat. Beneficial uses for the Pacific Ocean as defined in the San Diego Basin Plan (San Diego Basin Plan, Chapter 2) are: Industrial Service Supply (IND); Navigation (NAV); Contact Water Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial and Sports Fishing (COMM); Preservation of Biological Habitats of Special Significance (BIOL); Wildlife Habitat (WILD); Rare, Threatened, or Endangered Species (RARE); Marine Habitat (MAR); Aquaculture (AQUA); Migration of Aquatic Organism (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Shellfish Harvesting (SHELL).



**Figure 2. Project Location Map**



- MUNICIPAL BOUNDARY
- PALM DRAINAGE BASIN
- DATE DRAINAGE BASIN

**Figure 3. Diverter drainage basins and monitoring site locations**

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## Section 2 Project Summary

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### 2.1 Project's Objective

The Palm Avenue Diverter project consists of an automatic 250 gallons per minute low-flow urban runoff diverter system constructed at the Palm Avenue curb inlet to divert low-flow urban runoff and first-flush stormwater to the sanitary sewer system to prevent potential beach and Pacific Ocean contamination from the City's storm drain infrastructure. During wet weather the diverter system allows stormwater flows to be discharged to the storm drain system outfall located just west of the diverter system to the Pacific Ocean. To assess the pollutant load diverted to the sanitary sewer system from the storm drain system and ultimately the receiving waters an 11-month water quality monitoring program was conducted. Samples were collected on a weekly basis and analyzed for bacterial indicators. Also, visual observations and field measurements were collected on a weekly basis at the wet well, which is part of the diverter system, from January 6<sup>th</sup> through December 1<sup>st</sup>, 2009 to evaluate the quantity and quality of nuisance urban runoff diverted by the Palm Avenue Low-Flow Urban Runoff Diverter.

The bacteria levels along with the estimated volume of diverted urban runoff will be used to estimate the bacteria loading from the storm drain system outfall, which would have been directed to the Pacific Ocean, in the absence of the diverter system. The number of averted beach closure events and days will also be estimated.

### 2.2 Project History

The City of Imperial Beach was experiencing a significant number of beach closures as a result of high concentrations of indicator bacteria (Figure 4). For example, the beach was closed thirty-nine (39) times in the year 2000, with over half of the closures occurring during dry summer months when beach attendance is at a peak.

When this project was proposed in 2001, it was difficult to assess how local urban runoff and non-local sources interacted to contribute to the City's beach contamination problems. Statistics on beach closures suggest that the sources and physical transport processes in this region were many and complex. The need to examine and continuously monitor potential sources of bacteria was identified as an important first step, which over time would facilitate a solution to beach closures. Thus, the City obtained Proposition 13 Clean Beach Initiative (CBI) and later Proposition 50 Clean Beaches Grant program funds for three projects designed to enhance its understanding of the issue, and

Figure 4. Beach closure sign



to initiate the process of eliminating some of the known sources of pollution. The first project to be completed was the South Bay Coastal Ocean Observing System, which was designed to provide real time measurements of key oceanographic parameters relevant to understanding the complex coastal transport mechanisms present in the oceanographic region. The other two projects were designed to divert low-flow urban runoff into the sanitary sewer system.

This report focuses on the Palm Avenue Low-Flow Urban Runoff Diversion Project located at the intersection of Palm Avenue and Seacoast Drive which is the third of the three projects. Its purpose is to eliminate a local source from the myriad of potential sources of bacterial contamination to coastal waters in Imperial Beach.

The Palm Ave diverter pump station and storm drain improvements route urban low flows and first flush rain water into the sanitary sewer system through a four-inch PVC connection. When runoff during storm events exceed the capacity of the 250 gallons per minute diverter jockey pump, then the storm water is routed to an outfall at the end of Palm Avenue that discharges into the Pacific Ocean. Major construction of the Palm Avenue Diverter was completed in December 2008 with minor construction and electrical system troubleshooting completed in June 2009. Water quality sampling was initiated in January 2009. Water quality measurements and samples of the urban runoff water were taken for approximately one year on a weekly basis such that the quantity and quality of diverted and contaminated runoff could be assessed.

### 2.3 Baseline Water Quality

Although data collection and interpretation by third parties has varied throughout the years, the concern of beach closures and postings continued from 2001 through 2007 with closure events ranging from 8 to 20 per year, and the total number of beach closure days ranging from 17 in 2002 to a high of 85 in 2005. In some cases, beach closures were likely due to urban runoff and rain event flows from the Tijuana River Valley and Mexico, which reach the coastline of Imperial Beach due to northerly currents in the Pacific Ocean. Beach closure events in the dry weather period from April 1 through September 30 are shown in Table 1. Beach closure days range from a minimum of 8 in 2004 to a maximum of 25 in both 2003 and 2006.

**Table 1. Beach closure events and days (County of San Diego)**

Year	Beach Closure Events	Total Beach Closure Days	Beach Closure Events (4/1 – 9/30)	Beach Closure Days (4/1 – 9/30)
2001	11	63	8	24
2002	8	17	4	10
2003	14	72	7	25
2004	12	64	3	8
2005	14	85	3	23
2006	20	56	10	25
2007	20	38	7	9

## 2.4 Potential Source Categories

The City identified various potential sources of bacterial contamination to its beaches in the late 1990's and early 2000, and developed various project proposals to verify and quantify the sources. The City's ultimate goal being the elimination of as many sources it could control or manage in order to increase the number of days beaches are available to the public for recreational swimming and other activities.

Although studies have identified the Tijuana River and Mexico as significant sources of beach contamination, especially during wet weather, the City installed two low-flow urban runoff and first-flush diversion systems over the last five years to eliminate dry weather flows. The first one was completed in October 2004 at the Date Avenue outfall to the Pacific Ocean which resulted in the removal of one source of bacterial contamination. The City's second project was funded by the Proposition 50 Clean Beaches Grant program to eliminate the last major known source of bacterial

**Figure 5. Imperial Beach Pier**



pollution from the Palm Avenue drainage basin which is under the City's control. The installation of the second diverter structure at Palm Avenue was designed to remove most of the remaining urban runoff discharges with bacterial and other pollutants the Pacific Ocean beaches fronting Imperial Beach (Figure 5).

## 2.5 Funding Program

The \$3 million Palm Avenue Street End Project, which includes the Palm Avenue Low-Flow Urban Runoff Diverter Project, was jointly funded by the Port of San Diego and the City of Imperial Beach, with assistance from the SWRCB Proposition 50 Clean Beaches Initiative (CBI) Grant Program. The grant funding was obtained through an agreement between the SWRCB and the City of Imperial Beach. The total construction cost and post-construction water quality monitoring cost for the Palm Avenue Diverter Project was approximately \$1.54 million (Table 2).

**Table 2. Palm Avenue Diverter project funding summary**

	Planning*	Design	Construction	Monitoring	O& M Annual
Project Cost					
CBI – Grant			\$1,247,000	\$45,000	
Other (specify)					
Local Match (Port of San Diego)			\$247,000		

\* Includes environmental document, permitting and right of way

## 2.6 Project timeline and funding

In 2001, the City was originally awarded \$500,000 in SWRCB grant funds under Proposition 13 to build the Palm Avenue Diverter. The project would have been completed as originally scheduled around the same time as the Date Avenue Diverter project which was completed in 2005. The Palm Avenue Diverter project was delayed for five years pending the outcome of CEQA litigation unrelated to the diversion project itself. Once the legal issues were resolved, the project was given the go-ahead in July 2006, but there was insufficient time to complete the construction and post-construction water quality monitoring by the March 2008 deadline established in the grant agreement between the City and the SWRCB. In addition, the construction costs for the Palm Avenue Diverter had increased significantly beyond the original \$500,000 costs estimate from 2001.

The City arranged with the SWRCB to forgo the 2001 funding under the Proposition 13 Clean Beaches Initiative (CBI) grant program and was advised by SWRCB staff to apply under Proposition 50 CBI grant funds with the up-to-date cost estimate of \$1.292 million dollars.

The final grant award amount for the project from the SWRCB was \$1.292 million dollars as originally requested by the City with matching funds provided by the Port of San Diego in the amount of \$247,000.

## Section 3

# Project Activities, Tasks and Schedule of Completion

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The Palm Avenue Diverter Project was part of the larger capital improvements in the Palm Avenue Street End project, a nearly \$3 million public works project in the City of Imperial Beach.

The multi-faceted project transformed the end of Palm Avenue at the oceanfront of Imperial Beach into a park-like setting. It also includes important environmental and safety features. A new stormwater pump station with a built-in diversion system was installed to reduce urban runoff onto the beach. Other enhancements include the installation of ramps from the street end to the beach, providing direct beach access for emergency vehicles and individuals with

**Figure 7. Main art piece:  
“The Spirit of Imperial Beach”**



**Figure 6. Palm Avenue and Diverter during final stages of construction**



disabilities. Traffic improvements from the project included a new turnaround, which allows two-way traffic. Perpendicular parking was added to both sides of the street. The project also includes public art. The plaza became the site for an 18-foot tall bronze sculpture of a surfer and his longboard. Titled “The Spirit of Imperial Beach,” the artwork was created by the late A. Wasil and epitomizes the surf culture of the oceanfront city.

Reyes Construction was the contractor on the project and AECOM Transportation was the designer. Construction on the project began in May, 2008 and was completed in June, 2009. Water quality monitoring was initiated on January 6, 2009 and ended on December 1, 2009.

The full Table of Items for Review found on page five of Agreement No. 07-575-550-0 between the City of Imperial Beach and the SWRCB is included as Table 3 in this report.

**Table 3. Table of items for review**

Item	Description	Critical Due Date	Estimated Due Date
<b>Exhibit A – Scope of Work</b>			
A.	PLANS AND COMPLIANCE REQUIREMENTS		
1.	GPS information for Project site and monitoring locations	May 2007	
2.	Project Assessment and Evaluation Plan (PAEP)	June 2007	
3.	Monitoring Plan (MP)	Day 90	
4.	Quality Assurance Project Plan (QAPP)	Day 90	
5.	Copy of final CEQA/NEPA documentation	June 2007	
6.	Land Owner Agreement(s)	NA	NA
7.	Applicable permits (including Army Corps of Engineers Permit and 401 Water Quality Certification)		March 2008
B.	WORK TO BE PREFORMED BY GRANTEE		
1.3	As-advertised construction documents		February 2008
1.5	Bid summary, proof of advertising, and construction notice to proceed		April 2008
2.1	Final project design		February 2008
3.2	Photo documentation of construction work at all phases		October 2008
<b>Exhibit B – Invoicing, Budget Detail, and Reporting Provisions</b>			
A.	INVOICING		Quarterly
E.	REPORTS		
1.	Grant summary form	Day 90	
2.	Progress reports by the twentieth (20 <sup>th</sup> ) of the month following the end of the calendar quarter (March, June, September, and December)		Quarterly
3.	Natural Resource Project Inventory (NRPI) Project Survey Form	Before final invoice	
4.	Draft project report	1/1/10	
5.	Final project report	2/1/10	

The project schedule and project tasks, as shown in the above table, will be completed with the submittal of this final project report and the City will have then met its obligations under the CBI grant funding agreement for the Palm Avenue Low-Flow Urban Runoff Diverter Project. This final project report has been prepared to satisfy items 4 and 5 in Exhibit B of the Table of Items to Review (Table 3). Figure 8 below shows a typical construction phase project schedule as prepared by the construction contractor.

Figure 8. Sample construction phase project schedule

		LOOK AHEAD SCHEDULE																																		
REYES CONSTRUCTION, INC. PALM AVENUE STREET END IMPROVEMENTS CONTRACT NO. 2007-31		CONSTRUCTION SCHEDULE 14																												Current Date: 8/19/2008 Oscar Ojeda						
Item	Description	Aug 08														Sept 08														COMMENTS						
		M	T	W	TH	F	S	S	M	T	W	TH	F	S	S	M	T	W	TH	F	S	S	M	T	W	TH	F	S	S							
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7							
1	Seawall - Env Monitoring						X	X													X	X														
2	Seawall - Vibration Monitoring	X	X	X	X																															Completed end of 08-14
3	Seawall - Sheet Pile Install		X	X	X																															8-9 & 8-11: Repair Pile Rig
4	Seawall - Rebar & Welding								X	X	X	X			X																					
5	Seawall - Forming															X	X	X	X	X																
6	Seawall - Pour																				X															
7	Pump Station - CMX23 Card																																			07/24: Tune New Card
8	Pump Station - Dewatering	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	7/18: Switched to 7 HP Sub Pmps
9	PS Wall1 - Form Inside	X	X																																	
10	PS Wall1 - Rebar & Waterstop	X	X	X	X	X																														
11	PS Wall1 - Form Outside			X	X	X																														
12	PS Wall1 - Pour (to Elev +8.40)								X																											
13	PS Wall1 - Cure Concrete								X	X	X	X	X	X	X																					
14	PS Wall1 - Waterproofing															X	X																			
15	PS Wall1 - Waterproofing Cure															X	X	X	X	X	X	X														
16	Backfill & Remove Lower Shoring																										X	X	X	X	X					
17	SWPPP Check & BMPs					X						X				x				X													X			Field Mtg URS August 5 & 26
	Utilities:																																			
1	SDG&E Coordination Meeting																																			Port
2	OLD PLANK - SDG&E and AT&T Site Work																																			Port Direction to Reyes
3	Calif Am Water - CP to remove Exg Line																																			Work: Done Week of June 30
4	Cap Sewer Closer to Main																																			

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## Section 4

# Project Implementation and Improvements

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The construction phase of the project initiated with a notice to proceed on May 7, 2008 and was completed on June 12, 2009. The majority of the construction work was finalized by January 1, 2009 with pump and diverter, and electrical system troubleshooting, landscaping, and other minor work taking place between January and June 2009.

The construction site was located the west end of Palm Avenue at the intersection with Seacoast Drive as show in the figures below. The installation of the Palm Avenue Diverter, as noted earlier in Section 1, allows low-flow urban runoff and first-flush stormwater to be directed to the sanitary sewer instead of discharging directly to the beach at the Pacific Ocean. The Palm Avenue Diverter project was part of a larger capital improvement project for the Palm Avenue street end which included improvements to the street, sidewalks, beach access, parking and drainage (Figure 9). Overall, beach safety was improved both in the water through the removal (diversion) of a pollutant source and in the surrounding area through infrastructure improvements as shown in the pre- and post-construction photos that follow.

**Figure 9. Artist's rendering of the Palm Avenue street end improvements**



The project site improvements include the storm drain system, the sanitary sewer system, and the installation of the 250 gallon per minute capacity pumping system with a wet well. The entire diversion system with the exception of the electrical control panel is located underground in the street end of Palm Avenue. As depicted in Figure 9 and in the photographs included later in this section, the Palm Avenue street improvements have many unique aesthetic components, and the water quality improvement system is invisible to the general public due to its location underground.

The Palm Avenue Diverter system is designed to operate in the sanitary sewer mode during dry weather and during the first flush of storm events in order to eliminate the discharge to the receiving waters at the beach of the Pacific Ocean. During wet weather, the system is designed to allow storm flows from the Palm Avenue drainage area to discharge directly to the Pacific Ocean via the outfall at the end of the street.

The final project construction includes a diverter system, new pump station, new wet well, new ocean outfall for non-diverted water and associated piping. The structure is designed to divert up to 250 gallons per minute of urban nuisance runoff water and first-flush stormwater to the

sanitary sewer system. The Palm Avenue Diverter is fed by four curb inlets and 15 grated drains. The inlets drain approximately 72.1 acres of residential and light commercial land uses as shown in Figure 3. Prior to the construction of the Palm Ave Diverter, all flows from these inlets discharged directly onto the beach. Operating at maximum capacity, the Palm Ave diverter can divert flows up to 250 gallons per minute into the sanitary sewer. Surface water flows are collected from the inlets to an 18-inch and a 30-inch reinforced concrete drainage (RCP) pipes that discharge flows into a storm drain wet well. The wet well and 30" pipe have the capability to store up to 3,260 cubic feet of stormwater before the stormwater pumps turn on. The first flush of stormwater runoff is diverted, with additional storm flows discharged to the beach via a diffuser vault at the end of a new concrete pipe, where it is dispersed onto the riprap embankment.

The completion of the Palm Avenue Diverter project is the third and last component of the City's original vision and plan to minimize urban runoff and nuisance discharges to the beach and Pacific Ocean. The project has allowed for improved water quality, and a better understanding of the sources and factors that affect beach posting and closures.

The operation of the Palm and Date Avenue basin diverters covers approximately 137.2 acres of land and collects low-flow urban runoff that is diverted before reaching the beach. The only coastal outfall in Imperial Beach not on a diverter system is at the Ebony Street end, which consists of a 12 inch outfall and drains a residential area of 2.2 acres.

#### 4.1 Pre-Construction Project Site Description and Photos

Figures 10 through 15 are pre-construction photos that show the appearance of the west end of Palm Avenue on April 10 and 26, 2008. As seen in the figures, the street end consisted of limited vehicle access and parking, limited beach access (Figures 11 and 15) that included a steep drop-off from an abandoned concrete pad on the west and north sides with very limited safety features for emergency vehicles, pedestrians or beach patrons. The discharge from the storm drain pipe at the end of the street regularly resulted in beach closures and postings.

**Figure 10. Project sign at the end of Palm Avenue**



Figure 11. Western end of Palm Avenue looking southwest



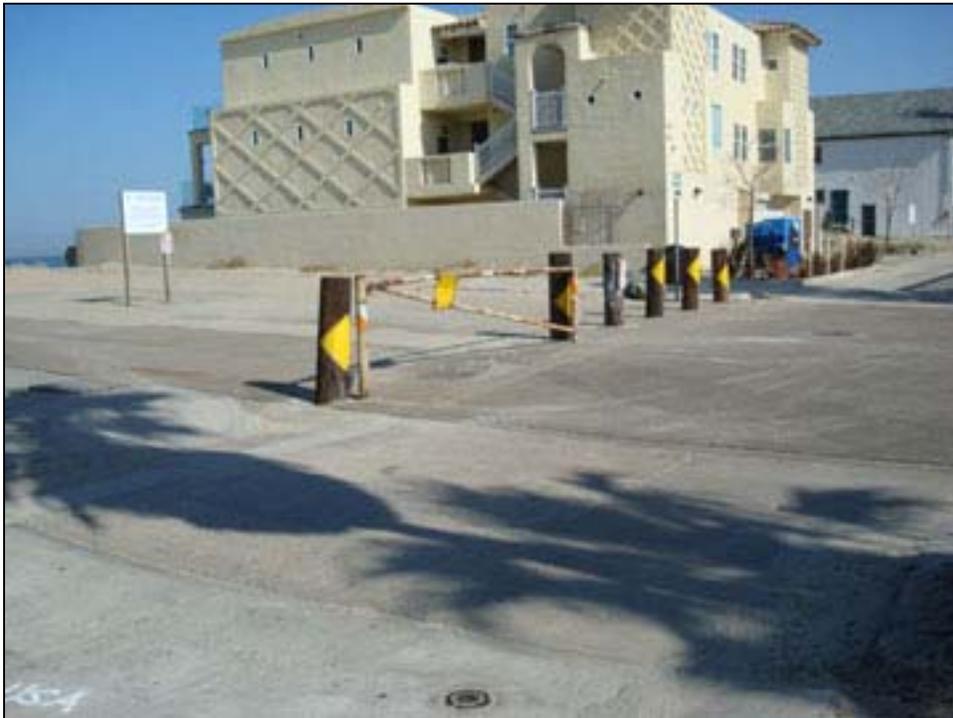
Figure 12. Corner of Palm Avenue and Seacoast Drive



Figure 13. Western end of Palm Avenue looking east



Figure 14. Palm Avenue street end looking north



**Figure 15. End of street looking toward the Pacific Ocean**



#### **4.2 Construction Phase Description and Photos**

Construction was initiated with a notice to proceed to the selected construction contractor in May 2008. Figures 16 through 26 provide select photos taken at the project site during the construction phase from June through December 2009. The photos include views of the construction of the wet well wall and diversion structure during excavation, the installation of the sheet pilings for the retaining wall at the west end of the street. Figures 23 through 26 document the installation of new storm drain piping, final grading at the street, and improved pedestrian walkways and sidewalks.

Figure 16. Initial grading at the end of Palm Avenue



Figure 17. Wet well initial construction and dewatering



Figure 18. Sheet pile view



Figure 19. Sheet pile driving



Figure 20. Pump station excavation and construction



Figure 21. Pipes to be installed



Figure 22. Rebar for pump station structure



Figure 23. Pipeline replacement and construction



Figure 24. Final grading



Figure 25. Plaza and street finishing



**Figure 26. Sidewalk improvements**

#### 4.3 Post-Construction Description and Photos

Photos in Figures 27 through 33 were taken after construction was completed. Figure 27 was taken during the dedication ceremony on January 2, 2009. The other figures show the finished look of the walkway, retaining wall, and pedestrian friendly Palm Avenue street end. Final project photos also show the art work, street lighting and landscaping included as part of the capital improvement project. The covers to the vaults that make up the Palm Avenue Diverter system are shown in Figure 32 and the underground diversion system located inside vaults with hinged doors that provide access for maintenance, repair and water sampling. A spigot system that was designed and installed to facilitate bacteria sampling from the diverter pump at grade level did not work as designed or intended. Post construction modifications also did not result in a suitable bacteria sampling system. For the purposes of this monitoring study samples were taken by dipping a sample bottle attached to extension pole lowered directly into the wet well.

**Figure 27. Dedication – January 2, 2009**

Figure 28. Palm Avenue street end with art work



Figure 29. Wet well open during sampling event



Figure 30. Wide view of Palm Avenue street end



Figure 31. Diverter structure with covers open



Figure 32. Diverter structure with covers in closed position



Figure 33. End of Palm Avenue



## Section 5

# Monitoring Program and Sample Collection

---

### 5.1 Sample Collection Strategy and Schedule

The City prepared a Quality Assurance Project Plan and Monitoring Plan (QAPP) for the Palm Avenue Diverter project which was completed in November 2008, and approved and signed prior to commencing the water quality monitoring activities. A copy of the project's QAPP can be found in Appendix C.

Weekly monitoring of the quantity and quality of runoff diverted to the sanitary sewer system was conducted to assess the bacterial levels diverted from entering the beaches at the Pacific Ocean. During the planned an 11-month monitoring of the Palm Avenue Diverter, only three weekly samplings events were cancelled due to ongoing maintenance activities preventing a representative sample from being collected. Those were March 3, May 5, and May 12. Two monitoring events were canceled in February 2009 due to storm events. A total of 43 sampling events were conducted over the course of 11 months.

Prior to sample collection, the sampling site was restricted with traffic cones for pedestrian safety. Bacteria samples and visual observations were taken at the wet well, which is part of the diverter system. During the project the flow meter and the spigot designed to draw a sample from the diverter flow had operational difficulties and it was decided early on to continue to collect samples from the diverter wet well for consistency.

Samples for bacteriological testing were collected every Tuesday morning from the diverter system wet well to coincide with sampling in the Pacific Ocean performed by other agencies. The samples were collected from the wet well using a long sampling pole and by dipping the collection bottle into the wet well and filling the bottle with water from the wet well (Figure 34). A 100ml prepared plastic sample container with 30 mg of sodium thiosulfate preservative was used. Samples were placed on ice immediately after collection and transported to EnviroMatrix Analytical (EMA) Laboratory within the holding time limit of 6 hours. Visual observations of the sampling site were recorded and documented with photographs during each sampling event. A totalizing flow meter was installed as part of the diverter system, but was found to be inoperable after the first few weeks of monitoring. An alternative method of estimating the flow started in March 2009 and was continued through the end of the project. This facilitated estimating the volume of dry weather flow diverted into the sewer by using the pump run time and the known pump capacity of 250 gallons per minute.

**Figure 34. Sampling with long pole at the diverter structure wet well**

The post-construction water quality monitoring was carried out for approximately one year from January through December 2009 following completion of the construction of the diverter. Beach advisory and closure data were obtained from the County of San Diego Department of Environmental Health to determine changes in the number of beach postings and closures upcoast (Carnation Avenue station) and downcoast (Imperial Beach Pier station) of Palm Avenue during dry weather conditions. In addition, sampling locations associated with the South Bay International Wastewater Treatment Plant located in San Ysidro, California were also reviewed. Sampling locations relative to the project site are shown in Figure 3.

#### Water Quality Analysis and Field Screening Observations

Field crews recorded on-site measurements of the following key water quality parameters on a weekly basis:

- Odor
- Color
- Floatables
- Water clarity
- Specific conductance (mS/cm)
- Temperature (Celsius)
- pH

Miscellaneous data

- Weather and rain event information
- Flow measurements
- Photographs

Laboratory Analytical Monitoring

- *Enterococcus* bacteria
- Total coliform bacteria
- *E. coli* (fecal coliform)

As stated in the QAPP, data quality objectives (DQOs) for bacteriological testing are summarized in the table below. Whenever possible, the method with the greatest sensitivity and lowest detection limit was employed as the primary method. Specific DQOs are not given for the flow monitoring. These data were continuously evaluated to ascertain their validity and usefulness.

**Table 4. Data quality objectives for biological parameters**

Parameter	Method/ Range	Units	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
Total Coliform Bacteria	Colilert 18 hour	MPN/ 100ml	10	IDEXX quantitray tables	Duplicates within 95% confidence limits	Positive standard within ½ of an order of magnitude	80%
<i>E. coli</i> Bacteria	Colilert 18 hour	MPN/ 100ml	10	IDEXX quantitray tables	Duplicates within 95% confidence limits	Positive standard within ½ of an order of magnitude	80%
<i>Enterococcus</i> Bacteria	Enterolert 24 hour	MPN/ 100ml	10	IDEXX quantitray tables	Duplicates within 95% confidence limits	Positive standard within ½ of an order of magnitude	80%

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## Section 6

# Data Quality Assessment: Verification and Evaluation

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As described in Elements 9 through 18 of the QAPP, all field results were recorded at the time of collection using the established field data sheets. Data sheets were reviewed for outliers and omissions before leaving the sample site and signed after review by the team captain. Data sheets were stored in hard copy form at the location specified and scanned electronically for storage in the project's database and electronic files. Field data sheets will be archived for three years from the time they were collected. Hard copies of all data, as well as computer back-up disks, will be maintained at City Department of Public Works offices and by the consultant PBS&J.

The team captain reviewed and identified any results where holding times were exceeded, sample identification information was incorrect, samples were inappropriately handled, or calibration information was missing or inadequate. Such data were marked as unacceptable by the team captain and were discussed with the quality assurance manager/project manager to arrive at a solution on whether data points would be entered into the electronic database.

The contracted environmental testing laboratory for the project was EnviroMatrix Analytical, Inc. (EMA). They provided the analytical report of the results to the team captain, project manager and the City's Environmental Program Manager electronically. The team captain and quality assurance manager/project manager verified sample identification information, reviewed the chain-of-custody forms, verified lab quality control, and identified the data appropriately in the database. These data were also reviewed by the Public Works Environmental Program Manager.

The data manager reviewed all the field sheets and entered the data deemed acceptable by the quality assurance manager/project manager. On a monthly basis and at the conclusion of the data collection period, the quality assurance manager/project manager verified, signed and archived the field data sheets. Data were entered into a spreadsheet (MS Excel) in a way that is compatible with EPA's STORET and the RWQCB's database guidelines. Following initial data entry the quality assurance manager/project manager reviewed and verified all electronic data, compared it to the original data sheets and corrected any data entry errors. After performing data checks and ensuring that data quality objectives had been met, data analysis was performed. As a result of quality control practices, a water quality reading of >256 mS/cm for conductivity on February 3, 2009 was not entered in the spreadsheet since it was determined to be an outlier and likely due to instrument or technician error in the field.

In addition, four sets of field blanks and field duplicate or replicate samples were collected during the water quality monitoring period and tested for all three bacterial indicators. The quality control samples were collected on March 10, June 30, September 22 and November 17, 2009. Except for the first set of blank and duplicate samples, all sample containers were labeled in a manner that did not disclose to laboratory personnel their intended purpose.

Laboratory duplicate tests were averaged to provide for one single data point for that sampling event and reported in the spreadsheet. A separate spreadsheet was prepared to enter the quality control data for these samples.

Quality control data are provided in Appendix A of this report and summarized as:

- All four field blanks for all three bacterial indicators had results reported as “non-detectable” with the appropriate detection limits.
- All four field duplicates for total coliform had acceptable standard deviations ranging from 11 to 25.6 percent with the first and fourth quarter sets having the highest deviation.
- All four field duplicates for *Enterococcus* had acceptable standard deviations ranging from 11 to 31 percent with the set for the third quarter being the highest.
- Three out of the four duplicate sample sets for *E. coli* were non-detectable. The first quarter test results did have a 55 percent standard deviation.

Additional quality control measures were taken when conducting field water quality measurements using the Sension 156 pH and conductivity meter with temperature measurement. Prior to each field visit, the meter and probes were calibrated per manufacturer’s recommendations using standard solutions. Weekly calibration readings were entered in the instrument log.

# Section 7

## Results

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### 7.1 Load Reduction Analysis

#### Bacterial Indicator Measurement

The results of the bacterial analyses as reported by EMA were compared with the following:

1. Single sample objectives established in the San Diego Basin Plan (1994) for the waters designated for contact recreation (REC-1) beneficial use.
2. AB411 objectives established by the California Department of Health Services for recreational waters.

The bacterial indicator benchmarks from these two regulatory programs are shown in Table 5.

**Table 5. Bacterial indicator benchmarks (MPN/100ml)**

Bacterial Indicator	Single Sample Objectives	AB411 Objectives
Total Coliform	NA	10,000
<i>Enterococcus</i>	104	104
<i>E. coli</i>	NA	NA

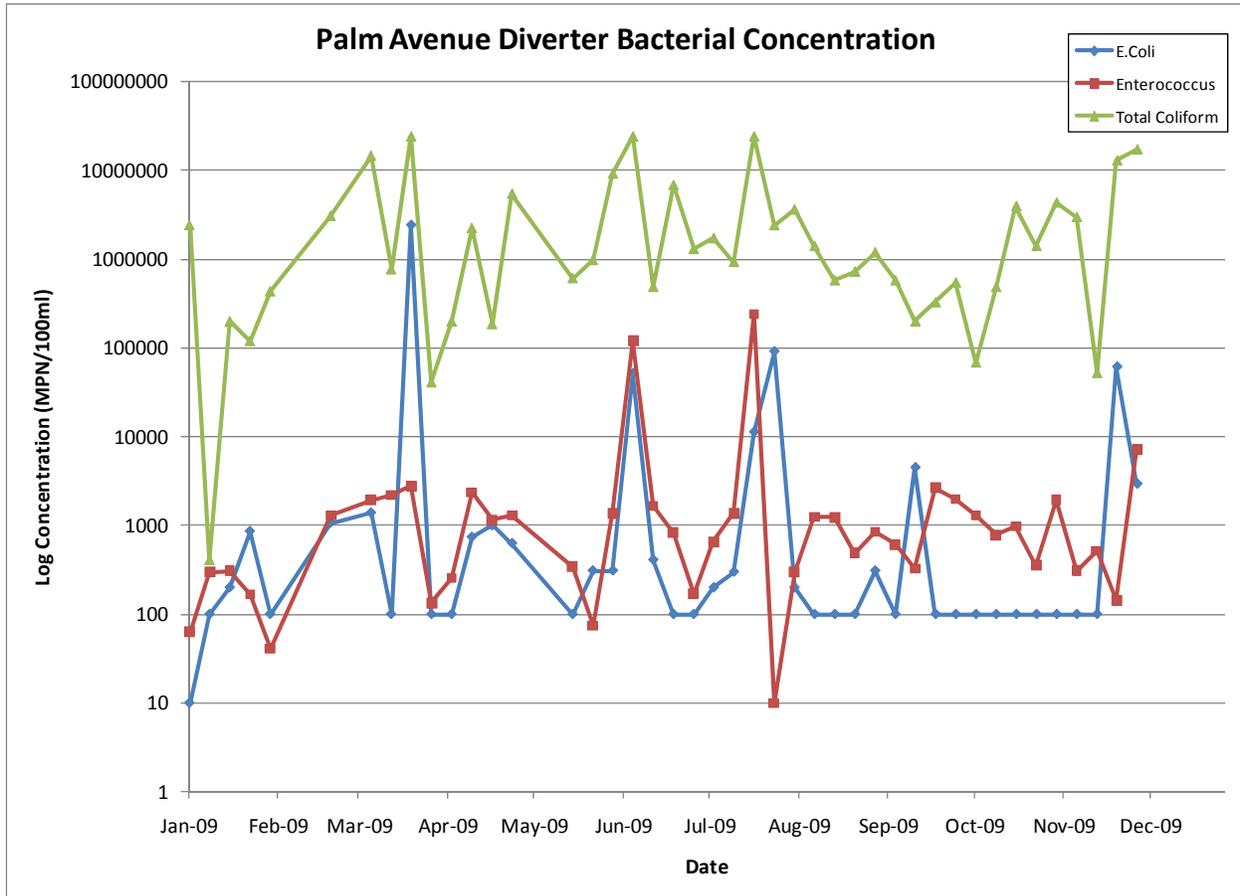
NA – Not Available

The purpose of the comparison is not to estimate the difference between water quality measurements collected at the diverter and the water quality objectives set for the receiving waters, but to assess the influence of the low-flow urban runoff diverter in reducing bacteriological and other urban runoff pollution to the Pacific Ocean.

One way to assess the environmental benefit of diverting the low-flow urban runoff to the sanitary sewer is to estimate the number of potential exceedances of water quality benchmarks against the bacteria levels in the samples collected at the diverter wet well, as will be shown below.

All three bacterial indicator test results varied significantly over the course of the 11-month monitoring program as shown in Figure 35 and summarized in Table 6. The full data set for the 11-month monitoring program can be found in Appendix A.

**Figure 35. Bacterial indicator concentration**

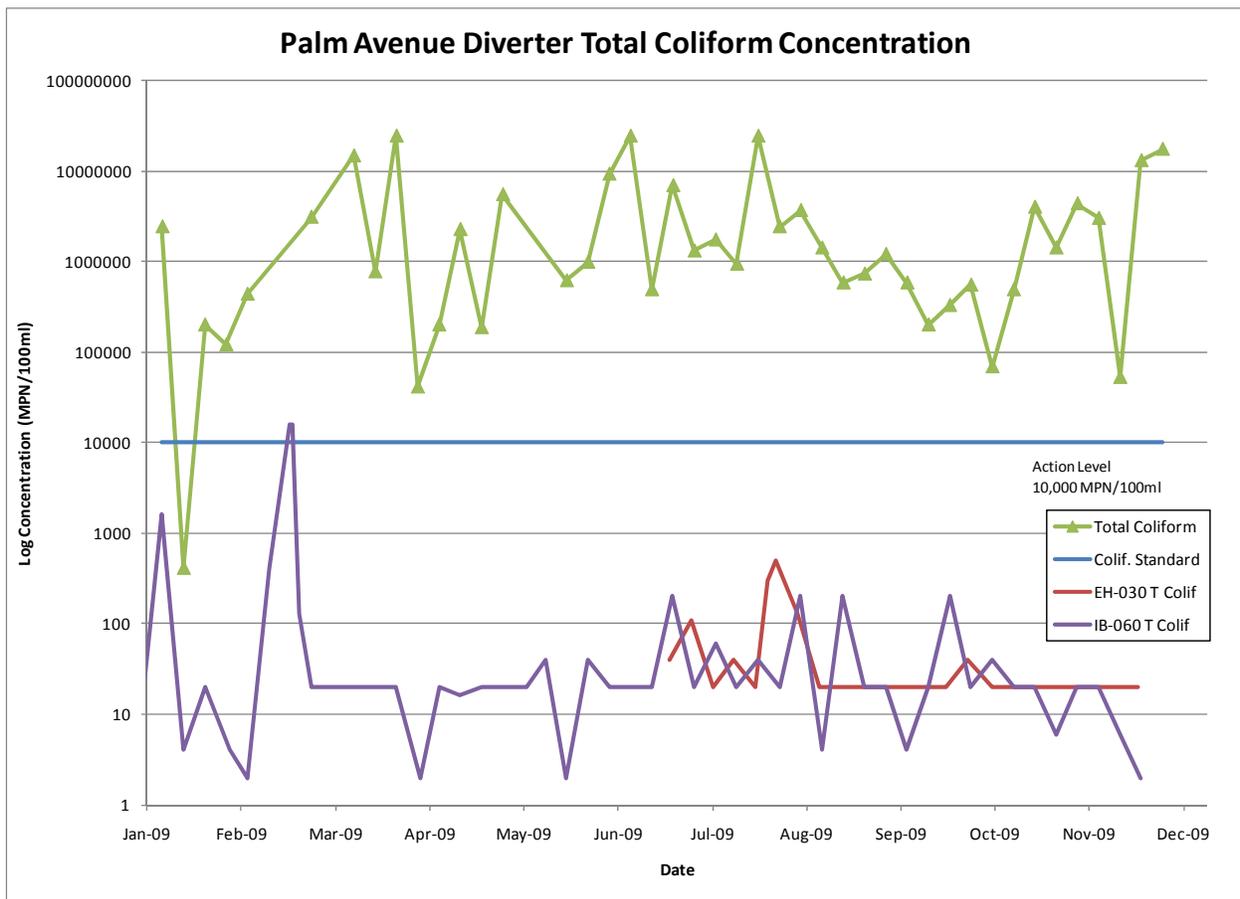


**Table 6. Bacterial data summary (MPN/100ml)**

Bacterial Indicator	Low Value	High	Median Value	Notes
Total coliform	410	>24,200,000	1,200,000	The high value was repeated on three separate sampling dates
<i>E. coli</i>	<10	2,420,000	100	
<i>Enterococcus</i>	<10	241,960	836	

Figure 36 includes the ocean water quality data collected by the International Boundary Treatment Plant at the IB-060 station located north of the Palm Avenue Diverter (see map shown in Figure 3) and similarly data from the southerly station (EH-030) collected by the County of San Diego. With the exception of wet weather influences on the ocean water quality in February 2009, the data for the ocean water quality sites indicates that while the diverter was operational none of the sites exceeded the total coliform action level. Table 7 show the resulting number of predicted water quality benchmark exceedances for total coliform in the receiving water, assuming the wet well had been discharged and reached the Pacific Ocean with minimum dilution and/or mixing. The data indicates that for the majority of the project monitoring period the ocean water quality was non-detectable for total coliform.

**Figure 36. Total coliform concentration**

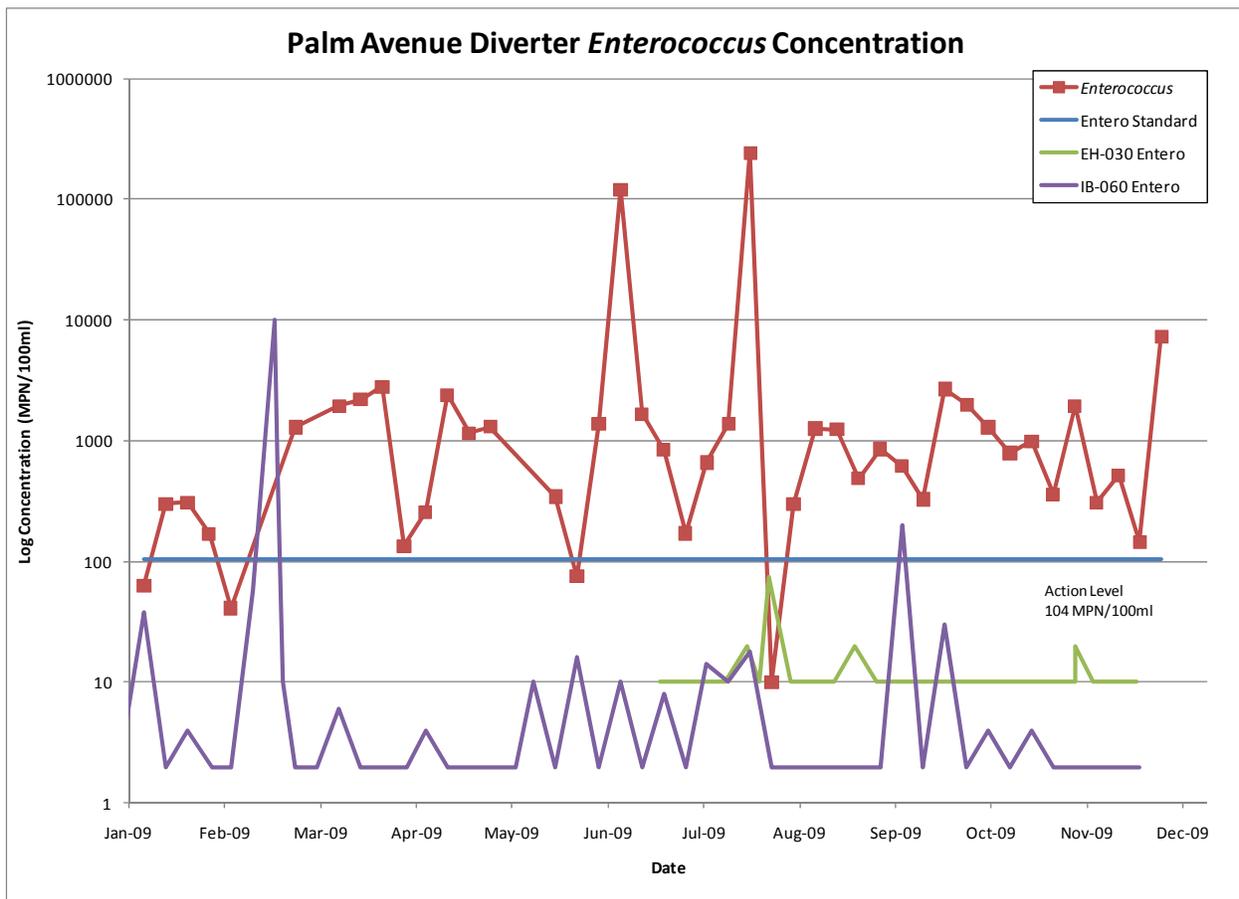


**Table 7. Number of predicted total coliform exceedances**

Bacterial Indicator	AB 411 Criteria (10,000 MPN/100ml)	Single Sample Objective (NA)
Total coliform Exceedances	42 out of 43 samples	NA

Figure 37 includes the ocean water quality data collected by the International Boundary Treatment Plant at the IB-060 station located north of the Palm Avenue Diverter (see map shown in Figure 3) and similarly data from the southerly station (EH-030) collected by the County of San Diego. Figure 37 includes wet weather data in February 2009 that shows an exceedance of action levels likely from a variety of sources. Table 8 shows the resulting number of predicted water quality benchmark exceedances for *Enterococcus* in the receiving water assuming the wet well had been discharged and reached the Pacific Ocean with minimum dilution and/or mixing. The data indicates that for the majority of the project monitoring period the ocean water quality was non-detectable for *Enterococcus* while the diverter wet well was above the action level.

**Figure 37. *Enterococcus* concentration**



**Table 8. Number of predicted *Enterococcus* exceedances**

Bacterial Indicator	AB 411 Criteria (104 MPN/100ml)	Single Sample Objective (104 MPN/100ml)
<i>Enterococcus</i> Exceedances	39 out of 43 samples	39 out of 43 samples



## 7.2 Results of Non-Bacterial Data

The San Diego Municipal Stormwater Copermittees (the City of Imperial Beach is a Copermittee) have established urban runoff/dry weather action levels for urban runoff in the storm drains that consist of the field screening analytes shown in Table 9. These action levels are used by the Copermittees to identify illegal discharges and illicit connections in the storm drain system and to prompt investigations to remedy nuisance urban runoff. Field screening parameters were taken at the wet well and recorded onto field data sheets during sampling events. The results were transferred to the data spreadsheet found in Appendix A. The sampling data were compared to the dry weather action levels to determine if diverted urban runoff was originating from an illegal discharge and warranted investigation by the City of Imperial Beach Stormwater Program.

**Figure 39. Water quality testing – pH, temperature, and conductivity probe**



**Table 9. Copermittee action levels for field screening analytes**

Field Screening Analyte	Copermittee Action Levels
pH	< 6.5 or > 9.0
Temperature (°C)	BPJ
Specific Conductance (mS/cm)	BPJ

BPJ – Best Professional Judgment

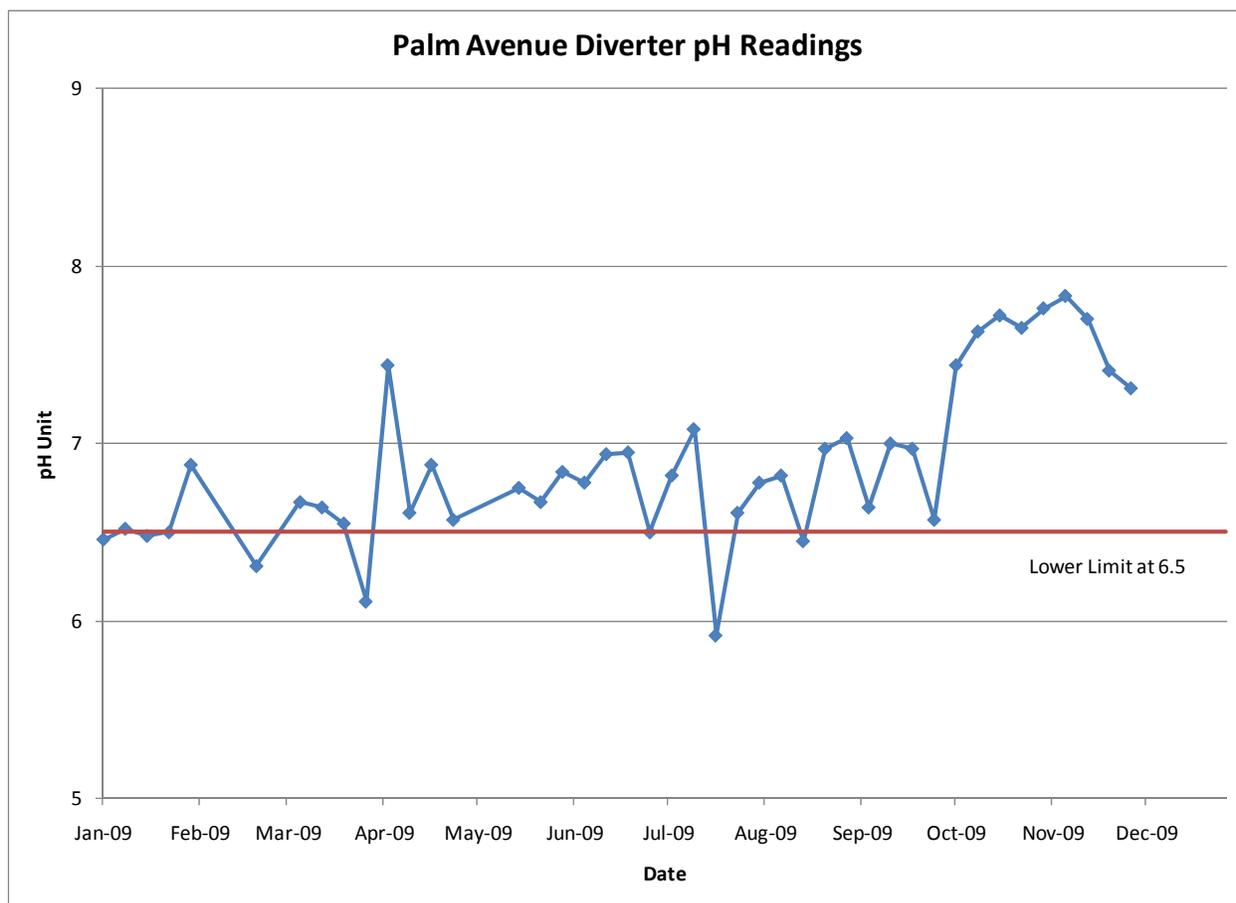
### pH Test Results

Water quality testing included measuring pH in the field using a portable meter from grab samples collected at the wet well during the project's monitoring period. The lowest pH reading was 5.92 and took place on July 21, 2009. The entire data set is located in Appendix A and a summary is presented in Figure 40. The low pH reading coincided with the observations of unusually excessive amounts of trash including cigarette butts, glass bottles, and plastic bags. Other observations by field personnel included an excessive amount of beach sand observed on the ground surface near the Palm Avenue Diverter wet well. An inquiry was performed to identify the sources. City staff reported that Imperial Beach is the site of the annual U.S. Open Sand Castle Building Contest which draws hundreds of thousands of spectators and competitors from around the world each July. The City events included a street fair on July 18 and the main contest on July 19, 2009 on the weekend prior to this sampling event. The street fair included retail booths, eateries and portable/temporary toilet facilities on Seacoast Drive and Palm Avenue. The main contest conducted on the beach resulted in heavy foot traffic in and out of the beach. Possible dumping of trash by the large crowds gathered for the events likely led to the excessive trash observed in the wet well. Also, the heavy foot traffic was the likely cause of

the excessive amount of beach sand observed on the ground surface near the wet well. The source of the low pH could only be speculated to be related to this event. The highest pH reading was 7.83 on November 10, 2009 and within the acceptable range for pH readings in urban runoff.

A total of twelve pH readings out of 43 taken were found to be below the action level of 6.5 (Figure 40) and none were found to be above the 9.0 upper action level of the acceptable pH range. No discernable pattern was identified for the low pH values.

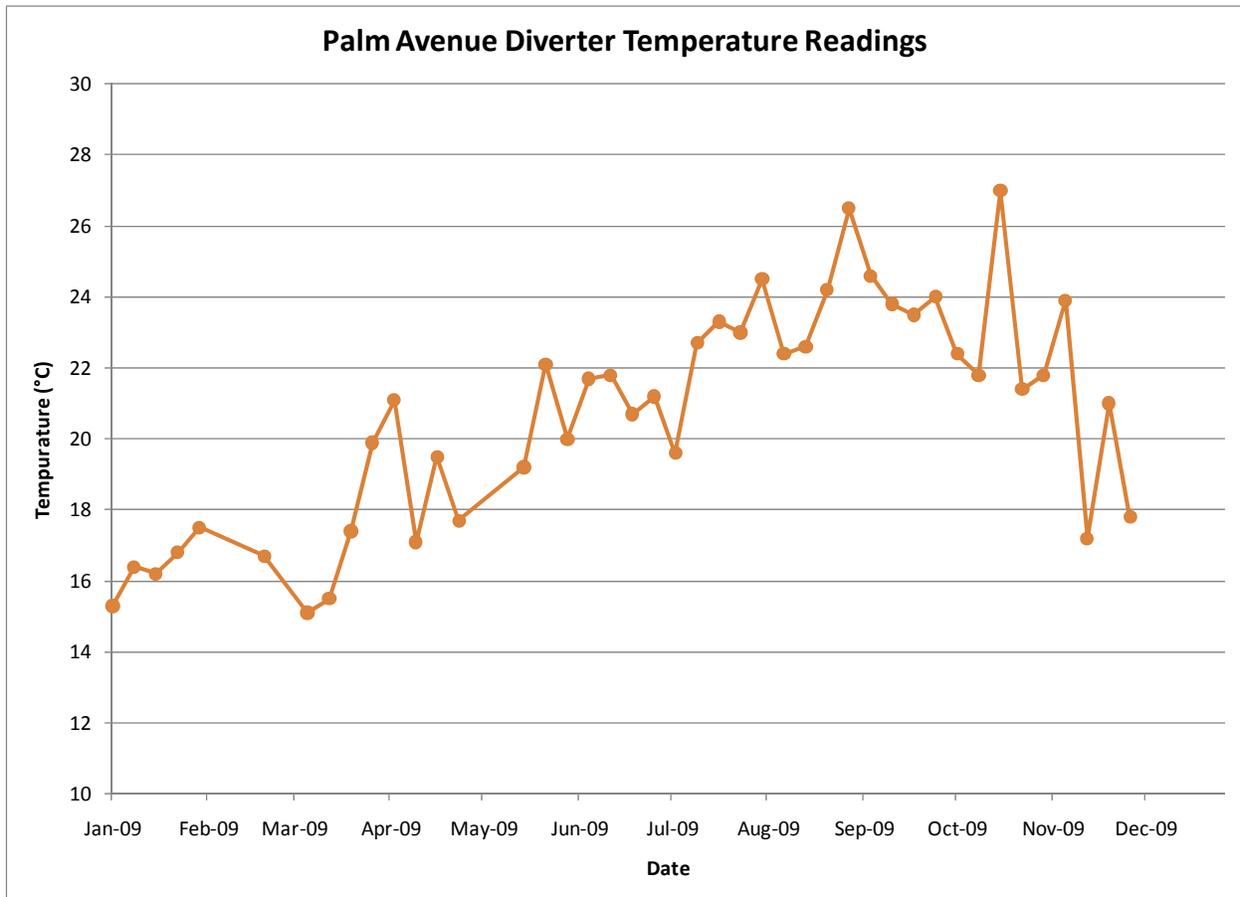
**Figure 40. Graph of pH test results**



### Temperature Test Results

The temperature readings for the samples collected from the Palm Avenue Diverter wet well are provided in the graph in Figure 41 below. The highest value recorded was 27.0 °C on October 20, 2009 and the lowest was 15.1°C on March 10, 2009. Temperature readings appear to follow expected seasonal trends.

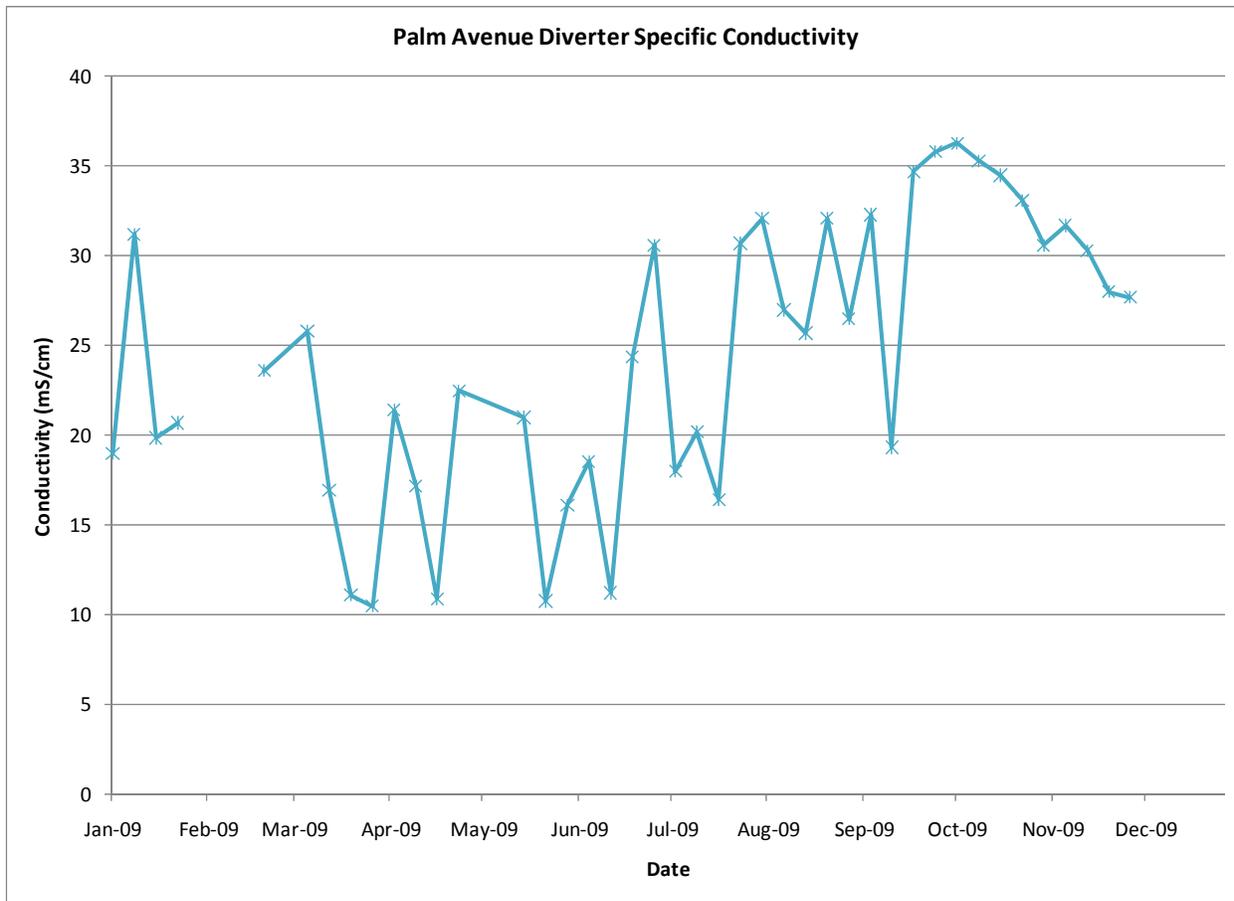
**Figure 41. Graph of temperature results**



Conductivity Test Results

Conductivity readings were taken alongside pH readings on grab samples. A total of 42 test results were obtained with readings ranging from 10.51 to 36.3 mS/cm with one result being recorded at >256 mS/cm on February 3, 2009. That data point was not entered into the spreadsheet and considered an outlier. The entire data set for conductivity readings can be found in Appendix A and a summary graph in Figure 42.

**Figure 42. Graph of conductivity results**



### 7.3 Result of Bacterial Data

Bacterial data collected in the near-by receiving waters was conducted by third parties and not as part of the City's portion of the project's monitoring plan. Bacterial test data were obtained from the County of San Diego's Department of Environmental Health (DEH) for regularly monitored beach locations from north to south as shown in Figure 3:

- Carnation Avenue (IB-060) monitored by the International Boundary Wastewater Treatment Plant
- Imperial Beach Pier or IB Pier (EH-030) monitored by the County's DEH
- Cortez Avenue (EH-010) monitored by the County's DEH
- Seacoast Drive (IB-050) located at the south end of the street monitored by the International Boundary Wastewater Treatment Plant

The data for the site at Carnation Avenue (IB-060) revealed exceedances of AB411 water quality benchmarks for *Enterococcus* and total coliform on February 17 and 18, and September 8, 2009. The Palm Avenue Diverter was not sampled on February 17-18 due to rainfall (0.13 inches) and the operation in ocean discharge mode. It is possible that along with other sources of bacterial contamination from these storm events, that the Palm Avenue basin and outfall may have contributed to the exceedances at Carnation Avenue. The data for the Palm Avenue Diverter indicates that the diverter was operating in sanitary sewer diversion mode on September 8<sup>th</sup> and thus it could not have contributed to the exceedances at the Carnation sampling location. Sampling data from the diverter wet well on September 8<sup>th</sup> indicates that both total coliform and *Enterococcus* levels were above the AB411 water quality benchmark. The volume diverted the week prior to September 8, 2009, was 3,900 gallons.

Further south along the coastline at the IB Pier (EH-030) sampling location, all three bacterial indicators were reported as non-detectable from June through November 2009 when data were collected by the DEH.

Cortez Drive is a newly added sampling location for which only three data points for November 3, 9 and 17, 2009 were available from the County's DEH. All data points for November 2009 were reported as non-detectable for all three bacterial indicators.

The data for the sampling site at Seacoast Drive (IB-050) that is located a significant distance south of the Palm Avenue Diverter revealed exceedances in *Enterococcus*, fecal and total coliform on three occasions: January 6, February 17, and April 14, 2009. None of these exceedances are likely related to the Palm Avenue Diverter.

## 7.4 Results of Flow Measurements

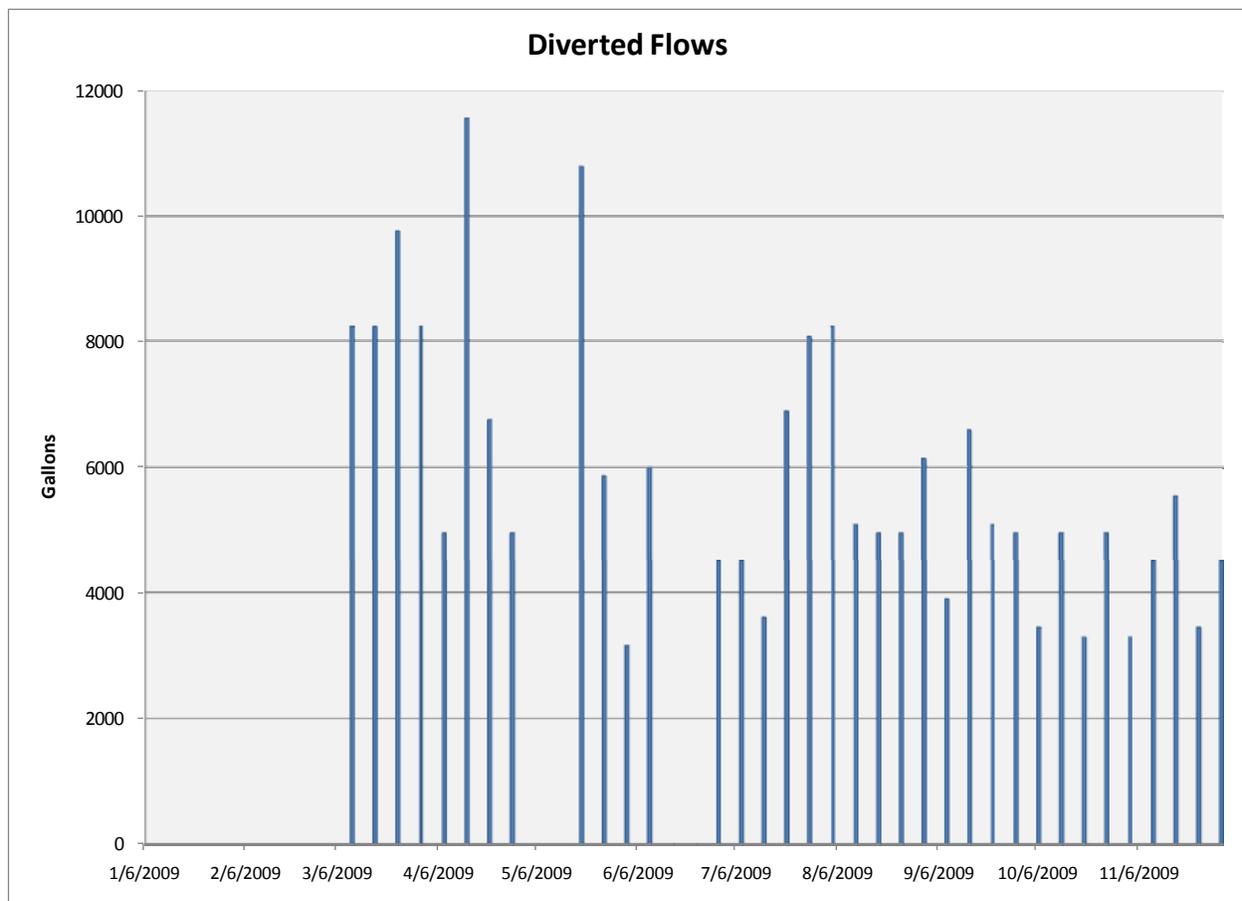
### Flow Measurement

As noted above, flow measurements were estimated from the pump run time and the pump's flow rating. The diverted runoff volume was calculated on a weekly basis. The volume data are provided as part of the data package in Appendix A and shown graphically in Figure 43.

As shown in Figure 43, the lowest volume of urban runoff was zero gallons diverted in the month of June 2009 and the highest at 11,550 gallons April 14, 2009.

For the project monitoring period and since the installation of the Palm Avenue Diverter approximately 204,000 gallons of urban runoff and first-flush stormwater have been diverted to the sanitary sewer between March 3 and December 1, 2009. That corresponds to an average of 23,000 gallons per month. As a result, this project has significantly reduced this source's bacterial contribution to beach closures and/or postings during dry weather periods.

**Figure 43. Graph of weekly diverted flow readings**



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## Section 8

### Conclusion

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The Palm Avenue Diverter project study questions from Section 1.1 are:

- What are the characteristics of urban runoff diverted from the receiving waters during dry weather through the low-flow urban runoff diverter and to the sanitary sewer?
- What volume of contaminated urban runoff flow was diverted to the sanitary sewer?
- What level of bacterial contamination is found in the diverted flows?
- What improvements in water quality of the receiving waters can be quantified as a result of implementing the Palm Avenue Low-Flow Urban Runoff Diversion Project?

The Palm Avenue Diverter project provides several benefits to the community and the environment and the following conclusions in response to the project questions:

- Bacterial data collected during the monitoring phase show that, in the absence of the Palm Avenue Diverter, low-flow urban runoff and first-flush stormwater with high levels of bacteria would have been discharged to the receiving waters.
- Comparison of the concentration of bacteria in the wet well with the AB411 water quality benchmarks indicates that for total coliform 98% of the samples exceeded benchmarks, and for *Enterococcus* 91% of the readings exceeded the benchmarks.
- Data analysis shows that 100% of the samples collected at the diverter wet well exceeded at least one of the bacterial indicator benchmarks.
- The Palm Avenue Diverter directs an average of 23,000 gallons per month of urban runoff to the sanitary sewer.
- Only the Carnation Avenue receiving water sampling station had exceedances of bacterial indicators during the project's monitoring period. On February 17 and 18, 2009, during a storm event greater than 1/10<sup>th</sup> of an inch, when the diverter operated in storm discharge mode, water quality exceeded AB411 benchmarks. During the same period, the southern-most sampling location at Seacoast Drive also provides evidence of high bacteria levels likely originating from other sources including the Tijuana River Valley and Mexico.
- This project was successful in combining access to recreation, aesthetic improvements, public infrastructure, and water quality benefits. It received the "Project of the Year" award from the San Diego & Imperial Counties Section of the American Public Works Association (APWA).

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## **Section 9**

### **Recommendations**

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No specific recommendations or feasible alternatives to this project were identified through the review of the project's construction and water quality monitoring data and information.



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## **Appendix A**

### **Project-Specific Monitoring Data**

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**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**1. Valid Values**

Weather	Odor	Color	Water Clarity	Floatables	Time Since Last Rain > 72 hrs	Bacteria Samples Taken?	Field Blank?	Field Duplicate?	Photo Taken?	Analyte	Unit	Qualifier	Sample Matrix
Sunny	None	None	Clear	None	Yes	Yes	Yes	Yes	Yes	pH	pH unit	None = True Sampling Result	Storm Water
Partly cloudy	Musty	Yellow	Slightly Opaque	Trash	No	No	No	No	No	Temperature	oC	NS = Not Sampled	
Overcast	Rotten eggs	Gray	Opaque	Bubbles/Foam						Specific Conductance	mS/cm	> = Greater Than	
Fog	Chemical	White		Sheen						Volume	(gallons/hcf)	ND = Not Detected	
	Sewage	Brown		Fecal matter						Total Coliform	MPN/100 mL	NA = Not Analyzed	
	Other	Other		Other						<i>E. coli</i>	MPN/100 mL		
										<i>Enterococcus</i>	MPN/100 mL		

Sampler Initials	Sampler Name	Association
CH	Chris Helmer	City staff
CP	Cynthia Peraza	PBS&J staff
DC	Dan Cruz	PBS&J staff
GN	Guy Nelson	City staff
PB	Philip Bordenave	PBS&J staff
PL	Peter Lau	City staff
PR	Pavitra Rammohan	PBS&J staff
RML	Rosanna Lacarra	PBS&J staff
SB	Suzanne B.	City staff
SM	Sharron Mackerras	PBS&J staff



**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**2. Field Observations**

Sample ID	Sample Date	Sample Time (24-hour)	Sampled By (Initials)	Weather	Time Since Last Rain > 72 hrs?	Odor	Color	Floatables	Water Clarity	Bacteria Samples Taken?	Field Blank?	Field Duplicate?	Photo Taken?	Notes	Comments
PAD-A	1/6/2009	11:02	DC, PB, and CH	Sunny	Yes	None	Yellow	None	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	1/13/2009	8:50	PB	Sunny	Yes	None	None	None	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	1/20/2009	8:25	PB	Partly Cloudy	Yes	None	White	Other	Slightly Opaque	Yes	No	No	Yes	Floatables: Sand	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	1/27/2009	8:30	PB and CH	Sunny	Yes	None	None	Other	Slightly Opaque	Yes	No	No	No	Floatables: White Fluffy Strips. Dissolving paper fibers	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	2/3/2009	8:45	PB and CH	Sunny	Yes	None	None	None	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	2/24/2009	8:45	PB and PL	Overcast	Yes	None	None	Trash	Clear	Yes	No	No	Yes	Floatables: Large surface scum	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	3/10/2009	8:40	PB and CH	Partly Cloudy	Yes	None	None	None	Clear	Yes	Yes	Yes	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	3/17/2009	8:35	PB and CH	Sunny	Yes	None	None	None	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	3/24/2009	8:35	PB and CH	Sunny	No	None	Yellow	None	Clear	Yes	No	No	Yes	Rain <0.1 inches	No, but the last rain was less than 0.1 inches. Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	3/31/2009	11:00	PR and CH	Sunny	Yes	None	None	Trash	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	4/7/2009	9:00	PR and CH	Sunny	Yes	None	None	Trash, Oil sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	4/14/2009	9:00	PR and CH	Partly Cloudy	Yes	None	Yellow	Trash, Bubbles/Foam	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	4/21/2009	8:50	PR and CH	Sunny	Yes	None	None	Trash, Bubbles/Foam and Oil Sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	4/28/2009	8:50	PR and CH	Partly Cloudy	Yes	None	None	Trash, Bubbles/Foam	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	5/19/2009	8:40	PR and CH	Partly Cloudy	Yes	None	None	Trash, Bubbles/Foam	Clear	Yes	No	No	Yes	O&M performed at the wet well on 05/18/09. Wet well system cleaned out.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	5/26/2009	9:50	PR and CH	Partly Cloudy	Yes	None	None	Sediments, Oil sheen, foam, and dry Paint	Clear	Yes	No	No	Yes	Nearby construction activities on 5/21/09 to fix Water line break may have resulted in excessive sediments in wet well system.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	6/2/2009	8:55	PR and CH	Partly Cloudy	Yes	None	None	Bubbles/Foam, Oil Sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	6/9/2009	9:00	PR and CH	Partly Cloudy	Yes	None	Yellow	Sediments (Sand and clay) and Oil sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	6/16/2009	8:45	PR and CH	Partly Cloudy	No	Chemical	Brown	Sediments, Bubbles/Foam and Oil Sheen	Slightly Opaque	Yes	No	No	Yes		No, but the last rain was less than 0.1 inches. Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	6/23/2009	8:50	PR and CH	Partly Cloudy	Yes	Musty	Yellow	Bubbles/Foam and Oil Sheen	Clear	Yes	No	No	Yes	The City of Imperial Beach is categorized as a Stage I Water Alert City with specific water restrictions enforced on the City Residents.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	6/30/2009	8:45	PR, CH, and SB	Partly Cloudy	Yes	None	None	Trash and Bubbles/Foam	Clear	Yes	Yes	Yes	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	7/7/2009	8:50	PR and SB	Partly Cloudy	Yes	Musty	None	Bubbles/Foam	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	7/14/2009	8:45	PR and SB	Partly Cloudy	Yes	Musty	None	Bubbles/Foam and Trash	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	7/21/2009	8:55	PR and SB	Sunny	Yes	Musty	Brown	Bubbles/Foam, Trash, and Oil sheen	Slightly Opaque	Yes	No	No	Yes	City fair and "Castle Building" community events were conducted the weekend before sampling. Trash including cigarette butts, small liquor bottles found in the wet well. Sand	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	7/28/2009	8:55	PR and SB	Partly Cloudy	Yes	Sewage	Yellow	Bubbles/Foam, Trash, and Oil sheen	Slightly Opaque	Yes	No	No	Yes	5-7 cigarette buds in the wet well. Trickling flow with bubbles and foam observed; possible caused nearby cleaning activities.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	8/4/2009	8:55	PR and SB	Partly Cloudy	Yes	None	None	Trash and Oil sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	8/11/2009	9:00	PR and CH	Partly Cloudy	Yes	None	None	Bubbles/Foam and Oil sheen	Clear	Yes	No	No	Yes	Deposits/scum on the surface of the pump was observed.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	8/18/2009	8:05	PR and SB	Partly Cloudy	Yes	Musty	None	Bubbles/Foam, Trash, and Oil sheen	Clear	Yes	No	No	Yes	Trickling flow observed.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	8/25/2009	8:50	PR and CH	Sunny	Yes	None	None	Trash and Bubbles /Foam	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	9/1/2009	8:50	PR and CH	Partly Cloudy	Yes	None	None	Trash and Bubbles /Foam	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	9/8/2009	8:50	PR and PL	Partly Cloudy	Yes	None	None	Trash and Bubbles /Foam	Clear	Yes	No	No	Yes	Trash included "used" plastic water bottle.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	9/15/2009	8:40	PR and CH	Partly Cloudy	Yes	None	None	Trash, Bubbles /Foam, and Oil sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	9/22/2009	8:50	PR and CH	Partly Cloudy	Yes	None	None	Trash	Clear	Yes	Yes	Yes	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	9/29/2009	8:50	PR and CH	Sunny	Yes	None	None	Trash and Oil sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	10/6/2009	8:45	PR, CH, and GN	Sunny	Yes	None	None	Trash	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	10/13/2009	8:20	PR and GN	Sunny	Yes	None	None	Trash and Oil sheen	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	10/20/2009	10:25	PR and GN	Sunny	Yes	None	None	Trash	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	10/27/2009	8:40	PR, RML, and GN	Partly Cloudy	Yes	None	None	Trash	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	11/3/2009	8:55	PR, CP, and GN	Sunny	Yes	None	None	Trash	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	11/10/2009	8:40	PR, SM, and GN	Sunny	Yes	None	None	None	Clear	Yes	No	No	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	11/17/2009	8:30	PR, PB, and GN	Sunny	Yes	None	None	Trash	Clear	Yes	Yes	Yes	Yes		Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	11/24/2009	8:30	PB and GN	Sunny	Yes	None	None	Trash	Clear	Yes	No	No	No	Failed to bring camera.	Flow meter and Diverter are not fully functional. Samples taken from wet well.
PAD-A	12/1/2009	8:30	PB and GN	Partly Cloudy	No	None	None	Trash	Clear	Yes	No	No	Yes	Approximately 56 hrs since rain event; measurable at 0.14 inches (NOAA)	Flow meter and Diverter are not fully functional. Samples taken from wet well.



**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**3. Field Screening Parameters**

Sample ID	Sample Date	Sample Time (24-hour)	Sampled By (Initials)	Analyte	Method	Qualifier	Result	Units	Notes
PAD-A	1/6/2009	11:02	DC, PB, and CH	pH	Field Probe	None	6.46	pH Unit	
PAD-A	1/6/2009	11:02	DC, PB, and CH	Temperature	Field Probe	None	15.3	o C	
PAD-A	1/6/2009	11:02	DC, PB, and CH	Specific Conductance	Field Probe	None	18.98	mS/cm	
PAD-A	1/6/2009	11:02	DC, PB, and CH	Volume	Flow Meter	None	NS	Gallons	
PAD-A	1/13/2009	8:50	PB	pH	Field Probe	None	6.52	pH Unit	
PAD-A	1/13/2009	8:50	PB	Temperature	Field Probe	None	16.4	o C	
PAD-A	1/13/2009	8:50	PB	Specific Conductance	Field Probe	None	31.2	mS/cm	
PAD-A	1/13/2009	8:50	PB	Volume	Flow Meter	None	NS	Gallons	
PAD-A	1/20/2009	8:25	PB	pH	Field Probe	None	6.48	pH Unit	
PAD-A	1/20/2009	8:25	PB	Temperature	Field Probe	None	16.2	o C	
PAD-A	1/20/2009	8:25	PB	Specific Conductance	Field Probe	None	19.88	mS/cm	
PAD-A	1/20/2009	8:25	PB	Volume	Flow Meter	None	NS	Gallons	
PAD-A	1/27/2009	8:30	PB and CH	pH	Field Probe	None	6.50	pH Unit	
PAD-A	1/27/2009	8:30	PB and CH	Temperature	Field Probe	None	16.8	o C	
PAD-A	1/27/2009	8:30	PB and CH	Specific Conductance	Field Probe	None	20.7	mS/cm	
PAD-A	1/27/2009	8:30	PB and CH	Volume	Flow Meter	None	NS	Gallons	
PAD-A	2/3/2009	8:45	PB and CH	pH	Field Probe	None	6.88	pH Unit	
PAD-A	2/3/2009	8:45	PB and CH	Temperature	Field Probe	None	17.5	o C	
PAD-A	2/3/2009	8:45	PB and CH	Specific Conductance	Field Probe	None	NS	mS/cm	Conductivity was logged as >256 mS/cm and determined to be an error.
PAD-A	2/3/2009	8:45	PB and CH	Volume	Flow Meter	None	NS	Gallons	
PAD-A	2/24/2009	8:45	PB and PL	pH	Field Probe	None	6.31	pH Unit	
PAD-A	2/24/2009	8:45	PB and PL	Temperature	Field Probe	None	16.7	o C	
PAD-A	2/24/2009	8:45	PB and PL	Specific Conductance	Field Probe	None	23.6	mS/cm	
PAD-A	2/24/2009	8:45	PB and PL	Volume	Flow Meter	None	NS	Gallons	
PAD-A	3/10/2009	8:40	PB and CH	pH	Field Probe	None	6.67	pH Unit	
PAD-A	3/10/2009	8:40	PB and CH	Temperature	Field Probe	None	15.1	o C	
PAD-A	3/10/2009	8:40	PB and CH	Specific Conductance	Field Probe	None	25.8	mS/cm	
PAD-A	3/10/2009	8:40	PB and CH	Volume	Gauge	None		Gallons	Pump Run Time = 7.15 hrs
PAD-A	3/17/2009	8:35	PB and CH	pH	Field Probe	None	6.64	pH Unit	
PAD-A	3/17/2009	8:35	PB and CH	Temperature	Field Probe	None	15.5	o C	
PAD-A	3/17/2009	8:35	PB and CH	Specific Conductance	Field Probe	None	16.96	mS/cm	
PAD-A	3/17/2009	8:35	PB and CH	Volume	Gauge	None		Gallons	Pump Run Time = 7.7 hrs
PAD-A	3/24/2009	8:35	PB and CH	pH	Field Probe	None	6.55	pH Unit	
PAD-A	3/24/2009	8:35	PB and CH	Temperature	Field Probe	None	17.4	o C	
PAD-A	3/24/2009	8:35	PB and CH	Specific Conductance	Field Probe	None	11.10	mS/cm	
PAD-A	3/24/2009	8:35	PB and CH	Volume	Gauge	None		Gallons	Pump Run Time = 8.35 hrs
PAD-A	3/31/2009	11:00	PR and CH	pH	Field Probe	None	6.11	pH Unit	
PAD-A	3/31/2009	11:00	PR and CH	Temperature	Field Probe	None	19.9	o C	
PAD-A	3/31/2009	11:00	PR and CH	Specific Conductance	Field Probe	None	10.51	mS/cm	
PAD-A	3/31/2009	11:00	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 8.9 hrs
PAD-A	4/7/2009	9:00	PR and CH	pH	Field Probe	None	7.44	pH Unit	Equipment problem. Did not stabilize.
PAD-A	4/7/2009	9:00	PR and CH	Temperature	Field Probe	None	21.1	o C	
PAD-A	4/7/2009	9:00	PR and CH	Specific Conductance	Field Probe	None	21.4	mS/cm	Equipment problem. Did not stabilize
PAD-A	4/7/2009	9:00	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 9.23 hrs
PAD-A	4/14/2009	9:00	PR and CH	pH	Field Probe	None	6.61	pH Unit	
PAD-A	4/14/2009	9:00	PR and CH	Temperature	Field Probe	None	17.1	o C	
PAD-A	4/14/2009	9:00	PR and CH	Specific Conductance	Field Probe	None	17.16	mS/cm	
PAD-A	4/14/2009	9:00	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 10.0 hrs
PAD-A	4/21/2009	8:50	PR and CH	pH	Field Probe	None	6.88	pH Unit	
PAD-A	4/21/2009	8:50	PR and CH	Temperature	Field Probe	None	19.5	o C	
PAD-A	4/21/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	10.91	mS/cm	
PAD-A	4/21/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 10.45 hrs
PAD-A	4/28/2009	8:50	PR and CH	pH	Field Probe	None	6.57	pH Unit	
PAD-A	4/28/2009	8:50	PR and CH	Temperature	Field Probe	None	17.7	o C	
PAD-A	4/28/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	22.5	mS/cm	
PAD-A	4/28/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 10.78 hrs
PAD-A	5/19/2009	8:40	PR and CH	pH	Field Probe	None	6.75	pH Unit	
PAD-A	5/19/2009	8:40	PR and CH	Temperature	Field Probe	None	19.2	o C	
PAD-A	5/19/2009	8:40	PR and CH	Specific Conductance	Field Probe	None	21.00	mS/cm	
PAD-A	5/19/2009	8:40	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 11.5 hrs
PAD-A	5/26/2009	9:50	PR and CH	pH	Field Probe	None	6.67	pH Unit	
PAD-A	5/26/2009	9:50	PR and CH	Temperature	Field Probe	None	22.1	o C	
PAD-A	5/26/2009	9:50	PR and CH	Specific Conductance	Field Probe	None	10.79	mS/cm	
PAD-A	5/26/2009	9:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 11.89 hrs
PAD-A	6/2/2009	8:55	PR and CH	pH	Field Probe	None	6.84	pH Unit	
PAD-A	6/2/2009	8:55	PR and CH	Temperature	Field Probe	None	20.0	o C	
PAD-A	6/2/2009	8:55	PR and CH	Specific Conductance	Field Probe	None	16.14	mS/cm	
PAD-A	6/2/2009	8:55	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 12.1 hrs
PAD-A	6/9/2009	9:00	PR and CH	pH	Field Probe	None	6.78	pH Unit	
PAD-A	6/9/2009	9:00	PR and CH	Temperature	Field Probe	None	21.7	o C	
PAD-A	6/9/2009	9:00	PR and CH	Specific Conductance	Field Probe	None	18.55	mS/cm	
PAD-A	6/9/2009	9:00	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 12.5 hrs
PAD-A	6/16/2009	8:45	PR and CH	pH	Field Probe	None	6.94	pH Unit	
PAD-A	6/16/2009	8:45	PR and CH	Temperature	Field Probe	None	21.8	o C	
PAD-A	6/16/2009	8:45	PR and CH	Specific Conductance	Field Probe	None	11.24	mS/cm	
PAD-A	6/16/2009	8:45	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 12.5 hrs
PAD-A	6/23/2009	8:50	PR and CH	pH	Field Probe	None	6.95	pH Unit	
PAD-A	6/23/2009	8:50	PR and CH	Temperature	Field Probe	None	20.7	o C	
PAD-A	6/23/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	24.40	mS/cm	
PAD-A	6/23/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 12.5 hrs
PAD-A	6/30/2009	8:45	PR, CH, and SB	pH	Field Probe	None	6.50	pH Unit	
PAD-A	6/30/2009	8:45	PR, CH, and SB	Temperature	Field Probe	None	21.2	o C	
PAD-A	6/30/2009	8:45	PR, CH, and SB	Specific Conductance	Field Probe	None	30.6	mS/cm	
PAD-A	6/30/2009	8:45	PR, CH, and SB	Volume	Gauge	None		Gallons	Pump Run Time = 12.8 hrs
PAD-A	7/7/2009	8:50	PR and SB	pH	Field Probe	None	6.82	pH Unit	
PAD-A	7/7/2009	8:50	PR and SB	Temperature	Field Probe	None	19.6	o C	
PAD-A	7/7/2009	8:50	PR and SB	Specific Conductance	Field Probe	None	18.01	mS/cm	
PAD-A	7/7/2009	8:50	PR and SB	Volume	Gauge	None		Gallons	Pump Run Time = 13.1 hrs

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**3. Field Screening Parameters**

Sample ID	Sample Date	Sample Time (24-hour)	Sampled By (Initials)	Analyte	Method	Qualifier	Result	Units	Notes
PAD-A	7/14/2009	8:45	PR and SB	pH	Field Probe	None	7.08	pH Unit	
PAD-A	7/14/2009	8:45	PR and SB	Temperature	Field Probe	None	22.7	o C	
PAD-A	7/14/2009	8:45	PR and SB	Specific Conductance	Field Probe	None	20.20	mS/cm	
PAD-A	7/14/2009	8:45	PR and SB	Volume	Gauge	None		Gallons	Pump Run Time = 13.34 hrs
PAD-A	7/21/2009	8:55	PR and SB	pH	Field Probe	None	5.92	pH Unit	
PAD-A	7/21/2009	8:55	PR and SB	Temperature	Field Probe	None	23.3	o C	
PAD-A	7/21/2009	8:55	PR and SB	Specific Conductance	Field Probe	None	16.43	mS/cm	
PAD-A	7/21/2009	8:55	PR and SB	Volume	Gauge	None		Gallons	Pump Run Time = 13.8 hrs
PAD-A	7/28/2009	8:55	PR and SB	pH	Field Probe	None	6.61	pH Unit	
PAD-A	7/28/2009	8:55	PR and SB	Temperature	Field Probe	None	23.0	o C	
PAD-A	7/28/2009	8:55	PR and SB	Specific Conductance	Field Probe	None	30.7	mS/cm	
PAD-A	7/28/2009	8:55	PR and SB	Volume	Gauge	None		Gallons	Pump Run Time = 14.34 hrs
PAD-A	8/4/2009	8:55	PR and SB	pH	Field Probe	None	6.78	pH Unit	
PAD-A	8/4/2009	8:55	PR and SB	Temperature	Field Probe	None	24.5	o C	
PAD-A	8/4/2009	8:55	PR and SB	Specific Conductance	Field Probe	None	32.1	mS/cm	
PAD-A	8/4/2009	8:55	PR and SB	Volume	Gauge	None		Gallons	Pump Run Time = 14.89 hrs
PAD-A	8/11/2009	9:00	PR and CH	pH	Field Probe	None	6.82	pH Unit	
PAD-A	8/11/2009	9:00	PR and CH	Temperature	Field Probe	None	22.4	o C	
PAD-A	8/11/2009	9:00	PR and CH	Specific Conductance	Field Probe	None	27.0	mS/cm	
PAD-A	8/11/2009	9:00	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 15.23 hrs
PAD-A	8/18/2009	8:05	PR and SB	pH	Field Probe	None	6.45	pH Unit	
PAD-A	8/18/2009	8:05	PR and SB	Temperature	Field Probe	None	22.6	o C	
PAD-A	8/18/2009	8:05	PR and SB	Specific Conductance	Field Probe	None	25.7	mS/cm	
PAD-A	8/18/2009	8:05	PR and SB	Volume	Gauge	None		Gallons	Pump Run Time = 15.56 hrs
PAD-A	8/25/2009	8:50	PR and CH	pH	Field Probe	None	6.97	pH Unit	
PAD-A	8/25/2009	8:50	PR and CH	Temperature	Field Probe	None	24.2	o C	
PAD-A	8/25/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	32.1	mS/cm	
PAD-A	8/25/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 15.89 hrs
PAD-A	9/1/2009	8:50	PR and CH	pH	Field Probe	None	7.03	pH Unit	
PAD-A	9/1/2009	8:50	PR and CH	Temperature	Field Probe	None	26.5	o C	
PAD-A	9/1/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	26.5	mS/cm	
PAD-A	9/1/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 16.3 hrs
PAD-A	9/8/2009	8:50	PR and PL	pH	Field Probe	None	6.64	pH Unit	
PAD-A	9/8/2009	8:50	PR and PL	Temperature	Field Probe	None	24.6	o C	
PAD-A	9/8/2009	8:50	PR and PL	Specific Conductance	Field Probe	None	32.3	mS/cm	
PAD-A	9/8/2009	8:50	PR and PL	Volume	Gauge	None		Gallons	Pump Run Time = 16.56 hrs
PAD-A	9/15/2009	8:40	PR and CH	pH	Field Probe	None	7.00	pH Unit	
PAD-A	9/15/2009	8:40	PR and CH	Temperature	Field Probe	None	23.8	o C	
PAD-A	9/15/2009	8:40	PR and CH	Specific Conductance	Field Probe	None	19.35	mS/cm	
PAD-A	9/15/2009	8:40	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 17.00 hrs
PAD-A	9/22/2009	8:50	PR and CH	pH	Field Probe	None	6.97	pH Unit	
PAD-A	9/22/2009	8:50	PR and CH	Temperature	Field Probe	None	23.5	o C	
PAD-A	9/22/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	34.7	mS/cm	
PAD-A	9/22/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 17.34 hrs
PAD-A	9/29/2009	8:50	PR and CH	pH	Field Probe	None	6.57	pH Unit	
PAD-A	9/29/2009	8:50	PR and CH	Temperature	Field Probe	None	24.0	o C	
PAD-A	9/29/2009	8:50	PR and CH	Specific Conductance	Field Probe	None	35.8	mS/cm	
PAD-A	9/29/2009	8:50	PR and CH	Volume	Gauge	None		Gallons	Pump Run Time = 17.67 hrs
PAD-A	10/6/2009	8:45	PR, CH, and GN	pH	Field Probe	None	7.44	pH Unit	Equipment problem. The pH probe bulb broke.
PAD-A	10/6/2009	8:45	PR, CH, and GN	Temperature	Field Probe	None	22.4	o C	
PAD-A	10/6/2009	8:45	PR, CH, and GN	Specific Conductance	Field Probe	None	36.3	mS/cm	
PAD-A	10/6/2009	8:45	PR, CH, and GN	Volume	Gauge	None		Gallons	Pump Run Time = 17.9 hrs
PAD-A	10/13/2009	8:20	PR and GN	pH	Field Probe	None	7.63	pH Unit	
PAD-A	10/13/2009	8:20	PR and GN	Temperature	Field Probe	None	21.8	o C	
PAD-A	10/13/2009	8:20	PR and GN	Specific Conductance	Field Probe	None	35.3	mS/cm	
PAD-A	10/13/2009	8:20	PR and GN	Volume	Gauge	None		Gallons	Pump Run Time = 18.23 hrs
PAD-A	10/20/2009	10:25	PR and GN	pH	Field Probe	None	7.72	pH Unit	
PAD-A	10/20/2009	10:25	PR and GN	Temperature	Field Probe	None	27.0	o C	
PAD-A	10/20/2009	10:25	PR and GN	Specific Conductance	Field Probe	None	34.5	mS/cm	
PAD-A	10/20/2009	10:25	PR and GN	Volume	Gauge	None		Gallons	Pump Run Time = 18.45 hrs
PAD-A	10/27/2009	8:40	PR, RML, and GN	pH	Field Probe	None	7.65	pH Unit	
PAD-A	10/27/2009	8:40	PR, RML, and GN	Temperature	Field Probe	None	21.4	o C	
PAD-A	10/27/2009	8:40	PR, RML, and GN	Specific Conductance	Field Probe	None	33.1	mS/cm	
PAD-A	10/27/2009	8:40	PR, RML, and GN	Volume	Gauge	None		Gallons	Pump Run Time = 18.78 hrs
PAD-A	11/3/2009	8:55	PR, CP, and GN	pH	Field Probe	None	7.76	pH Unit	
PAD-A	11/3/2009	8:55	PR, CP, and GN	Temperature	Field Probe	None	21.8	o C	
PAD-A	11/3/2009	8:55	PR, CP, and GN	Specific Conductance	Field Probe	None	30.6	mS/cm	
PAD-A	11/3/2009	8:55	PR, CP, and GN	Volume	Gauge	None		Gallons	Pump Run Time = 19.0 hrs
PAD-A	11/10/2009	8:40	PR, SM, and GN	pH	Field Probe	None	7.83	pH Unit	
PAD-A	11/10/2009	8:40	PR, SM, and GN	Temperature	Field Probe	None	23.9	o C	
PAD-A	11/10/2009	8:40	PR, SM, and GN	Specific Conductance	Field Probe	None	31.7	mS/cm	
PAD-A	11/10/2009	8:40	PR, SM, and GN	Volume	Gauge	None		Gallons	Pump Run Time = 19.3 hrs
PAD-A	11/17/2009	8:30	PR, PB, and GN	pH	Field Probe	None	7.70	pH Unit	
PAD-A	11/17/2009	8:30	PR, PB, and GN	Temperature	Field Probe	None	17.2	o C	
PAD-A	11/17/2009	8:30	PR, PB, and GN	Specific Conductance	Field Probe	None	30.3	mS/cm	
PAD-A	11/17/2009	8:30	PR, PB, and GN	Volume	Gauge	None		Gallons	Pump Run Time = 19.67 hrs
PAD-A	11/24/2009	8:30	PB and GN	pH	Field Probe	None	7.41	pH Unit	
PAD-A	11/24/2009	8:30	PB and GN	Temperature	Field Probe	None	21.0	o C	
PAD-A	11/24/2009	8:30	PB and GN	Specific Conductance	Field Probe	None	28.0	mS/cm	
PAD-A	11/24/2009	8:30	PB and GN	Volume	Gauge	None		Gallons	Pump Run Time = 19.90 hrs
PAD-A	12/1/2009	8:30	PB and GN	pH	Field Probe	None	7.31	pH Unit	
PAD-A	12/1/2009	8:30	PB and GN	Temperature	Field Probe	None	17.8	o C	
PAD-A	12/1/2009	8:30	PB and GN	Specific Conductance	Field Probe	None	27.7	mS/cm	
PAD-A	12/1/2009	8:30	PB and GN	Volume	Gauge	None		Gallons	Pump Run Time = 20.2 hrs

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**4. Field Screening Parameters**

Sample ID	Sample Date	Sample Time (24-hour)	Sampled By (Initials)	Gauge Readings (Hrs)	Method	Pump Run Time (Hrs)	Monthly Diverted Volume (Gallons)	Notes
PAD-A	1/6/2009	11:02	DC, PB, and CH	NS	Flow Meter	NS	NS	
PAD-A	1/13/2009	8:50	PB	NS	Flow Meter	NS	NS	
PAD-A	1/20/2009	8:25	PB	NS	Flow Meter	NS	NS	
PAD-A	1/27/2009	8:30	PB and CH	NS	Flow Meter	NS	NS	
PAD-A	2/3/2009	8:45	PB and CH	NS	Flow Meter	NS	NS	
PAD-A	2/24/2009	8:45	PB and PL	NS	Flow Meter	NS	NS	
PAD-A	3/10/2009	8:40	PB and CH	7.15	Gauge	0.55	34500	
PAD-A	3/17/2009	8:35	PB and CH	7.7	Gauge	0.55		
PAD-A	3/24/2009	8:35	PB and CH	8.35	Gauge	0.65		
PAD-A	3/31/2009	11:00	PR and CH	8.9	Gauge	0.55		
PAD-A	4/7/2009	9:00	PR and CH	9.23	Gauge	0.33	28200	
PAD-A	4/14/2009	9:00	PR and CH	10	Gauge	0.77		
PAD-A	4/21/2009	8:50	PR and CH	10.45	Gauge	0.45		
PAD-A	4/28/2009	8:50	PR and CH	10.78	Gauge	0.33		Value Approx to 28,500 Gal
PAD-A	5/19/2009	8:40	PR and CH	11.5	Gauge	0.72	16650	
PAD-A	5/26/2009	9:50	PR and CH	11.89	Gauge	0.39		
PAD-A	6/2/2009	8:55	PR and CH	12.1	Gauge	0.21	13650	
PAD-A	6/9/2009	9:00	PR and CH	12.5	Gauge	0.4		
PAD-A	6/16/2009	8:45	PR and CH	12.5	Gauge	0		
PAD-A	6/23/2009	8:50	PR and CH	12.5	Gauge	0		
PAD-A	6/30/2009	8:45	PR, CH, and SB	12.8	Gauge	0.3	23100	
PAD-A	7/7/2009	8:50	PR and SB	13.1	Gauge	0.3		
PAD-A	7/14/2009	8:45	PR and SB	13.34	Gauge	0.24		
PAD-A	7/21/2009	8:55	PR and SB	13.8	Gauge	0.46		
PAD-A	7/28/2009	8:55	PR and SB	14.34	Gauge	0.54	23250	
PAD-A	8/4/2009	8:55	PR and SB	14.89	Gauge	0.55		
PAD-A	8/11/2009	9:00	PR and CH	15.23	Gauge	0.34		
PAD-A	8/18/2009	8:05	PR and SB	15.56	Gauge	0.33		
PAD-A	8/25/2009	8:50	PR and CH	15.89	Gauge	0.33	26700	
PAD-A	9/1/2009	8:50	PR and CH	16.3	Gauge	0.41		
PAD-A	9/8/2009	8:50	PR and PL	16.56	Gauge	0.26		
PAD-A	9/15/2009	8:40	PR and CH	17	Gauge	0.44		
PAD-A	9/22/2009	8:50	PR and CH	17.34	Gauge	0.34	16650	
PAD-A	9/29/2009	8:50	PR and CH	17.67	Gauge	0.33		
PAD-A	10/6/2009	8:45	PR, GN, and CH	17.9	Gauge	0.23		
PAD-A	10/13/2009	8:20	PR and GN	18.23	Gauge	0.33		
PAD-A	10/20/2009	10:25	PR and GN	18.45	Gauge	0.22	16800	
PAD-A	10/27/2009	8:40	PR, RML, and GN	18.78	Gauge	0.33		
PAD-A	11/3/2009	8:55	PR, CP, and GN	19	Gauge	0.22		
PAD-A	11/10/2009	8:40	PR, SM, and GN	19.3	Gauge	0.3		
PAD-A	11/17/2009	8:30	PR, PB, and GN	19.67	Gauge	0.37	4500	
PAD-A	11/24/2009	8:30	PB and GN	19.9	Gauge	0.23		
PAD-A	12/1/2009	8:30	PB and GN	20.2	Gauge	0.3		

NS=Not Sampled



**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**5. Lab Analysis**

Sample ID	Sample Date	Sample Time (24-hour)	Analyte	Method	Qualifier	Result (MPN/100ml)	Reporting Limit (MPN/100ml)	Notes
PAD-A	1/6/2009	11:02	Total Coliform	SM9223	>	2,420,000	1000	
PAD-A	1/6/2009	11:02	<i>E. coli</i>	SM9223	<	10	10	
PAD-A	1/6/2009	11:02	<i>Enterococcus</i>	Idexx	None	63	10	
PAD-A	1/13/2009	8:50	Total Coliform	SM9223	None	410	100	
PAD-A	1/13/2009	8:50	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	1/13/2009	8:50	<i>Enterococcus</i>	Idexx	None	301	10	
PAD-A	1/20/2009	8:25	Total Coliform	SM9223	None	199,000	100	
PAD-A	1/20/2009	8:25	<i>E. coli</i>	SM9223	None	200	100	
PAD-A	1/20/2009	8:25	<i>Enterococcus</i>	Idexx	None	309	10	
PAD-A	1/27/2009	8:30	Total Coliform	SM9223	None	120,000	100	
PAD-A	1/27/2009	8:30	<i>E. coli</i>	SM9223	None	860	100	
PAD-A	1/27/2009	8:30	<i>Enterococcus</i>	Idexx	None	169	10	
PAD-A	2/3/2009	8:45	Total Coliform	SM9223	None	435,000	1000	
PAD-A	2/3/2009	8:45	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	2/3/2009	8:45	<i>Enterococcus</i>	Idexx	None	41	10	
PAD-A	2/24/2009	8:45	Total Coliform	SM9223	None	3,080,000	10000	
PAD-A	2/24/2009	8:45	<i>E. coli</i>	SM9223	None	1,070	100	
PAD-A	2/24/2009	8:45	<i>Enterococcus</i>	Idexx	None	1,296	1	
PAD-A/PAD-A Dup	3/10/2009	9:55	Total Coliform	SM9223	None	14,650,000	10000	Sample & Duplicate Average
PAD-A/PAD-A Dup	3/10/2009	9:55	<i>E. coli</i>	SM9223	None	1,390	100	Sample & Duplicate Average
PAD-A/PAD-A Dup	3/10/2009	9:55	<i>Enterococcus</i>	Idexx	None	1,942	10	Sample & Duplicate Average
PAD-A	3/17/2009	8:35	Total Coliform	SM9223	None	770,000	1000	
PAD-A	3/17/2009	8:35	<i>E. coli</i>	SM9223	None	100	100	
PAD-A	3/17/2009	8:35	<i>Enterococcus</i>	Idexx	None	2,200	20	
PAD-A	3/24/2009	8:35	Total Coliform	SM9223	>	24,200,000	10000	
PAD-A	3/24/2009	8:35	<i>E. coli</i>	SM9223	None	2,420,000	1000	
PAD-A	3/24/2009	8:35	<i>Enterococcus</i>	Idexx	None	2,800	20	
PAD-A	3/31/2009	11:00	Total Coliform	SM9223	None	41,100	100	
PAD-A	3/31/2009	11:00	<i>E. coli</i>	SM9223	None	100	100	
PAD-A	3/31/2009	11:00	<i>Enterococcus</i>	Idexx	None	134	10	
PAD-A	4/7/2009	9:00	Total Coliform	SM9223	None	199,000	100	
PAD-A	4/7/2009	9:00	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	4/7/2009	9:00	<i>Enterococcus</i>	Idexx	None	256	10	
PAD-A	4/14/2009	9:00	Total Coliform	SM9223	None	2,250,000	10000	
PAD-A	4/14/2009	9:00	<i>E. coli</i>	SM9223	None	740	10	
PAD-A	4/14/2009	9:00	<i>Enterococcus</i>	Idexx	None	2,381	10	
PAD-A	4/21/2009	8:50	Total Coliform	SM9223	None	186,000	1000	
PAD-A	4/21/2009	8:50	<i>E. coli</i>	SM9223	None	1,000	1000	
PAD-A	4/21/2009	8:50	<i>Enterococcus</i>	Idexx	None	1,160	10	
PAD-A	4/28/2009	8:50	Total Coliform	SM9223	None	5,480,000	10000	
PAD-A	4/28/2009	8:50	<i>E. coli</i>	SM9223	None	630	100	
PAD-A	4/28/2009	8:50	<i>Enterococcus</i>	Idexx	None	1,305	10	
PAD-A	5/19/2009	8:40	Total Coliform	SM9223	None	613,000	10000	
PAD-A	5/19/2009	8:40	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	5/19/2009	8:40	<i>Enterococcus</i>	Idexx	None	345	10	
PAD-A	5/26/2009	9:50	Total Coliform	SM9223	None	980,000	1000	
PAD-A	5/26/2009	9:50	<i>E. coli</i>	SM9223	None	310	100	
PAD-A	5/26/2009	9:50	<i>Enterococcus</i>	Idexx	None	75	10	
PAD-A	6/2/2009	8:55	Total Coliform	SM9223	None	9,210,000	10000	
PAD-A	6/2/2009	8:55	<i>E. coli</i>	SM9223	None	310	100	
PAD-A	6/2/2009	8:55	<i>Enterococcus</i>	Idexx	None	1,374	10	
PAD-A	6/9/2009	9:00	Total Coliform	SM9223	>	24,200,000	10000	
PAD-A	6/9/2009	9:00	<i>E. coli</i>	SM9223	None	51,700	100	
PAD-A	6/9/2009	9:00	<i>Enterococcus</i>	Idexx	None	120,330	100	
PAD-A	6/16/2009	8:50	Total Coliform	SM9223	None	488,000	1000	
PAD-A	6/16/2009	8:50	<i>E. coli</i>	SM9223	None	410	100	
PAD-A	6/16/2009	8:50	<i>Enterococcus</i>	Idexx	None	1,664	10	
PAD-A	6/23/2009	8:50	Total Coliform	SM9223	None	6,870,000	10000	
PAD-A	6/23/2009	8:50	<i>E. coli</i>	SM9223	None	100	100	
PAD-A	6/23/2009	8:50	<i>Enterococcus</i>	Idexx	None	836	10	
PAD-A/PAD-A-2	6/30/2009	8:45	Total Coliform	SM9223	None	1,305,000	1000	Sample & Duplicate Average
PAD-A/PAD-A-2	6/30/2009	8:45	<i>E. coli</i>	SM9223	<	100	100	Sample & Duplicate Average
PAD-A/PAD-A-2	6/30/2009	8:45	<i>Enterococcus</i>	Idexx	None	171	10	Sample & Duplicate Average
PAD-A	7/7/2009	8:50	Total Coliform	SM9223	None	1,730,000	1000	
PAD-A	7/7/2009	8:50	<i>E. coli</i>	SM9223	None	200	100	
PAD-A	7/7/2009	8:50	<i>Enterococcus</i>	Idexx	None	657	10	
PAD-A	7/14/2009	8:45	Total Coliform	SM9223	None	934,000	10000	
PAD-A	7/14/2009	8:45	<i>E. coli</i>	SM9223	None	300	100	
PAD-A	7/14/2009	8:45	<i>Enterococcus</i>	Idexx	None	1,374	10	
PAD-A	7/21/2009	8:55	Total Coliform	SM9223	>	24,200,000	10000	
PAD-A	7/21/2009	8:55	<i>E. coli</i>	SM9223	None	11,300	100	
PAD-A	7/21/2009	8:55	<i>Enterococcus</i>	Idexx	>	241,960	100	
PAD-A	7/28/2009	8:55	Total Coliform	SM9223	None	2,420,000	1000	
PAD-A	7/28/2009	8:55	<i>E. coli</i>	SM9223	None	91,400	100	
PAD-A	7/28/2009	8:55	<i>Enterococcus</i>	Idexx	<	10	10	
PAD-A	8/4/2009	8:55	Total Coliform	SM9223	None	3,650,000	10000	
PAD-A	8/4/2009	8:55	<i>E. coli</i>	SM9223	None	200	100	
PAD-A	8/4/2009	8:55	<i>Enterococcus</i>	Idexx	None	298	10	
PAD-A	8/11/2009	9:00	Total Coliform	SM9223	None	1,410,000	1000	
PAD-A	8/11/2009	9:00	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	8/11/2009	9:00	<i>Enterococcus</i>	Idexx	None	1,259	10	
PAD-A	8/18/2009	8:05	Total Coliform	SM9223	None	579,000	1000	
PAD-A	8/18/2009	8:05	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	8/18/2009	8:05	<i>Enterococcus</i>	Idexx	None	1,236	10	

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**5. Lab Analysis**

Sample ID	Sample Date	Sample Time (24-hour)	Analyte	Method	Qualifier	Result (MPN/100ml)	Reporting Limit (MPN/100ml)	Notes
PAD-A	8/25/2009	8:50	Total Coliform	SM9223	None	727,000	1000	
PAD-A	8/25/2009	8:50	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	8/25/2009	8:50	<i>Enterococcus</i>	Idexx	None	488	10	
PAD-A	9/1/2009	8:50	Total Coliform	SM9223	None	1,200,000	1000	
PAD-A	9/1/2009	8:50	<i>E. coli</i>	SM9223	None	310	100	
PAD-A	9/1/2009	8:50	<i>Enterococcus</i>	Idexx	None	857	10	
PAD-A	9/8/2009	8:50	Total Coliform	SM9223	None	579,000	1000	
PAD-A	9/8/2009	8:50	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	9/8/2009	8:50	<i>Enterococcus</i>	Idexx	None	613	10	
PAD-A	9/15/2009	8:40	Total Coliform	SM9223	None	199,000	100	
PAD-A	9/15/2009	8:40	<i>E. coli</i>	SM9223	None	4,500	100	
PAD-A	9/15/2009	8:40	<i>Enterococcus</i>	Idexx	None	327	10	
PAD-A/PAD-A-2	9/22/2009	8:50	Total Coliform	SM9223	None	327,000	1000	Sample & Duplicate Average
PAD-A/PAD-A-2	9/22/2009	8:50	<i>E. coli</i>	SM9223	None	100	100	Sample & Duplicate Average
PAD-A/PAD-A-2	9/22/2009	8:50	<i>Enterococcus</i>	Idexx	None	2,677	10	Sample & Duplicate Average
PAD-A	9/29/2009	8:50	Total Coliform	SM9223	None	548,000	1000	
PAD-A	9/29/2009	8:50	<i>E. coli</i>	SM9223	None	100	100	
PAD-A	9/29/2009	8:50	<i>Enterococcus</i>	Idexx	None	1,989	10	
PAD-A	10/6/2009	8:45	Total Coliform	SM9223	None	68,700	100	
PAD-A	10/6/2009	8:45	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	10/6/2009	8:45	<i>Enterococcus</i>	Idexx	None	1,296	10	
PAD-A	10/13/2009	8:20	Total Coliform	SM9223	None	488,000	1000	
PAD-A	10/13/2009	8:20	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	10/13/2009	8:20	<i>Enterococcus</i>	Idexx	None	789	10	
PAD-A	10/20/2009	10:25	Total Coliform	SM9223	None	3,970,000	10000	
PAD-A	10/20/2009	10:25	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	10/20/2009	10:25	<i>Enterococcus</i>	Idexx	None	985	10	
PAD-A	10/27/2009	8:40	Total Coliform	SM9223	None	1,410,000	1000	
PAD-A	10/27/2009	8:40	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	10/27/2009	8:40	<i>Enterococcus</i>	Idexx	None	359	10	
PAD-A	11/3/2009	8:55	Total Coliform	SM9223	None	4,350,000	10000	
PAD-A	11/3/2009	8:55	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	11/3/2009	8:55	<i>Enterococcus</i>	Idexx	None	1,935	10	
PAD-A	11/10/2009	8:40	Total Coliform	SM9223	None	2,990,000	1000	
PAD-A	11/10/2009	8:40	<i>E. coli</i>	SM9223	<	100	100	
PAD-A	11/10/2009	8:40	<i>Enterococcus</i>	Idexx	None	309	10	
PAD-A/PAD-A-2	11/17/2009	8:30	Total Coliform	SM9223	None	52,400	100	Sample & Duplicate Average
PAD-A/PAD-A-2	11/17/2009	8:30	<i>E. coli</i>	SM9223	<	100	100	Sample & Duplicate Average
PAD-A/PAD-A-2	11/17/2009	8:30	<i>Enterococcus</i>	Idexx	None	519	10	Sample & Duplicate Average
PAD-A	11/24/2009	8:30	Total Coliform	SM9223	None	13,000,000	10000	
PAD-A	11/24/2009	8:30	<i>E. coli</i>	SM9223	None	61,300	100	
PAD-A	11/24/2009	8:30	<i>Enterococcus</i>	Idexx	None	145	10	
PAD-A	12/1/2009	8:30	Total Coliform	SM9223	None	17,300,000	10000	
PAD-A	12/1/2009	8:30	<i>E. coli</i>	SM9223	None	2,940	100	
PAD-A	12/1/2009	8:30	<i>Enterococcus</i>	Idexx	None	7,270	10	

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**6. Quality Assurance**

Sample ID	Sample Date	Sample Time (24-hour)	Type of Sample	Analyte	Method	Qualifier	Result (MPN/100ml)	Reporting Limit (MPN/100ml)
PAD-A Field Blank	3/10/2009	9:55	Field Blank	Total Coliform	SM9223	<	100	100
PAD-A Field Blank	3/10/2009	9:55	Field Blank	<i>E. coli</i>	SM9223	<	100	100
PAD-A Field Blank	3/10/2009	9:55	Field Blank	<i>Enterococcus</i>	Idexx	<	10	10
PAD-A	3/10/2009	9:55	Sample	Total Coliform	SM9223	None	12,000,000	10000
PAD-A	3/10/2009	9:55	Sample	<i>E. coli</i>	SM9223	None	850	100
PAD-A	3/10/2009	9:55	Sample	<i>Enterococcus</i>	Idexx	None	2,098	10
PAD-A Dup	3/10/2009	9:55	Field Duplicate	Total Coliform	SM9223	None	17,300,000	10000
PAD-A Dup	3/10/2009	9:55	Field Duplicate	<i>E. coli</i>	SM9223	None	1,930	100
PAD-A Dup	3/10/2009	9:55	Field Duplicate	<i>Enterococcus</i>	Idexx	None	1,785	10
PAD-A -1	6/30/2009	8:45	Field Blank	Total Coliform	SM9223	<	100	100
PAD-A -1	6/30/2009	8:45	Field Blank	<i>E. coli</i>	SM9223	<	100	100
PAD-A -1	6/30/2009	8:45	Field Blank	<i>Enterococcus</i>	Idexx	<	10	10
PAD-A	6/30/2009	8:45	Sample	Total Coliform	SM9223	None	1,410,000	1000
PAD-A	6/30/2009	8:45	Sample	<i>E. coli</i>	SM9223	<	100	100
PAD-A	6/30/2009	8:45	Sample	<i>Enterococcus</i>	Idexx	None	195	10
PAD-A -2	6/30/2009	8:45	Field Duplicate	Total Coliform	SM9223	None	1,200,000	100
PAD-A -2	6/30/2009	8:45	Field Duplicate	<i>E. coli</i>	SM9223	<	100	100
PAD-A -2	6/30/2009	8:45	Field Duplicate	<i>Enterococcus</i>	Idexx	None	146	10
PAD-A -1	9/22/2009	8:50	Field Blank	Total Coliform	SM9223	<	100	100
PAD-A -1	9/22/2009	8:50	Field Blank	<i>E. coli</i>	SM9223	<	100	100
PAD-A -1	9/22/2009	8:50	Field Blank	<i>Enterococcus</i>	Idexx	<	10	10
PAD-A	9/22/2009	8:50	Sample	Total Coliform	SM9223	None	326,000	100
PAD-A	9/22/2009	8:50	Sample	<i>E. coli</i>	SM9223	None	100	100
PAD-A	9/22/2009	8:50	Sample	<i>Enterococcus</i>	Idexx	None	2,098	10
PAD-A -2	9/22/2009	8:50	Field Duplicate	Total Coliform	SM9223	None	328,000	100
PAD-A -2	9/22/2009	8:50	Field Duplicate	<i>E. coli</i>	SM9223	None	100	100
PAD-A -2	9/22/2009	8:50	Field Duplicate	<i>Enterococcus</i>	Idexx	None	3,255	10
PAD-A -1	11/17/2009	8:30	Field Blank	Total Coliform	SM9223	<	100	1000
PAD-A -1	11/17/2009	8:30	Field Blank	<i>E. coli</i>	SM9223	<	100	100
PAD-A -1	11/17/2009	8:30	Field Blank	<i>Enterococcus</i>	Idexx	<	10	10
PAD-A	11/17/2009	8:30	Sample	Total Coliform	SM9223	None	43,500	100
PAD-A	11/17/2009	8:30	Sample	<i>E. coli</i>	SM9223	<	100	100
PAD-A	11/17/2009	8:30	Sample	<i>Enterococcus</i>	Idexx	None	435	10
PAD-A -2	11/17/2009	8:30	Field Duplicate	Total Coliform	SM9223	None	61,300	100
PAD-A -2	11/17/2009	8:30	Field Duplicate	<i>E. coli</i>	SM9223	<	100	100
PAD-A -2	11/17/2009	8:30	Field Duplicate	<i>Enterococcus</i>	Idexx	None	602	10



**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-010	Cortez Ave	Imperial Beach municipal beach	2/12/2007	11:18	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/12/2007	11:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/12/2007	11:18	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/14/2007	10:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/14/2007	10:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/14/2007	10:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	4/22/2007	7:10	Total Coliforms	MTF (APHA 9221 B)	=	220	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	4/22/2007	7:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	110	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	4/22/2007	7:10	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/24/2007	11:55	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/24/2007	11:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/24/2007	11:55	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	9/1/2007	10:54	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	9/1/2007	10:54	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	9/1/2007	10:54	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	9/5/2007	8:37	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	9/5/2007	8:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	9/5/2007	8:37	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/10/2008	8:18	Total Coliforms	MTF (APHA 9221 B)	=	170	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/10/2008	8:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/10/2008	8:18	Enterococcus	Enterolert	=	53	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/17/2008	9:05	Total Coliforms	MTF (APHA 9221 B)	=	800	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/17/2008	9:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/17/2008	9:05	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/25/2008	10:15	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/25/2008	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	1/25/2008	10:15	Enterococcus	Enterolert	=	42	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/1/2008	9:10	Total Coliforms	MTF (APHA 9221 B)	=	170	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/1/2008	9:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/1/2008	9:10	Enterococcus	Enterolert	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/7/2008	9:57	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/7/2008	9:57	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/7/2008	9:57	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/13/2008	10:12	Total Coliforms	MTF (APHA 9221 B)	=	500	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/13/2008	10:12	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/13/2008	10:12	Enterococcus	Enterolert	=	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/28/2008	8:15	Total Coliforms	MTF (APHA 9221 B)	=	1300	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/28/2008	8:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	1300	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/28/2008	8:15	Enterococcus	Enterolert	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/6/2008	8:40	Total Coliforms	MTF (APHA 9221 B)	=	500	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/6/2008	8:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-010	Cortez Ave	Imperial Beach municipal beach	3/6/2008	8:40	Enterococcus	Enterolert	=	31	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/14/2008	10:17	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/14/2008	10:17	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/14/2008	10:17	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/20/2008	9:50	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/20/2008	9:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/20/2008	9:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/27/2008	8:54	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/27/2008	8:54	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	3/27/2008	8:54	Enterococcus	Enterolert	=	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	4/4/2008	9:02	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	4/4/2008	9:02	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	4/4/2008	9:02	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/12/2008	13:14	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/12/2008	13:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/12/2008	13:14	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/19/2008	11:37	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/19/2008	11:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	6/19/2008	11:37	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	8/22/2008	14:15	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	8/22/2008	14:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	8/22/2008	14:15	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/4/2008	6:55	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/4/2008	6:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/4/2008	6:55	Enterococcus	Enterolert	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/20/2009	13:00	Total Coliforms	MTF (APHA 9221 B)	E	170	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/20/2009	13:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	2/20/2009	13:00	Enterococcus	Enterolert	=	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/3/2009	11:32	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/3/2009	11:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/3/2009	11:32	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/9/2009	7:25	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/9/2009	7:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/9/2009	7:25	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/17/2009	5:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/17/2009	5:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	11/17/2009	5:30	Enterococcus	Enterolert	<	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/1/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	=	60	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/1/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	60	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/1/2009	10:40	Enterococcus	Enterolert	=	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/2/2009	11:27	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-010	Cortez Ave	Imperial Beach municipal beach	12/2/2009	11:27	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/2/2009	11:27	Enterococcus	Enterolert	=	10	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/9/2009	11:03	Total Coliforms	MTF (APHA 9221 B)	=	2400	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/9/2009	11:03	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	800	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/9/2009	11:03	Enterococcus	Enterolert	=	1013	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/10/2009	13:32	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/10/2009	13:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	230	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/10/2009	13:32	Enterococcus	Enterolert	=	64	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/14/2009	10:36	Total Coliforms	MTF (APHA 9221 B)	=	3000	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/14/2009	10:36	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	1100	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/14/2009	10:36	Enterococcus	Enterolert	=	659	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/16/2009	11:38	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/16/2009	11:38	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-010	Cortez Ave	Imperial Beach municipal beach	12/16/2009	11:38	Enterococcus	Enterolert	=	31	MPN/100mL
EH-020	Imperial Beach Boulevard	Imperial Beach municipal beach	6/24/2007	12:00	Total Coliforms	MTF (APHA 9221 B)	=	70	MPN/100mL
EH-020	Imperial Beach Boulevard	Imperial Beach municipal beach	6/24/2007	12:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	70	MPN/100mL
EH-020	Imperial Beach Boulevard	Imperial Beach municipal beach	6/24/2007	12:00	Enterococcus	Enterolert	<	10	MPN/100mL
EH-020	Imperial Beach Boulevard	Imperial Beach municipal beach	5/25/2008	10:11	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-020	Imperial Beach Boulevard	Imperial Beach municipal beach	5/25/2008	10:11	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-020	Imperial Beach Boulevard	Imperial Beach municipal beach	5/25/2008	10:11	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/11/2007	10:28	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/11/2007	10:28	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/11/2007	10:28	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/18/2007	8:20	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/18/2007	8:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/18/2007	8:20	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/20/2007	8:10	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/20/2007	8:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/20/2007	8:10	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/20/2007	8:20	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/20/2007	8:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/20/2007	8:20	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/25/2007	10:35	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/25/2007	10:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/25/2007	10:35	Enterococcus	Enterolert	=	31	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/31/2007	7:50	Total Coliforms	MTF (APHA 9221 B)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/31/2007	7:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/31/2007	7:50	Enterococcus	Enterolert	=	31	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/8/2007	7:50	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/8/2007	7:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/8/2007	7:50	Enterococcus	Enterolert	<	10	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2007	11:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2007	11:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2007	11:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/21/2007	14:38	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/21/2007	14:38	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/21/2007	14:38	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/28/2007	9:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/28/2007	9:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/28/2007	9:50	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/8/2007	7:55	Total Coliforms	MTF (APHA 9221 B)	=	220	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/8/2007	7:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	220	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/8/2007	7:55	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/14/2007	10:52	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/14/2007	10:52	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/14/2007	10:52	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/15/2007	8:00	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/15/2007	8:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/15/2007	8:00	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/21/2007	9:30	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/21/2007	9:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/21/2007	9:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/28/2007	9:59	Total Coliforms	MTF (APHA 9221 B)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/28/2007	9:59	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/28/2007	9:59	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/5/2007	10:28	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/5/2007	10:28	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/5/2007	10:28	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/11/2007	10:15	Total Coliforms	MTF (APHA 9221 B)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/11/2007	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/11/2007	10:15	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/18/2007	8:38	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/18/2007	8:38	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/18/2007	8:38	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/22/2007	7:09	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/22/2007	7:09	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/22/2007	7:09	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/22/2007	7:22	Total Coliforms	MTF (APHA 9221 B)	=	800	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/22/2007	7:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/22/2007	7:22	<i>Enterococcus</i>	Enterolert	=	42	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2007	9:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2007	9:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2007	9:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/2/2007	10:25	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/2/2007	10:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/2/2007	10:25	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/9/2007	10:21	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/9/2007	10:21	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/9/2007	10:21	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/16/2007	10:15	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/16/2007	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/16/2007	10:15	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/19/2007	7:44	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/19/2007	7:44	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/19/2007	7:44	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/19/2007	7:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/19/2007	7:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/19/2007	7:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/23/2007	10:07	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/23/2007	10:07	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/23/2007	10:07	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/6/2007	8:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/6/2007	8:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/6/2007	8:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/13/2007	8:41	Total Coliforms	MTF (APHA 9221 B)	=	110	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/13/2007	8:41	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	110	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/13/2007	8:41	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/20/2007	9:15	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/20/2007	9:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/20/2007	9:15	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/24/2007	12:07	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/24/2007	12:07	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/24/2007	12:07	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/27/2007	10:14	Total Coliforms	MTF (APHA 9221 B)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/27/2007	10:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/27/2007	10:14	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/2/2007	10:19	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/2/2007	10:19	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/2/2007	10:19	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/12/2007	10:15	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/12/2007	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/12/2007	10:15	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/18/2007	10:28	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/18/2007	10:28	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/18/2007	10:28	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/25/2007	10:27	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/25/2007	10:27	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/25/2007	10:27	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/1/2007	10:00	Total Coliforms	MTF (APHA 9221 B)	=	110	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/1/2007	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	110	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/1/2007	10:00	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/8/2007	10:25	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/8/2007	10:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/8/2007	10:25	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/15/2007	8:36	Total Coliforms	MTF (APHA 9221 B)	=	170	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/15/2007	8:36	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	170	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/15/2007	8:36	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/22/2007	10:00	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/22/2007	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/22/2007	10:00	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/1/2007	11:02	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/1/2007	11:02	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/1/2007	11:02	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/5/2007	9:09	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/5/2007	9:09	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/5/2007	9:09	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/12/2007	8:32	Total Coliforms	MTF (APHA 9221 B)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/12/2007	8:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/12/2007	8:32	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/19/2007	9:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/19/2007	9:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/19/2007	9:10	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/26/2007	8:27	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/26/2007	8:27	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/26/2007	8:27	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/3/2007	8:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/3/2007	8:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/3/2007	8:20	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/10/2007	10:48	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/10/2007	10:48	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/10/2007	10:48	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/17/2007	9:20	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/17/2007	9:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/17/2007	9:20	Enterococcus	Enterolert	<	10	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/31/2007	8:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/31/2007	8:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/31/2007	8:40	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/8/2007	8:02	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/8/2007	8:02	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/8/2007	8:02	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/14/2007	13:20	Total Coliforms	MTF (APHA 9221 B)	=	170	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/14/2007	13:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	170	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/14/2007	13:20	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/29/2007	10:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/29/2007	10:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/29/2007	10:45	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/6/2007	8:35	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/6/2007	8:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/6/2007	8:35	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/11/2007	9:25	Total Coliforms	MTF (APHA 9221 B)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/11/2007	9:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/11/2007	9:25	<i>Enterococcus</i>	Enterolert	=	42	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/11/2007	9:30	Total Coliforms	MTF (APHA 9221 B)	=	1400	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/11/2007	9:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/11/2007	9:30	<i>Enterococcus</i>	Enterolert	=	42	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/14/2007	7:35	Total Coliforms	MTF (APHA 9221 B)	=	2800	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/14/2007	7:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	1100	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/14/2007	7:35	<i>Enterococcus</i>	Enterolert	=	53	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/20/2007	9:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/20/2007	9:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/20/2007	9:40	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/27/2007	10:00	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/27/2007	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/27/2007	10:00	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/3/2008	10:30	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/3/2008	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/3/2008	10:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/10/2008	8:08	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/10/2008	8:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/10/2008	8:08	<i>Enterococcus</i>	Enterolert	=	64	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/17/2008	8:44	Total Coliforms	MTF (APHA 9221 B)	=	230	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/17/2008	8:44	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	230	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/17/2008	8:44	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/25/2008	10:20	Total Coliforms	MTF (APHA 9221 B)	=	800	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/25/2008	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	1/25/2008	10:20	Enterococcus	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/1/2008	9:15	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/1/2008	9:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/1/2008	9:15	Enterococcus	Enterolert	=	53	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/7/2008	9:47	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/7/2008	9:47	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/7/2008	9:47	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/13/2008	10:15	Total Coliforms	MTF (APHA 9221 B)	=	70	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/13/2008	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/13/2008	10:15	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/28/2008	8:34	Total Coliforms	MTF (APHA 9221 B)	=	1100	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/28/2008	8:34	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/28/2008	8:34	Enterococcus	Enterolert	=	31	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/6/2008	8:45	Total Coliforms	MTF (APHA 9221 B)	=	1100	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/6/2008	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/6/2008	8:45	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/14/2008	10:22	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/14/2008	10:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/14/2008	10:22	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/20/2008	9:40	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/20/2008	9:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/20/2008	9:40	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/27/2008	8:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/27/2008	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	3/27/2008	8:45	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/4/2008	8:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/4/2008	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/4/2008	8:45	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/9/2008	10:07	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/9/2008	10:07	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/9/2008	10:07	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/16/2008	10:07	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/16/2008	10:07	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/16/2008	10:07	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/23/2008	9:45	Total Coliforms	MTF (APHA 9221 B)	=	800	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/23/2008	9:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	800	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/23/2008	9:45	Enterococcus	Enterolert	=	31	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2008	12:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2008	12:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2008	12:35	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2008	12:37	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2008	12:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/25/2008	12:37	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/30/2008	9:51	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/30/2008	9:51	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	4/30/2008	9:51	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/7/2008	9:42	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/7/2008	9:42	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/7/2008	9:42	Enterococcus	Enterolert	=	42	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/12/2008	10:10	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/12/2008	10:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/12/2008	10:10	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/12/2008	10:15	Total Coliforms	MTF (APHA 9221 B)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/12/2008	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/12/2008	10:15	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/14/2008	9:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/14/2008	9:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/14/2008	9:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/14/2008	9:58	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/14/2008	9:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/14/2008	9:58	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/21/2008	8:54	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/21/2008	8:54	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/21/2008	8:54	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/25/2008	10:04	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/25/2008	10:04	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/25/2008	10:04	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/30/2008	8:45	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/30/2008	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	5/30/2008	8:45	Enterococcus	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/4/2008	9:37	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/4/2008	9:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/4/2008	9:37	Enterococcus	Enterolert	=	53	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/11/2008	8:56	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/11/2008	8:56	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/11/2008	8:56	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/12/2008	13:18	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/12/2008	13:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/12/2008	13:18	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/18/2008	9:18	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/18/2008	9:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/18/2008	9:18	Enterococcus	Enterolert	<	10	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/19/2008	11:43	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/19/2008	11:43	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/19/2008	11:43	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/23/2008	11:09	Total Coliforms	MTF	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/23/2008	11:09	Fecal Coliforms	MTF	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/23/2008	11:09	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/23/2008	11:13	Total Coliforms	MTF	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/23/2008	11:13	Fecal Coliforms	MTF	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/23/2008	11:13	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/25/2008	8:42	Total Coliforms	MTF	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/25/2008	8:42	Fecal Coliforms	MTF	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/25/2008	8:42	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/1/2008	9:48	Total Coliforms	MTF	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/1/2008	9:48	Fecal Coliforms	MTF	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/1/2008	9:48	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/9/2008	8:54	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/9/2008	8:54	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/9/2008	8:54	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/16/2008	9:32	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/16/2008	9:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/16/2008	9:32	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/23/2008	9:32	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/23/2008	9:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/23/2008	9:32	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/30/2008	9:40	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/30/2008	9:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/30/2008	9:40	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/6/2008	8:58	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/6/2008	8:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/6/2008	8:58	<i>Enterococcus</i>	Enterolert	=	137	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/8/2008	10:15	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/8/2008	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/8/2008	10:15	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/13/2008	8:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/13/2008	8:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/13/2008	8:50	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/20/2008	9:12	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/20/2008	9:12	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/20/2008	9:12	<i>Enterococcus</i>	Enterolert	=	75	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/22/2008	14:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/22/2008	14:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/22/2008	14:40	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/27/2008	11:18	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/27/2008	11:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/27/2008	11:18	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/3/2008	9:58	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/3/2008	9:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/3/2008	9:58	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/10/2008	9:57	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/10/2008	9:57	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/10/2008	9:57	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/17/2008	9:46	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/17/2008	9:46	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/17/2008	9:46	Enterococcus	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/4/2008	7:05	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/4/2008	7:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/4/2008	7:05	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:20	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:25	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:25	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/12/2009	10:30	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/20/2009	12:48	Total Coliforms	MTF (APHA 9221 B)	E	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/20/2009	12:48	Total Coliforms	MTF (APHA 9221 B)	E	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/20/2009	12:48	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/20/2009	12:48	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/20/2009	12:48	Enterococcus	Enterolert	=	31	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	2/20/2009	12:48	Enterococcus	Enterolert	=	31	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/22/2009	10:30	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/22/2009	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/22/2009	10:30	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/29/2009	9:20	Total Coliforms	MTF (APHA 9221 B)	=	110	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/29/2009	9:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	110	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	6/29/2009	9:20	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/6/2009	8:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/6/2009	8:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/6/2009	8:50	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/13/2009	9:55	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/13/2009	9:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/13/2009	9:55	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/20/2009	9:05	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/20/2009	9:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/20/2009	9:05	Enterococcus	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/24/2009	11:30	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/24/2009	11:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	170	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/24/2009	11:30	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/27/2009	9:35	Total Coliforms	MTF (APHA 9221 B)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/27/2009	9:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	7/27/2009	9:35	Enterococcus	Enterolert	=	75	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/3/2009	9:25	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/3/2009	9:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/3/2009	9:25	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/10/2009	9:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/10/2009	9:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/10/2009	9:35	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/17/2009	9:43	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/17/2009	9:43	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/17/2009	9:43	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/24/2009	9:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/24/2009	9:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/24/2009	9:35	Enterococcus	Enterolert	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/31/2009	10:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/31/2009	10:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	8/31/2009	10:10	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/8/2009	9:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/8/2009	9:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/8/2009	9:45	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/14/2009	8:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/14/2009	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/14/2009	8:45	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/21/2009	7:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/21/2009	7:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/21/2009	7:35	Enterococcus	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/28/2009	9:00	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/28/2009	9:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	9/28/2009	9:00	Enterococcus	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/6/2009	7:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/6/2009	7:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/6/2009	7:10	Enterococcus	Enterolert	<	10	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/12/2009	9:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/12/2009	9:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/12/2009	9:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/14/2009	10:53	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/14/2009	10:53	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/14/2009	10:53	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/19/2009	7:39	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/19/2009	7:39	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/19/2009	7:39	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/26/2009	9:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/26/2009	9:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	10/26/2009	9:20	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/3/2009	11:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/3/2009	11:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/3/2009	11:40	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/9/2009	7:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/9/2009	7:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/9/2009	7:20	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/17/2009	5:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/17/2009	5:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/17/2009	5:35	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/23/2009	9:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/23/2009	9:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	11/23/2009	9:45	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/1/2009	10:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/1/2009	10:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/1/2009	10:45	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/2/2009	11:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/2/2009	11:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/2/2009	11:35	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/9/2009	11:08	Total Coliforms	MTF (APHA 9221 B)	=	1300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/9/2009	11:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/9/2009	11:08	<i>Enterococcus</i>	Enterolert	=	1091	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/10/2009	13:20	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/10/2009	13:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	230	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/10/2009	13:20	<i>Enterococcus</i>	Enterolert	=	164	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/14/2009	10:55	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/14/2009	10:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	300	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/14/2009	10:55	<i>Enterococcus</i>	Enterolert	=	64	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/16/2009	11:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/16/2009	11:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-030	Imperial Beach Pier	Imperial Beach pier area	12/16/2009	11:50	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/5/2007	10:19	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/5/2007	10:19	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/5/2007	10:19	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/11/2007	10:00	Total Coliforms	MTF (APHA 9221 B)	=	170	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/11/2007	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	70	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/11/2007	10:00	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/18/2007	8:28	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/18/2007	8:28	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/18/2007	8:28	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/22/2007	6:52	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/22/2007	6:52	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/22/2007	6:52	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/25/2007	9:37	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/25/2007	9:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/25/2007	9:37	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/2/2007	10:05	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/2/2007	10:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/2/2007	10:05	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/9/2007	9:55	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/9/2007	9:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/9/2007	9:55	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/16/2007	9:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/16/2007	9:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/16/2007	9:50	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/23/2007	10:30	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/23/2007	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/23/2007	10:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/30/2007	10:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/30/2007	10:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/30/2007	10:50	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/6/2007	9:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/6/2007	9:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/6/2007	9:10	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/13/2007	8:22	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/13/2007	8:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/13/2007	8:22	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/20/2007	9:00	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/20/2007	9:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/20/2007	9:00	<i>Enterococcus</i>	Enterolert	=	31	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/27/2007	9:55	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-041	Camp Surf jetty	north Imperial Beach	6/27/2007	9:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/27/2007	9:55	Enterococcus	Enterolert	=	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/2/2007	10:10	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/2/2007	10:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/2/2007	10:10	Enterococcus	Enterolert	=	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/12/2007	10:00	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/12/2007	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/12/2007	10:00	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/18/2007	10:15	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/18/2007	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/18/2007	10:15	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/25/2007	10:15	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/25/2007	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/25/2007	10:15	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/1/2007	10:12	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/1/2007	10:12	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/1/2007	10:12	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/8/2007	10:44	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/8/2007	10:44	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/8/2007	10:44	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/15/2007	8:50	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/15/2007	8:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/15/2007	8:50	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/22/2007	10:17	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/22/2007	10:17	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/22/2007	10:17	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/29/2007	8:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/29/2007	8:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/29/2007	8:00	Enterococcus	Enterolert	=	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/5/2007	8:23	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/5/2007	8:23	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/5/2007	8:23	Enterococcus	Enterolert	=	31	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/12/2007	8:05	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/12/2007	8:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/12/2007	8:05	Enterococcus	Enterolert	=	31	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/19/2007	8:55	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/19/2007	8:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/19/2007	8:55	Enterococcus	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/26/2007	8:18	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/26/2007	8:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/26/2007	8:18	Enterococcus	Enterolert	<	10	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-041	Camp Surf jetty	north Imperial Beach	10/3/2007	8:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/3/2007	8:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/3/2007	8:00	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/10/2007	10:39	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/10/2007	10:39	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/10/2007	10:39	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/17/2007	9:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/17/2007	9:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/17/2007	9:10	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/31/2007	8:20	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/31/2007	8:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	10/31/2007	8:20	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/2/2008	10:14	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/2/2008	10:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/2/2008	10:14	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/9/2008	10:27	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/9/2008	10:27	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/9/2008	10:27	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/16/2008	10:21	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/16/2008	10:21	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/16/2008	10:21	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/23/2008	9:58	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/23/2008	9:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/23/2008	9:58	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/30/2008	10:05	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/30/2008	10:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	4/30/2008	10:05	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/7/2008	9:55	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/7/2008	9:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/7/2008	9:55	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/14/2008	10:18	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/14/2008	10:18	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/14/2008	10:18	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/21/2008	9:15	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/21/2008	9:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/21/2008	9:15	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/28/2008	8:55	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/28/2008	8:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	5/28/2008	8:55	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/4/2008	9:53	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/4/2008	9:53	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-041	Camp Surf jetty	north Imperial Beach	6/4/2008	9:53	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/11/2008	9:15	Total Coliforms	MTF (APHA 9221 B)	=	80	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/11/2008	9:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/11/2008	9:15	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/18/2008	9:32	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/18/2008	9:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/18/2008	9:32	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/25/2008	8:57	Total Coliforms	MTF	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/25/2008	8:57	Fecal Coliforms	MTF	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	6/25/2008	8:57	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/1/2008	10:00	Total Coliforms	MTF	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/1/2008	10:00	Fecal Coliforms	MTF	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/1/2008	10:00	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/9/2008	9:08	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/9/2008	9:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/9/2008	9:08	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/16/2008	9:52	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/16/2008	9:52	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/16/2008	9:52	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/23/2008	9:48	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/23/2008	9:48	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/23/2008	9:48	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/30/2008	9:58	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/30/2008	9:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	7/30/2008	9:58	<i>Enterococcus</i>	Enterolert	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/6/2008	9:14	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/6/2008	9:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/6/2008	9:14	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/13/2008	9:08	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/13/2008	9:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/13/2008	9:08	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/20/2008	9:32	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/20/2008	9:32	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	8/20/2008	9:32	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/3/2008	10:14	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/3/2008	10:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/3/2008	10:14	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/10/2008	10:14	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/10/2008	10:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/10/2008	10:14	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/17/2008	10:04	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
EH-041	Camp Surf jetty	north Imperial Beach	9/17/2008	10:04	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
EH-041	Camp Surf jetty	north Imperial Beach	9/17/2008	10:04	Enterococcus	Enterolert	=	42	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/3/2007	10:46	Total Coliforms	MF	E	40	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/3/2007	10:46	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/3/2007	10:46	Enterococcus	MF	E	22	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/9/2007	9:16	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/9/2007	9:16	Fecal Coliforms	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/9/2007	9:16	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/16/2007	11:10	Total Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/16/2007	11:10	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/16/2007	11:10	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/23/2007	9:32	Total Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/23/2007	9:32	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/23/2007	9:32	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/30/2007	10:45	Total Coliforms	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/30/2007	10:45	Fecal Coliforms	MF	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/30/2007	10:45	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/6/2007	10:38	Total Coliforms	MF	E	2600	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/6/2007	10:38	Fecal Coliforms	MF	E	24	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/6/2007	10:38	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/13/2007	10:23	Total Coliforms	MF	E	14	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/13/2007	10:23	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/13/2007	10:23	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2007	10:45	Total Coliforms	MF	=	5800	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2007	10:45	Fecal Coliforms	MF	E	220	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2007	10:45	Enterococcus	MF	E	160	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/27/2007	10:20	Total Coliforms	MF	E	8	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/27/2007	10:20	Fecal Coliforms	MF	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/27/2007	10:20	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/6/2007	8:04	Total Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/6/2007	8:04	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/6/2007	8:04	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/13/2007	11:10	Total Coliforms	MF	=	56	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/13/2007	11:10	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/13/2007	11:10	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/14/2007	10:37	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/14/2007	10:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/14/2007	10:37	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/15/2007	8:22	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/15/2007	8:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/15/2007	8:22	Enterococcus	Enterolert	<	10	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/20/2007	13:26	Total Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/20/2007	13:26	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/20/2007	13:26	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/27/2007	9:35	Total Coliforms	MF	E	40	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/27/2007	9:35	Fecal Coliforms	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/27/2007	9:35	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/3/2007	8:25	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/3/2007	8:25	Fecal Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/3/2007	8:25	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/10/2007	10:38	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/10/2007	10:38	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/10/2007	10:38	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/17/2007	10:13	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/17/2007	10:13	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/17/2007	10:13	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/22/2007	7:17	Total Coliforms	MTF (APHA 9221 B)	=	230	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/22/2007	7:17	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/22/2007	7:17	Enterococcus	Enterolert	=	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/24/2007	10:35	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/24/2007	10:35	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/24/2007	10:35	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/1/2007	7:40	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/1/2007	7:40	Fecal Coliforms	MF	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/1/2007	7:40	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/8/2007	10:00	Total Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/8/2007	10:00	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/8/2007	10:00	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/15/2007	9:56	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/15/2007	9:56	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/15/2007	9:56	Enterococcus	MF	E	8	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/22/2007	8:22	Total Coliforms	MF	E	180	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/22/2007	8:22	Fecal Coliforms	MF	E	22	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/22/2007	8:22	Enterococcus	MF	E	8	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/29/2007	10:26	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/29/2007	10:26	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/29/2007	10:26	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/5/2007	10:12	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/5/2007	10:12	Fecal Coliforms	MF	E	10	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/5/2007	10:12	Enterococcus	MF	=	52	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/12/2007	10:10	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/12/2007	10:10	Fecal Coliforms	MF	E	2	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/12/2007	10:10	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/19/2007	11:05	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/19/2007	11:05	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/19/2007	11:05	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2007	11:48	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2007	11:48	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2007	11:48	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2007	11:51	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2007	11:51	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2007	11:51	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/27/2007	7:44	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/27/2007	7:44	Fecal Coliforms	MF	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/27/2007	7:44	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/3/2007	9:30	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/3/2007	9:30	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/3/2007	9:30	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/10/2007	12:16	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/10/2007	12:16	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/10/2007	12:16	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/17/2007	10:15	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/17/2007	10:15	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/17/2007	10:15	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/24/2007	11:00	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/24/2007	11:00	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/24/2007	11:00	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/31/2007	10:35	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/31/2007	10:35	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/31/2007	10:35	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/7/2007	10:23	Total Coliforms	MF	E	40	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/7/2007	10:23	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/7/2007	10:23	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/14/2007	10:15	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/14/2007	10:15	Fecal Coliforms	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/14/2007	10:15	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/21/2007	8:50	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/21/2007	8:50	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/21/2007	8:50	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/28/2007	10:22	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/28/2007	10:22	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/28/2007	10:22	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/1/2007	10:47	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/1/2007	10:47	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/1/2007	10:47	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/4/2007	9:53	Total Coliforms	MF	E	12	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/4/2007	9:53	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/4/2007	9:53	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/11/2007	9:55	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/11/2007	9:55	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/11/2007	9:55	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/18/2007	7:45	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/18/2007	7:45	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/18/2007	7:45	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/25/2007	11:20	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/25/2007	11:20	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/25/2007	11:20	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/2/2007	10:22	Total Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/2/2007	10:22	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/2/2007	10:22	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/9/2007	8:45	Total Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/9/2007	8:45	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/9/2007	8:45	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/16/2007	9:34	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/16/2007	9:34	Fecal Coliforms	MF	E	10	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/16/2007	9:34	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/23/2007	11:42	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/23/2007	11:42	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/23/2007	11:42	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/30/2007	9:05	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/30/2007	9:05	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/30/2007	9:05	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/6/2007	9:10	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/6/2007	9:10	Fecal Coliforms	MF	E	10	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/6/2007	9:10	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/13/2007	10:14	Total Coliforms	MF	E	160	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/13/2007	10:14	Fecal Coliforms	MF	E	8	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/13/2007	10:14	Enterococcus	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/20/2007	9:54	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/20/2007	9:54	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/20/2007	9:54	Enterococcus	MF	E	28	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/27/2007	12:27	Total Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/27/2007	12:27	Fecal Coliforms	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/27/2007	12:27	Enterococcus	MF	E	2	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/4/2007	10:40	Total Coliforms	MF	E	60	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/4/2007	10:40	Fecal Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/4/2007	10:40	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/11/2007	11:45	Total Coliforms	MF	=	4200	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/11/2007	11:45	Fecal Coliforms	MF	E	280	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/11/2007	11:45	Enterococcus	MF	=	110	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/18/2007	10:30	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/18/2007	10:30	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/18/2007	10:30	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/26/2007	10:56	Total Coliforms	MF	E	80	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/26/2007	10:56	Fecal Coliforms	MF	E	12	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/26/2007	10:56	Enterococcus	MF	=	40	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/2/2008	9:25	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/2/2008	9:25	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/2/2008	9:25	Enterococcus	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/8/2008	10:37	Total Coliforms	MF	=	5800	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/8/2008	10:37	Fecal Coliforms	MF	E	680	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/8/2008	10:37	Enterococcus	MF	E	1600	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/15/2008	10:52	Total Coliforms	MF	E	1600	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/15/2008	10:52	Fecal Coliforms	MF	E	160	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/15/2008	10:52	Enterococcus	MF	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/22/2008	12:28	Total Coliforms	MF	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/22/2008	12:28	Fecal Coliforms	MF	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/22/2008	12:28	Enterococcus	MF	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/29/2008	11:04	Total Coliforms	MF	>	16000	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/29/2008	11:04	Fecal Coliforms	MF	=	9000	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/29/2008	11:04	Enterococcus	MF	=	8400	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/30/2008	11:40	Total Coliforms	MF	E	800	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/30/2008	11:40	Fecal Coliforms	MF	E	200	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/30/2008	11:40	Enterococcus	MF	=	480	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/1/2008	9:00	Total Coliforms	MTF (APHA 9221 B)	=	3000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/1/2008	9:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	1100	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/1/2008	9:00	Enterococcus	Enterolert	=	31	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/5/2008	11:52	Total Coliforms	MF	E	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/5/2008	11:52	Fecal Coliforms	MF	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/5/2008	11:52	Enterococcus	MF	E	28	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/12/2008	10:05	Total Coliforms	MF	=	5400	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/12/2008	10:05	Fecal Coliforms	MF	=	500	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/12/2008	10:05	Enterococcus	MF	=	64	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/19/2008	8:30	Total Coliforms	MF	>	16000	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/19/2008	8:30	Fecal Coliforms	MF	E	3000	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/19/2008	8:30	<i>Enterococcus</i>	MF	E	300	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2008	12:23	Total Coliforms	MF	=	4800	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2008	12:23	Fecal Coliforms	MF	E	360	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2008	12:23	<i>Enterococcus</i>	MF	E	74	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/26/2008	11:05	Total Coliforms	MF	E	280	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/26/2008	11:05	Fecal Coliforms	MF	E	20	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/26/2008	11:05	<i>Enterococcus</i>	MF	E	4	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/4/2008	12:03	Total Coliforms	MF	>	16000	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/4/2008	12:03	Fecal Coliforms	MF	E	1800	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/4/2008	12:03	<i>Enterococcus</i>	MF	=	800	CFU/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/5/2008	10:15	Total Coliforms	MF (APHA 9222 B)	>	16000	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/5/2008	10:15	Fecal Coliforms	MF (APHA 9222 D)	E	1700	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/5/2008	10:15	<i>Enterococcus</i>	EPA 1600	E	320	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/11/2008	10:04	Total Coliforms	MF (APHA 9222 B)	E	1700	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/11/2008	10:04	Fecal Coliforms	MF (APHA 9222 D)	E	40	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/11/2008	10:04	<i>Enterococcus</i>	EPA 1600	=	100	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/18/2008	10:35	Total Coliforms	MF (APHA 9222 B)	E	8	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/18/2008	10:35	Fecal Coliforms	MF (APHA 9222 D)	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/18/2008	10:35	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/25/2008	11:10	Total Coliforms	MF (APHA 9222 B)	=	54	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/25/2008	11:10	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/25/2008	11:10	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/1/2008	11:49	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/1/2008	11:49	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/1/2008	11:49	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/8/2008	11:00	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/8/2008	11:00	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/8/2008	11:00	<i>Enterococcus</i>	EPA 1600	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/15/2008	9:20	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/15/2008	9:20	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/15/2008	9:20	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/22/2008	11:15	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/22/2008	11:15	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/22/2008	11:15	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/29/2008	9:40	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/29/2008	9:40	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/29/2008	9:40	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/6/2008	10:28	Total Coliforms	MF (APHA 9222 B)	E	40	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/6/2008	10:28	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/6/2008	10:28	<i>Enterococcus</i>	EPA 1600	E	38	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/13/2008	10:50	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/13/2008	10:50	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/13/2008	10:50	Enterococcus	EPA 1600	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/20/2008	11:28	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/20/2008	11:28	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/20/2008	11:28	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/25/2008	10:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/25/2008	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/25/2008	10:20	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/27/2008	10:25	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/27/2008	10:25	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/27/2008	10:25	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/3/2008	11:52	Total Coliforms	MF (APHA 9222 B)	E	400	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/3/2008	11:52	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/3/2008	11:52	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/10/2008	10:20	Total Coliforms	MF (APHA 9222 B)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/10/2008	10:20	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/10/2008	10:20	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/12/2008	13:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/12/2008	13:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/12/2008	13:10	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/17/2008	10:00	Total Coliforms	MF (APHA 9222 B)	E	200	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/17/2008	10:00	Fecal Coliforms	MF (APHA 9222 D)	E	10	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/17/2008	10:00	Enterococcus	EPA 1600	E	6	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/19/2008	11:34	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/19/2008	11:34	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/19/2008	11:34	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2008	10:33	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2008	10:33	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/24/2008	10:33	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/1/2008	10:51	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/1/2008	10:51	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/1/2008	10:51	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/8/2008	10:40	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/8/2008	10:40	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/8/2008	10:40	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/15/2008	11:38	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/15/2008	11:38	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/15/2008	11:38	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/22/2008	11:20	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/22/2008	11:20	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/22/2008	11:20	Enterococcus	EPA 1600	<	2	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/29/2008	9:42	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/29/2008	9:42	Fecal Coliforms	MF (APHA 9222 D)	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/29/2008	9:42	Enterococcus	EPA 1600	E	4	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/5/2008	10:35	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/5/2008	10:35	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/5/2008	10:35	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/12/2008	10:13	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/12/2008	10:13	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/12/2008	10:13	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/19/2008	10:30	Total Coliforms	MF (APHA 9222 B)	E	8	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/19/2008	10:30	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/19/2008	10:30	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/22/2008	13:56	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/22/2008	13:56	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/22/2008	13:56	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/26/2008	12:08	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/26/2008	12:08	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/26/2008	12:08	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/3/2008	11:00	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/3/2008	11:00	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/3/2008	11:00	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/4/2008	6:48	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/4/2008	6:48	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/4/2008	6:48	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/5/2008	10:03	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/5/2008	10:03	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/5/2008	10:03	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/9/2008	12:21	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/9/2008	12:21	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/9/2008	12:21	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/17/2008	10:20	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/17/2008	10:20	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/17/2008	10:20	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/23/2008	11:45	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/23/2008	11:45	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/23/2008	11:45	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/1/2008	11:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/1/2008	11:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/1/2008	11:00	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/7/2008	11:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/7/2008	11:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/7/2008	11:30	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/14/2008	11:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/14/2008	11:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/14/2008	11:45	Enterococcus	Enterolert	<	8	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/21/2008	9:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/21/2008	9:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/21/2008	9:40	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/28/2008	11:05	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/28/2008	11:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/28/2008	11:05	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/4/2008	11:45	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/4/2008	11:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/4/2008	11:45	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/12/2008	11:10	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/12/2008	11:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	24	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/12/2008	11:10	Enterococcus	Enterolert	E	34	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/18/2008	10:33	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/18/2008	10:33	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/18/2008	10:33	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/25/2008	10:20	Total Coliforms	MTF (APHA 9221 B)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/25/2008	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/25/2008	10:20	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/2/2008	12:09	Total Coliforms	MTF (APHA 9221 B)	E	800	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/2/2008	12:09	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	130	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/2/2008	12:09	Enterococcus	Enterolert	E	300	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/4/2008	6:45	Total Coliforms	MTF (APHA 9221 B)	=	130	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/4/2008	6:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/4/2008	6:45	Enterococcus	Enterolert	=	53	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/10/2008	12:15	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/10/2008	12:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/10/2008	12:15	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/16/2008	10:11	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/16/2008	10:11	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	4800	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/16/2008	10:11	Enterococcus	Enterolert	=	12000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/23/2008	11:00	Total Coliforms	MTF (APHA 9221 B)	=	1000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/23/2008	11:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	24	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/23/2008	11:00	Enterococcus	Enterolert	E	180	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/31/2008	12:19	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/31/2008	12:19	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	6	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/31/2008	12:19	Enterococcus	Enterolert	E	24	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/6/2009	11:04	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/6/2009	11:04	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	1000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/6/2009	11:04	Enterococcus	Enterolert	E	180	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/13/2009	11:51	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/13/2009	11:51	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/13/2009	11:51	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/20/2009	11:10	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/20/2009	11:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	6	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/20/2009	11:10	Enterococcus	Enterolert	E	18	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/28/2009	11:33	Total Coliforms	MTF (APHA 9221 B)	E	34	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/28/2009	11:33	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	1/28/2009	11:33	Enterococcus	Enterolert	E	6	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/3/2009	11:15	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/3/2009	11:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/3/2009	11:15	Enterococcus	Enterolert	E	12	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/10/2009	11:22	Total Coliforms	MTF (APHA 9221 B)	E	600	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/10/2009	11:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	32	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/10/2009	11:22	Enterococcus	Enterolert	=	46	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/17/2009	11:35	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/17/2009	11:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	8600	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/17/2009	11:35	Enterococcus	Enterolert	=	6000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/18/2009	11:30	Total Coliforms	MTF (APHA 9221 B)	E	1600	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/18/2009	11:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	96	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/18/2009	11:30	Enterococcus	Enterolert	E	100	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2009	12:20	Total Coliforms	MTF (APHA 9221 B)	E	80	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2009	12:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/20/2009	12:20	Enterococcus	Enterolert	=	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/24/2009	12:07	Total Coliforms	MTF (APHA 9221 B)	E	200	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/24/2009	12:07	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	240	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	2/24/2009	12:07	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/3/2009	11:24	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/3/2009	11:24	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/3/2009	11:24	Enterococcus	Enterolert	E	8	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/10/2009	12:26	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/10/2009	12:26	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/10/2009	12:26	Enterococcus	Enterolert	E	4	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/17/2009	11:15	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/17/2009	11:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/17/2009	11:15	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/24/2009	12:56	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/24/2009	12:56	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	3/24/2009	12:56	Enterococcus	Enterolert	E	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/1/2009	11:20	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/1/2009	11:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/1/2009	11:20	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/7/2009	12:01	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/7/2009	12:01	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/7/2009	12:01	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/14/2009	8:49	Total Coliforms	MTF (APHA 9221 B)	<	16000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/14/2009	8:49	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	5200	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/14/2009	8:49	Enterococcus	Enterolert	<	240	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/15/2009	9:43	Total Coliforms	MTF (APHA 9221 B)	E	180	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/15/2009	9:43	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	8	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/15/2009	9:43	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/21/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/21/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/21/2009	10:40	Enterococcus	Enterolert	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/28/2009	7:44	Total Coliforms	MTF (APHA 9221 B)	<	200	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/28/2009	7:44	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	8	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	4/28/2009	7:44	Enterococcus	Enterolert	E	14	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/6/2009	11:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/6/2009	11:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/6/2009	11:45	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/12/2009	7:22	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/12/2009	7:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/12/2009	7:22	Enterococcus	Enterolert	E	8	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/19/2009	11:30	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/19/2009	11:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/19/2009	11:30	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/26/2009	7:22	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/26/2009	7:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	5/26/2009	7:22	Enterococcus	Enterolert	E	22	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/2/2009	11:15	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/2/2009	11:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/2/2009	11:15	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/9/2009	7:21	Total Coliforms	MTF (APHA 9221 B)	E	60	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/9/2009	7:21	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	6	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/9/2009	7:21	Enterococcus	Enterolert	E	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/16/2009	11:00	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/16/2009	11:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/16/2009	11:00	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/23/2009	9:13	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/23/2009	9:13	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/23/2009	9:13	Enterococcus	Enterolert	E	8	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/30/2009	11:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/30/2009	11:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	6/30/2009	11:20	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/7/2009	6:38	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/7/2009	6:38	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/7/2009	6:38	Enterococcus	Enterolert	E	18	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/14/2009	10:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/14/2009	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/14/2009	10:30	Enterococcus	Enterolert	E	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/21/2009	6:51	Total Coliforms	MTF (APHA 9221 B)	E	1000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/21/2009	6:51	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	14	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/21/2009	6:51	Enterococcus	Enterolert	=	100	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/28/2009	10:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/28/2009	10:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	12	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	7/28/2009	10:45	Enterococcus	Enterolert	E	4	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/4/2009	8:45	Total Coliforms	MTF (APHA 9221 B)	<	200	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/4/2009	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/4/2009	8:45	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/11/2009	10:20	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/11/2009	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/11/2009	10:20	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/17/2009	9:25	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/17/2009	9:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/17/2009	9:25	Enterococcus	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/18/2009	12:29	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/18/2009	12:29	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/18/2009	12:29	Enterococcus	Enterolert	C	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/25/2009	12:25	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/25/2009	12:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	8/25/2009	12:25	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/1/2009	12:01	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/1/2009	12:01	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/1/2009	12:01	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/8/2009	11:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/8/2009	11:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/8/2009	11:00	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/15/2009	12:15	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/15/2009	12:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/15/2009	12:15	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/22/2009	11:25	Total Coliforms	MTF (APHA 9221 B)	E	60	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/22/2009	11:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	54	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/22/2009	11:25	Enterococcus	Enterolert	=	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/29/2009	11:16	Total Coliforms	MTF (APHA 9221 B)	E	300	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/29/2009	11:16	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	76	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	9/29/2009	11:16	Enterococcus	Enterolert	E	30	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/6/2009	10:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/6/2009	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/6/2009	10:30	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/13/2009	11:34	Total Coliforms	MTF (APHA 9221 B)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/13/2009	11:34	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/13/2009	11:34	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/14/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/14/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/14/2009	10:40	Enterococcus	Enterolert	=	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/20/2009	12:37	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/20/2009	12:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/20/2009	12:37	Enterococcus	Enterolert	E	26	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/27/2009	10:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/27/2009	10:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	10/27/2009	10:35	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/3/2009	11:00	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/3/2009	11:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/3/2009	11:00	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/10/2009	10:52	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/10/2009	10:52	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/10/2009	10:52	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/17/2009	10:55	Total Coliforms	MTF (APHA 9221 B)	E	60	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/17/2009	10:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	16	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/17/2009	10:55	Enterococcus	Enterolert	=	400	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/19/2009	8:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/19/2009	8:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/19/2009	8:30	Enterococcus	Enterolert	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/24/2009	9:46	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/24/2009	9:46	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/24/2009	9:46	Enterococcus	Enterolert	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/30/2009	13:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/30/2009	13:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	11/30/2009	13:40	Enterococcus	Enterolert	=	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/1/2009	12:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/1/2009	12:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/1/2009	12:10	Enterococcus	Enterolert	E	4	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/2/2009	11:21	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/2/2009	11:21	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/2/2009	11:21	<i>Enterococcus</i>	Enterolert	=	31	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/8/2009	8:45	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/8/2009	8:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	1200	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/8/2009	8:45	<i>Enterococcus</i>	Enterolert	E	3800	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/9/2009	10:56	Total Coliforms	MTF (APHA 9221 B)	=	5000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/9/2009	10:56	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	2400	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/9/2009	10:56	<i>Enterococcus</i>	Enterolert	=	1445	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/9/2009	10:59	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/9/2009	10:59	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	320	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/9/2009	10:59	<i>Enterococcus</i>	Enterolert	=	1200	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/10/2009	13:45	Total Coliforms	MTF (APHA 9221 B)	=	800	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/10/2009	13:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/10/2009	13:45	<i>Enterococcus</i>	Enterolert	=	111	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/14/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	=	900	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/14/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	500	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/14/2009	10:40	<i>Enterococcus</i>	Enterolert	=	831	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/15/2009	12:58	Total Coliforms	MTF (APHA 9221 B)	E	180	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/15/2009	12:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	12	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/15/2009	12:58	<i>Enterococcus</i>	Enterolert	E	14	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/16/2009	11:30	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/16/2009	11:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/16/2009	11:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/17/2009	12:08	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/17/2009	12:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/17/2009	12:08	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/22/2009	8:31	Total Coliforms	MTF (APHA 9221 B)	=	11000	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/22/2009	8:31	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	0	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/22/2009	8:31	<i>Enterococcus</i>	Enterolert	=	64	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/23/2009	10:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/23/2009	10:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/23/2009	10:50	<i>Enterococcus</i>	Enterolert	E	4	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/29/2009	12:15	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/29/2009	12:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-050	End of Seacoast Dr	Imperial Beach municipal beach	12/29/2009	12:15	<i>Enterococcus</i>	Enterolert	E	12	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/3/2007	11:30	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/3/2007	11:30	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/3/2007	11:30	<i>Enterococcus</i>	MF	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/9/2007	10:22	Total Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/9/2007	10:22	Fecal Coliforms	MF	E	2	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	1/9/2007	10:22	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/16/2007	10:00	Total Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/16/2007	10:00	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/16/2007	10:00	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/23/2007	10:47	Total Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/23/2007	10:47	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/23/2007	10:47	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/30/2007	10:27	Total Coliforms	MF	E	60	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/30/2007	10:27	Fecal Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/30/2007	10:27	Enterococcus	MF	=	1100	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/6/2007	12:22	Total Coliforms	MF	E	140	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/6/2007	12:22	Fecal Coliforms	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/6/2007	12:22	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/13/2007	9:24	Total Coliforms	MF	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/13/2007	9:24	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/13/2007	9:24	Enterococcus	MF	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/20/2007	9:48	Total Coliforms	MF	E	100	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/20/2007	9:48	Fecal Coliforms	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/20/2007	9:48	Enterococcus	MF	=	64	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/27/2007	9:40	Total Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/27/2007	9:40	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/27/2007	9:40	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/6/2007	9:22	Total Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/6/2007	9:22	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/6/2007	9:22	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/13/2007	10:18	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/13/2007	10:18	Fecal Coliforms	MF	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/13/2007	10:18	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/20/2007	13:39	Total Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/20/2007	13:39	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/20/2007	13:39	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/27/2007	8:44	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/27/2007	8:44	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/27/2007	8:44	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/3/2007	9:38	Total Coliforms	MF	<	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/3/2007	9:46	Fecal Coliforms	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/3/2007	9:46	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/10/2007	9:42	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/10/2007	9:42	Fecal Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/10/2007	9:42	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/17/2007	9:17	Total Coliforms	MF	<	20	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	4/17/2007	9:17	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/17/2007	9:17	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/24/2007	9:40	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/24/2007	9:40	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/24/2007	9:40	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/1/2007	8:42	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/1/2007	8:42	Fecal Coliforms	MF	E	12	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/1/2007	8:42	Enterococcus	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/8/2007	9:25	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/8/2007	9:25	Fecal Coliforms	MF	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/8/2007	9:25	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/15/2007	11:02	Total Coliforms	MF	E	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/15/2007	11:02	Fecal Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/15/2007	11:02	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/22/2007	7:24	Total Coliforms	MF	E	100	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/22/2007	7:24	Fecal Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/22/2007	7:24	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/29/2007	11:30	Total Coliforms	MF	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/29/2007	11:30	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/29/2007	11:30	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/5/2007	9:08	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/5/2007	9:08	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/5/2007	9:08	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/12/2007	9:14	Total Coliforms	MF	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/12/2007	9:14	Fecal Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/12/2007	9:14	Enterococcus	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/19/2007	10:00	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/19/2007	10:00	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/19/2007	10:00	Enterococcus	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/27/2007	8:49	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/27/2007	8:49	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/27/2007	8:49	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/3/2007	8:30	Total Coliforms	MF	<	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/3/2007	8:30	Fecal Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/3/2007	8:30	Enterococcus	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/10/2007	12:33	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/10/2007	12:33	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/10/2007	12:33	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/17/2007	9:27	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/17/2007	9:27	Fecal Coliforms	MF	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/17/2007	9:27	Enterococcus	MF	<	2	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	7/24/2007	12:15	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/24/2007	12:15	Fecal Coliforms	MF	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/24/2007	12:15	<i>Enterococcus</i>	MF	E	14	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/31/2007	9:45	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/31/2007	9:45	Fecal Coliforms	MF	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/31/2007	9:45	<i>Enterococcus</i>	MF	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/7/2007	11:16	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/7/2007	11:16	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/7/2007	11:16	<i>Enterococcus</i>	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/14/2007	9:30	Total Coliforms	MF	<	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/14/2007	9:30	Fecal Coliforms	MF	E	18	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/14/2007	9:30	<i>Enterococcus</i>	MF	E	180	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/16/2007	8:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/16/2007	8:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/16/2007	8:30	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/21/2007	10:04	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/21/2007	10:04	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/21/2007	10:04	<i>Enterococcus</i>	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/28/2007	9:27	Total Coliforms	MF	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/28/2007	9:27	Fecal Coliforms	MF	E	100	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/28/2007	9:27	<i>Enterococcus</i>	MF	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/1/2007	11:15	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/1/2007	11:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/1/2007	11:15	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/4/2007	10:13	Total Coliforms	MF	E	60	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/4/2007	10:13	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/4/2007	10:13	<i>Enterococcus</i>	MF	E	14	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/11/2007	9:05	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/11/2007	9:05	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/11/2007	9:05	<i>Enterococcus</i>	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/18/2007	6:55	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/18/2007	6:55	Fecal Coliforms	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/18/2007	6:55	<i>Enterococcus</i>	MF	E	16	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/25/2007	10:23	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/25/2007	10:23	Fecal Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/25/2007	10:23	<i>Enterococcus</i>	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/2/2007	11:16	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/2/2007	11:16	Fecal Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/2/2007	11:16	<i>Enterococcus</i>	MF	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/9/2007	7:55	Total Coliforms	MF	E	28	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/9/2007	7:55	Fecal Coliforms	MF	E	18	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	10/9/2007	7:55	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/16/2007	10:50	Total Coliforms	MF	E	16	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/16/2007	10:50	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/16/2007	10:50	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/23/2007	10:40	Total Coliforms	MF	<	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/23/2007	10:40	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/23/2007	10:40	Enterococcus	MF	E	18	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/30/2007	8:10	Total Coliforms	MF	E	12	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/30/2007	8:10	Fecal Coliforms	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/30/2007	8:10	Enterococcus	MF	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/6/2007	8:20	Total Coliforms	MF	E	100	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/6/2007	8:20	Fecal Coliforms	MF	=	50	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/6/2007	8:20	Enterococcus	MF	=	66	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/13/2007	11:12	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/13/2007	11:12	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/13/2007	11:12	Enterococcus	MF	=	62	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/20/2007	8:30	Total Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/20/2007	8:30	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/20/2007	8:30	Enterococcus	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/27/2007	11:13	Total Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/27/2007	11:13	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	11/27/2007	11:13	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/4/2007	9:40	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/4/2007	9:40	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/4/2007	9:40	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/11/2007	9:34	Total Coliforms	MF	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/11/2007	9:34	Fecal Coliforms	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/11/2007	9:34	Enterococcus	MF	=	90	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/18/2007	9:39	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/18/2007	9:39	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/18/2007	9:39	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/26/2007	11:18	Total Coliforms	MF	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/26/2007	11:18	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	12/26/2007	11:18	Enterococcus	MF	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/2/2008	8:20	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/2/2008	8:20	Fecal Coliforms	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/2/2008	8:20	Enterococcus	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/8/2008	11:43	Total Coliforms	MF	=	2400	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/8/2008	11:43	Fecal Coliforms	MF	=	120	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/8/2008	11:43	Enterococcus	MF	=	440	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/15/2008	9:45	Total Coliforms	MF	<	20	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	1/15/2008	9:45	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/15/2008	9:45	Enterococcus	MF	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/22/2008	12:44	Total Coliforms	MF	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/22/2008	12:44	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/22/2008	12:44	Enterococcus	MF	E	220	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/29/2008	10:00	Total Coliforms	MF	=	5200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/29/2008	10:00	Fecal Coliforms	MF	E	1200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	1/29/2008	10:00	Enterococcus	MF	E	2200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/5/2008	12:20	Total Coliforms	MF	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/5/2008	12:20	Fecal Coliforms	MF	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/5/2008	12:20	Enterococcus	MF	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/12/2008	9:00	Total Coliforms	MF	=	600	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/12/2008	9:00	Fecal Coliforms	MF	E	140	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/12/2008	9:00	Enterococcus	MF	E	22	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/19/2008	9:55	Total Coliforms	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/19/2008	9:55	Fecal Coliforms	MF	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/19/2008	9:55	Enterococcus	MF	E	24	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	2/26/2008	9:30	Total Coliforms	MF	E	3800	CFU/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/26/2008	9:30	Fecal Coliforms	MF	=	600	CFU/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/26/2008	9:30	Enterococcus	MF	=	66	CFU/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/4/2008	11:43	Total Coliforms	MF	E	220	CFU/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/4/2008	11:43	Fecal Coliforms	MF	E	32	CFU/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/4/2008	11:43	Enterococcus	MF	E	8	CFU/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/11/2008	8:40	Total Coliforms	MF (APHA 9222 B)	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/11/2008	8:40	Fecal Coliforms	MF (APHA 9222 D)	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/11/2008	8:40	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/18/2008	9:25	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/18/2008	9:25	Fecal Coliforms	MF (APHA 9222 D)	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/18/2008	9:25	Enterococcus	EPA 1600	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/25/2008	10:15	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/25/2008	10:15	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	3/25/2008	10:15	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/1/2008	9:36	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/1/2008	9:36	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/1/2008	9:36	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/8/2008	9:35	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/8/2008	9:35	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/8/2008	9:35	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/15/2008	10:35	Total Coliforms	MF (APHA 9222 B)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/15/2008	10:35	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/15/2008	10:35	Enterococcus	EPA 1600	<	2	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	4/22/2008	10:00	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/22/2008	10:00	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/22/2008	10:00	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/29/2008	8:50	Total Coliforms	MF (APHA 9222 B)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/29/2008	8:50	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	4/29/2008	8:50	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/6/2008	9:29	Total Coliforms	MF (APHA 9222 B)	E	60	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/6/2008	9:29	Fecal Coliforms	MF (APHA 9222 D)	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/6/2008	9:29	<i>Enterococcus</i>	EPA 1600	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/13/2008	9:45	Total Coliforms	MF (APHA 9222 B)	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/13/2008	9:45	Fecal Coliforms	MF (APHA 9222 D)	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/13/2008	9:45	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/20/2008	11:43	Total Coliforms	MF (APHA 9222 B)	<	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/20/2008	11:43	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/20/2008	11:43	<i>Enterococcus</i>	EPA 1600	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/27/2008	9:50	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/27/2008	9:50	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	5/27/2008	9:50	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/3/2008	10:49	Total Coliforms	MF (APHA 9222 B)	<	200	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/3/2008	10:49	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/3/2008	10:49	<i>Enterococcus</i>	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/10/2008	9:20	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/10/2008	9:20	Fecal Coliforms	MF (APHA 9222 D)	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/10/2008	9:20	<i>Enterococcus</i>	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/17/2008	9:03	Total Coliforms	MF (APHA 9222 B)	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/17/2008	9:03	Fecal Coliforms	MF (APHA 9222 D)	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/17/2008	9:03	<i>Enterococcus</i>	EPA 1600	E	4	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/24/2008	9:34	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/24/2008	9:34	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	6/24/2008	9:34	<i>Enterococcus</i>	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/1/2008	11:11	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/1/2008	11:11	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/1/2008	11:11	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/8/2008	9:40	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/8/2008	9:40	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/8/2008	9:40	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/15/2008	11:00	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/15/2008	11:00	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/15/2008	11:00	<i>Enterococcus</i>	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/22/2008	10:00	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/22/2008	10:00	Fecal Coliforms	MF (APHA 9222 D)	E	12	CFU/100ml

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	7/22/2008	10:00	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/29/2008	10:05	Total Coliforms	MF (APHA 9222 B)	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/29/2008	10:05	Fecal Coliforms	MF (APHA 9222 D)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	7/29/2008	10:05	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/5/2008	10:00	Total Coliforms	MF (APHA 9222 B)	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/5/2008	10:00	Fecal Coliforms	MF (APHA 9222 D)	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/5/2008	10:00	Enterococcus	EPA 1600	E	32	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/12/2008	11:14	Total Coliforms	MF (APHA 9222 B)	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/12/2008	11:14	Fecal Coliforms	MF (APHA 9222 D)	E	8	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/12/2008	11:14	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/19/2008	9:44	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/19/2008	9:44	Fecal Coliforms	MF (APHA 9222 D)	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/19/2008	9:44	Enterococcus	EPA 1600	E	6	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/26/2008	11:35	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/26/2008	11:35	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	8/26/2008	11:35	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/3/2008	10:20	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/3/2008	10:20	Fecal Coliforms	MF (APHA 9222 D)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/3/2008	10:20	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/9/2008	12:39	Total Coliforms	MF (APHA 9222 B)	<	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/9/2008	12:39	Fecal Coliforms	MF (APHA 9222 D)	E	12	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/9/2008	12:39	Enterococcus	EPA 1600	E	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/17/2008	9:42	Total Coliforms	MF (APHA 9222 B)	E	20	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/17/2008	9:42	Fecal Coliforms	MF (APHA 9222 D)	E	40	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/17/2008	9:42	Enterococcus	EPA 1600	E	10	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/23/2008	12:00	Total Coliforms	MF (APHA 9222 B)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/23/2008	12:00	Fecal Coliforms	MF (APHA 9222 D)	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	9/23/2008	12:00	Enterococcus	EPA 1600	<	2	CFU/100ml
IB-060	Carnation Ave.	north Imperial Beach	10/1/2008	9:50	Total Coliforms	MTF (APHA 9221 B)	E	100	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/1/2008	9:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	12	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/1/2008	9:50	Enterococcus	Enterolert	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/7/2008	10:15	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/7/2008	10:15	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/7/2008	10:15	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/14/2008	10:30	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/14/2008	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	28	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/14/2008	10:30	Enterococcus	Enterolert	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/21/2008	10:02	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/21/2008	10:02	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/21/2008	10:02	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/28/2008	10:00	Total Coliforms	MTF (APHA 9221 B)	E	12	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	10/28/2008	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/28/2008	10:00	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/4/2008	12:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/4/2008	12:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/4/2008	12:00	Enterococcus	Enterolert	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/12/2008	10:40	Total Coliforms	MTF (APHA 9221 B)	E	220	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/12/2008	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/12/2008	10:40	Enterococcus	Enterolert	=	84	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/18/2008	10:51	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/18/2008	10:51	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/18/2008	10:51	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/25/2008	9:20	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/25/2008	9:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/25/2008	9:20	Enterococcus	Enterolert	E	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/2/2008	12:22	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/2/2008	12:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	8	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/2/2008	12:22	Enterococcus	Enterolert	E	16	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/4/2008	7:20	Total Coliforms	MTF (APHA 9221 B)	=	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/4/2008	7:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/4/2008	7:20	Enterococcus	Enterolert	=	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/10/2008	11:23	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/10/2008	11:23	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/10/2008	11:23	Enterococcus	Enterolert	E	8	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/16/2008	12:12	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/16/2008	12:12	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	10000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/16/2008	12:12	Enterococcus	Enterolert	>	12000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2008	9:55	Total Coliforms	MTF (APHA 9221 B)	E	80	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2008	9:55	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2008	9:55	Enterococcus	Enterolert	E	260	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2008	10:05	Total Coliforms	MTF (APHA 9221 B)	=	720	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2008	10:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	16	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2008	10:05	Enterococcus	Enterolert	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/31/2008	12:35	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/31/2008	12:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/31/2008	12:35	Enterococcus	Enterolert	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/6/2009	12:33	Total Coliforms	MTF (APHA 9221 B)	E	1600	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/6/2009	12:33	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	180	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/6/2009	12:33	Enterococcus	Enterolert	E	38	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/13/2009	12:08	Total Coliforms	MTF (APHA 9221 B)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/13/2009	12:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/13/2009	12:08	Enterococcus	Enterolert	<	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	1/20/2009	10:05	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/20/2009	10:05	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/20/2009	10:05	<i>Enterococcus</i>	Enterolert	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/28/2009	11:45	Total Coliforms	MTF (APHA 9221 B)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/28/2009	11:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	1/28/2009	11:45	<i>Enterococcus</i>	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/3/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/3/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/3/2009	10:40	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/10/2009	9:08	Total Coliforms	MTF (APHA 9221 B)	E	400	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/10/2009	9:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/10/2009	9:08	<i>Enterococcus</i>	Enterolert	=	58	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/17/2009	10:20	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/17/2009	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	3800	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/17/2009	10:20	<i>Enterococcus</i>	Enterolert	=	10000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/18/2009	10:50	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/18/2009	10:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	440	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/18/2009	10:50	<i>Enterococcus</i>	Enterolert	=	640	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/20/2009	12:35	Total Coliforms	MTF (APHA 9221 B)	E	130	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/20/2009	12:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	80	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/20/2009	12:35	<i>Enterococcus</i>	Enterolert	=	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/24/2009	11:34	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/24/2009	11:34	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	2/24/2009	11:34	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/3/2009	10:50	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/3/2009	10:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/3/2009	10:50	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/10/2009	11:54	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/10/2009	11:54	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/10/2009	11:54	<i>Enterococcus</i>	Enterolert	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/17/2009	10:20	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/17/2009	10:20	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/17/2009	10:20	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/24/2009	12:14	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/24/2009	12:14	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	3/24/2009	12:14	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/1/2009	10:50	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/1/2009	10:50	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/1/2009	10:50	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/7/2009	11:22	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/7/2009	11:22	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	4/7/2009	11:22	Enterococcus	Enterolert	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/14/2009	9:03	Total Coliforms	MTF (APHA 9221 B)	E	16	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/14/2009	9:03	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/14/2009	9:03	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/21/2009	10:10	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/21/2009	10:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/21/2009	10:10	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/28/2009	7:58	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/28/2009	7:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	4/28/2009	7:58	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/6/2009	10:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/6/2009	10:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/6/2009	10:45	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/12/2009	7:41	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/12/2009	7:41	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	60	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/12/2009	7:41	Enterococcus	Enterolert	E	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/19/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/19/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/19/2009	10:40	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/26/2009	7:38	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/26/2009	7:38	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	5/26/2009	7:38	Enterococcus	Enterolert	E	16	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/2/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/2/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/2/2009	10:40	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/9/2009	7:37	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/9/2009	7:37	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/9/2009	7:37	Enterococcus	Enterolert	E	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/16/2009	10:25	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/16/2009	10:25	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/16/2009	10:25	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/23/2009	9:28	Total Coliforms	MTF (APHA 9221 B)	<	200	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/23/2009	9:28	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/23/2009	9:28	Enterococcus	Enterolert	E	8	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/30/2009	10:30	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/30/2009	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	6/30/2009	10:30	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/7/2009	6:56	Total Coliforms	MTF (APHA 9221 B)	E	60	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/7/2009	6:56	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/7/2009	6:56	Enterococcus	Enterolert	E	14	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/14/2009	9:40	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	7/14/2009	9:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/14/2009	9:40	Enterococcus	Enterolert	E	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/21/2009	7:12	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/21/2009	7:12	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	30	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/21/2009	7:12	Enterococcus	Enterolert	E	18	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/28/2009	10:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/28/2009	10:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	7/28/2009	10:00	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/4/2009	9:09	Total Coliforms	MTF (APHA 9221 B)	<	200	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/4/2009	9:09	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/4/2009	9:09	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/11/2009	10:40	Total Coliforms	MTF (APHA 9221 B)	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/11/2009	10:40	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/11/2009	10:40	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/18/2009	11:53	Total Coliforms	MTF (APHA 9221 B)	<	200	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/18/2009	11:53	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/18/2009	11:53	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/25/2009	10:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/25/2009	10:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	8/25/2009	10:45	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/1/2009	11:08	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/1/2009	11:08	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	12	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/1/2009	11:08	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/8/2009	10:10	Total Coliforms	MTF (APHA 9221 B)	<	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/8/2009	10:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	38	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/8/2009	10:10	Enterococcus	Enterolert	=	200	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/15/2009	11:34	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/15/2009	11:34	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/15/2009	11:34	Enterococcus	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/22/2009	10:38	Total Coliforms	MTF (APHA 9221 B)	E	200	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/22/2009	10:38	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/22/2009	10:38	Enterococcus	Enterolert	E	30	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/29/2009	10:39	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/29/2009	10:39	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	9/29/2009	10:39	Enterococcus	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/6/2009	9:35	Total Coliforms	MTF (APHA 9221 B)	=	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/6/2009	9:35	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	8	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/6/2009	9:35	Enterococcus	Enterolert	=	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/13/2009	11:00	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/13/2009	11:00	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/13/2009	11:00	Enterococcus	Enterolert	E	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	10/20/2009	12:12	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/20/2009	12:12	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/20/2009	12:12	<i>Enterococcus</i>	Enterolert	E	4	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/27/2009	9:45	Total Coliforms	MTF (APHA 9221 B)	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/27/2009	9:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	10/27/2009	9:45	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/3/2009	9:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/3/2009	9:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/3/2009	9:45	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/10/2009	11:07	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/10/2009	11:07	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/10/2009	11:07	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/17/2009	10:10	Total Coliforms	MTF (APHA 9221 B)	E	6	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/17/2009	10:10	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/17/2009	10:10	<i>Enterococcus</i>	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/24/2009	11:01	Total Coliforms	MTF (APHA 9221 B)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/24/2009	11:01	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	11/24/2009	11:01	<i>Enterococcus</i>	Enterolert	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/1/2009	10:30	Total Coliforms	MTF (APHA 9221 B)	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/1/2009	10:30	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	8	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/1/2009	10:30	<i>Enterococcus</i>	Enterolert	=	48	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/8/2009	8:58	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/8/2009	8:58	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	980	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/8/2009	8:58	<i>Enterococcus</i>	Enterolert	=	4000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/9/2009	11:11	Total Coliforms	MTF (APHA 9221 B)	=	6400	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/9/2009	11:11	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	240	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/9/2009	11:11	<i>Enterococcus</i>	Enterolert	=	860	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/14/2009	10:45	Total Coliforms	MTF (APHA 9221 B)	=	300	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/14/2009	10:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	130	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/14/2009	10:45	<i>Enterococcus</i>	Enterolert	=	150	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/15/2009	10:46	Total Coliforms	MTF (APHA 9221 B)	E	40	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/15/2009	10:46	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	E	12	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/15/2009	10:46	<i>Enterococcus</i>	Enterolert	E	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/16/2009	11:45	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/16/2009	11:45	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/16/2009	11:45	<i>Enterococcus</i>	Enterolert	<	10	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/22/2009	8:46	Total Coliforms	MTF (APHA 9221 B)	>	16000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/22/2009	8:46	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	=	1000	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/22/2009	8:46	<i>Enterococcus</i>	Enterolert	E	260	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2009	11:03	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/23/2009	11:03	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL

**City of Imperial Beach**  
**Palm Avenue Urban Runoff Diverter Water Quality Monitoring Analysis**  
**7. AB411 Ocean Water Quality Bacterial Data**

StationID	Location	Beach Name	SampleDate	StartTime	ParameterCode	AnalysisMethod	Qualifier	Result	Units
IB-060	Carnation Ave.	north Imperial Beach	12/23/2009	11:03	<i>Enterococcus</i>	Enterolert	E	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/29/2009	12:41	Total Coliforms	MTF (APHA 9221 B)	<	20	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/29/2009	12:41	Fecal Coliforms	MTF by EC (APHA 9221 E.1)	<	2	MPN/100mL
IB-060	Carnation Ave.	north Imperial Beach	12/29/2009	12:41	<i>Enterococcus</i>	Enterolert	E	18	MPN/100mL

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## **Appendix B**

### **Final Project Summary**

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# Final Project Summary for Palm Avenue Low-Flow Urban Runoff Diversion Project

## City of Imperial Beach

\$1,292,000 (Grant Amount)

- The Palm Avenue Low-Flow Urban Runoff Diversion Project (Palm Avenue Diverter) consists of the construction of a storm drain to sanitary sewer diversion structure with a capacity of 250 gallons per minute that eliminates the discharge to the Pacific Ocean beaches of low-flow urban runoff and the first flush during a storm event. This project is located in the City of Imperial Beach in the County of San Diego.
- Construction began on May 7, 2008 and was completed on June 12, 2009.
- The City of Imperial Beach has prepared this report to present the weekly water quality monitoring results for the Palm Avenue Low-Flow Urban Runoff Diversion Project from January 6 through December 1, 2009.
- Bacterial data collected during the monitoring phase shows that, in the absence of the Palm Avenue Diverter, low-flow urban runoff and first-flush stormwater with high levels of bacteria would have been discharged to the receiving waters.
- Comparison of the concentration of bacteria in the wet well with the AB411 water quality benchmarks indicates that for total coliform 98% of the samples exceeded benchmarks, and for *Enterococcus* 91% of the readings exceeded the benchmarks.
- Data analysis shows that 100% of the samples collected at the diverter wet well exceeded at least one of the bacterial indicator benchmarks.
- The Palm Avenue Diverter directs an average of 23,000 gallons per month of urban runoff to the sanitary sewer.
- Only the Carnation Avenue receiving water sampling station had exceedances of bacterial indicators during the project's monitoring period. On February 17 and 18, 2009, during a storm event greater than 1/10<sup>th</sup> of an inch, when the diverter operated in storm discharge mode, water quality exceeded AB411 benchmarks. During the same period, the southern-most sampling location at Seacoast Drive also provides evidence of high bacteria levels likely originating from other sources including the Tijuana River Valley and Mexico.
- This project was successful in combining access to recreation, aesthetic improvements, public infrastructure, and water quality benefits. It received the "Project of the Year" award from the San Diego & Imperial Counties Section of the American Public Works Association (APWA).



For more information on this project please contact Mr. Chris Helmer, City of Imperial Beach at (619) 628-1370 or via email at [CHelmer@CityofIB.org](mailto:CHelmer@CityofIB.org).

**Project Photographs (2008-2009)**



**End of Palm Avenue – pre-existing**



**Pump station – pre-existing**



**New diverter pump system**



**Diverter structure wet well construction**



**Wet well during construction**



**End of Palm Avenue – post-construction**



**End of Palm Avenue – post-construction**

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## **Appendix C QAPP**

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**THE CITY OF IMPERIAL BEACH  
CLEAN BEACHES INITIATIVE  
EFFECTIVENESS ASSESSMENT**

**FINAL  
QUALITY ASSURANCE PROJECT PLAN  
AND MONITORING PLAN  
for the Palm Avenue Low Flow  
Urban Runoff Diverter Project  
No. 07-575-550-0**

PREPARED BY:  
The City of Imperial Beach

Refer correspondence to:  
**Hank Levien**  
Project Manager, City of Imperial Beach,  
495 10<sup>th</sup> Street, CA 91932  
(619) 628-1369  
hlevien@CityofIB.org

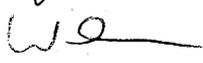
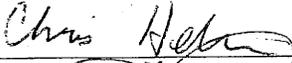
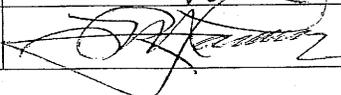
**ELEMENT 1 TITLE AND APPROVAL SHEET**

**QUALITY ASSURANCE PROJECT PLAN  
AND MONITORING PLAN**

for the Palm Avenue Low Flow  
Urban Runoff Diverter Project  
Clean Beach Initiative Grant No. 07-575-550-0

The City of Imperial Beach

**Approval Signatures:**

Title	Name	Signature	Date*
State Water Board Program Manager	Jennifer Toney		1/12/09
State Water Board Quality Assurance / Compliance Officer	William Ray		1/12/09
City of Imperial Beach, Project Manager	Chris Helmer		1/5/09
Contractor Quality Assurance Officer	Rosanna Lacarra		1/5/09

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## ELEMENT 3      DISTRIBUTION LIST

Table 1 identifies those individuals who will receive one copy of the approved Quality Assurance Project Plan (QAPP).

**Table 1.      Quality Assurance Project Plan Distribution List**

Title	Name and Affiliation	Telephone No.	QAPP No.
Program Manager	Jennifer Toney, State Water Resources Control Board	(916) 341-5646	01
Grant Manager	Hoa Ly, State Water Resources Control Board	(916) 341-5720	02
Quality Assurance (QA) Officer	William Ray, State Water Resources Control Board	(916) 341-5583	03
Project Director	Hank Levien, Director of Public Works, City of Imperial Beach	(619) 628-1369	04

All group leaders, and technical advisors will receive copies of this QAPP, and any approved revisions of this plan. Any revisions to this QAPP will require approval by the State Water Board QA Officer prior to resubmittal to personnel on the above distribution list. Prior copies will be destroyed.

Upon approval, this QAPP will be available to any interested party by requesting a copy from the Director of Public Works for the City of Imperial Beach.

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## ELEMENT 4 PROJECT/TASK ORGANIZATION

This Quality Assurance Project Plan (QAPP) reflects the diversity of monitoring and organizational support involved in this project. For the elements of this QAPP, aspects that are shared with all groups as well as those aspects that are unique to individual groups are addressed. The data quality objectives among each monitoring group are consistent allowing comparison of data collected by different organizations. The specific organizational structure for each of the participating organizations is given below. Each of these groups is a public agency that is experienced at water quality sampling and data management, and each has internal QA/QC guidance for those activities. The City of Imperial Beach Public Works Department (CIBPWD) will provide overall QA/QC coordination to assure that data collected for the effectiveness assessment program are collected, analyzed, and reported in a consistent manner following the protocols outlined in this document. The progress and results of the program will be reported quarterly to the State Water Resources Control Board (State Water Board).

### A. City of Imperial Beach Public Works Department (CIBPWD)

#### Organization and Responsibilities

- Provide overall project coordination, including project design, management, and implementation.
- Retain a water monitoring consulting firm to provide trained staff for collection of field observations and water sample collection for bacteriological testing and analysis.
- Retain a water monitoring consulting firm to provide a central location for data reporting and analysis.
- Retain a water testing laboratory through the water monitoring consulting firm to provide trained laboratory assistants and public health microbiologists to perform all water testing procedures for bacteriological testing and analysis that meets the Clean Beaches Initiative (CBI) monitoring requirements. The collection and analysis will be in conjunction with the County and City of San Diego's State AB411 coastal outfall bacteriological monitoring program.

The information collected by the CIBPWD will be provided to the regulatory agencies. It is the responsibility of the regulatory agencies to ensure that adequate and valid data are collected to meet their regulatory requirements.

#### **Management (Monitoring Leaders and Trainers)**

City of Imperial Beach

Environmental Program Manager

#### **Field Monitors and Team Captains (Staff)**

City of Imperial Beach, Team Captain

Environmental Program Specialist

#### Monitoring Technicians

As identified by the contracted water monitoring consulting firm.

#### Testing Personnel

As identified by the contracted water testing laboratory.

#### **Data Managers**

As identified by the contracted water monitoring consulting firm.

## **Quality Assurance Personnel**

As identified by the contracted water monitoring consulting firm

### **B. San Diego County Department of Environmental Health**

Organization and Responsibilities

- Provide coordination between the CIBPWD and San Diego County Public Health Laboratory staff to collect samples on the same day at the same time.
- Provide data to CIBPWD collected for bacteriological testing as outlined in agreements between the City of San Diego and San Diego County for AB411 testing.

### **Management (Monitoring Leaders and Trainers)**

General Supervisor

County of San Diego, Senior Public Health Microbiologist

### **Field Monitors and Team Captains (Staff)**

Testing Personnel

County of San Diego, Public Health Microbiologists

### **C. City of San Diego Metropolitan Wastewater Department**

Organization and Responsibilities

- Provide coordination between the CIBPWD and San Diego County Public Health Laboratory staff to collect samples on the same day at the same time.
- Provide data to CIBPWD staff collected for bacteriological testing as outlined in agreements between the City of San Diego and San Diego County for AB411 testing. The Wastewater Department's General Supervisor will perform final review before mailing or faxing results to CIBWD Environmental Program Manager.

### **Management (Monitoring Leaders and Trainers)**

General Supervisor:

County of San Diego, Department of Public Health Senior Microbiologist

### **Field Monitors and Team Captains (Staff)**

Testing Personnel

County of San Diego, Department of Public Health Microbiologists

## **ELEMENT 5      PROBLEM DEFINITION/BACKGROUND**

### **Problem Statement**

The purpose of this CBI project (Project) is to evaluate the effectiveness of a diverter being implemented by the City of Imperial Beach to reduce bacteriological and other urban runoff pollution to the Pacific Ocean surrounding the City of Imperial Beach. The current project supports diversion and monitoring initiatives aimed at reducing and eventually eliminating beach closures due to bacteria contamination. With the aid of the CBI program, the City of Imperial Beach is installing the Palm Avenue diverter, which will reroute nuisance urban runoff to the sanitary sewer system to prevent potential contamination problems.

Studies have shown that one significant source of bacteria is urban runoff flowing into storm drains that eventually discharge onto the beaches. Diversion projects have proven successful in reducing trash, sediment and bacteria loading to beaches within their respective drainage basins. To reduce bacteria loading to the City's beach, the City of Imperial Beach is constructing a low-flow diversion project that diverts 100% of the dry weather flows from approximately 81 acres of mixed residential and commercial zoned land. Currently, the flows run into a pump station and wet well designed to pump the collected waters directly to the Pacific Ocean. In recent years, during dry weather periods, the station pumps have been turned off and the 16,000 to 20,000 gallons of urban runoff collected per week was pumped using portable pumps and hoses into the sewer system.

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## ELEMENT 6 PROJECT/TASK DESCRIPTION

### Work Statement and Produced Products

The project consists of the installation of a low-flow diverter, water sampling, analysis and associated monitoring, measurement of diverted flow, field screening, and photographic documentation on a weekly basis such that quantity and quality of contaminants diverted are calculated and findings analyzed for a period of one (1) year, with the results provided in a data report.

### Geographical Setting

Imperial Beach, located in the City of Imperial Beach, is a popular beach in the State of California maintained by the City. This beach, however, is currently subject to numerous postings due to levels of bacteria that exceed standards. Imperial Beach was posted with warning or closure signs during calendar year 2000 for 34.5 days, 75 days in 2001, 22 days in 2002, 72 days in 2003, 81 days in 2004, 106 days in 2005, and 69 days in 2006.

The project constructs a diverter system, new pump station, new wet well, new ocean outfall for non-diverted water and associated piping. The diverter is designed to discharge (divert) up to 250 gallons per minute (GPM) of urban nuisance runoff water and first flush storm water to the sanitary sewer system. The drainage area served by this new diverter is approximately 81 acres of predominantly residential and light commercial land uses. Surface water flows are collected in three street drop inlets leading to 18-inch and 30-inch reinforced concrete drainage (RCP) pipes that discharge flows into a storm drain wet well. Construction of new pump station, diversion system, and associated conveyance system reconfigurations started June 2008 and is due to be completed in January 2009. The wet well and 30" pipe will have the capability to store up to 3260 cubic feet of stormwater before the stormwater pumps turn on. The first flush of stormwater runoff will be diverted, with additional storm flows discharged to the beach via a diffuser vault at the end of a new concrete pipe, where it will be dispersed onto the riprap embankment.

### Task 1 – Equipment Installation

A new storm water pump station is under construction at the Palm Avenue street end in Imperial Beach. The new pump station will be capable of automatically diverting low flows to the sanitary sewer and pumping higher flows (i.e., in excess of 250 gallons per minute) to the ocean outfall. The existing ocean outfall is being reconstructed.

### Task 2 – Monitoring

Weekly monitoring of the quantity and quality of runoff diverted to the sanitary sewer system will be conducted to help quantify the total bacterial load prevented from entering the ocean. This post-construction monitoring will be carried out for one year following project completion. Beach advisory and closure data will be obtained from the County of San Diego Department of Environmental Health to observe any noticeable changes in the number of beach postings and closures upcoast (Carnation Avenue station) and downcoast (Imperial Beach Pier station) of Palm Avenue during dry weather conditions.

### *Water Quality Analysis and Field Screening Observations*

Field crews will make on-site measurements of key water quality parameters:

- Odor
- Water clarity
- Staining
- Specific conductance (calculated estimate Total Dissolved Solids)
- Temperature

- pH

***Misc.***

- Flow measurements
- Photographs

***Laboratory Analytical Monitoring***

- Enterococcus bacteria
- Total coliform bacteria
- Fecal coliform bacteria

Provide alternate costs for adding metals to the scope of laboratory analytical monitoring as listed below, all other items listed are considered part of the base proposal.

**Alternate #1**

***Metals / Toxics***

- Cadmium (dissolved)
- Copper (dissolved)
- Lead (dissolved)
- Zinc (dissolved)

## ELEMENT 7      QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT DATA

Data quality objectives (DQOs) for the bacteriological testing are summarized in the table below. Whenever possible, the method with the greatest sensitivity and lowest detection limit will be employed as the primary method. Specific DQOs are not given for the flow monitoring. These data will be continuously evaluated to ascertain their validity and usefulness.

**Data Quality Objectives for Biological Parameters Table**

Parameter	Method/ Range	Units	Detection Limit	Sensitivity	Precision	Accuracy	Completeness
Total Coliform Bacteria	Colilert 18 hour	MPN/ 100m l	10	See IDEXX quantitray tables	Duplicates within 95% confidence limits	Positive standard within ½ of an order of magnitude	80%
<i>E. coli</i> Bacteria	Colilert 18 hour	MPN/ 100m l	10	See IDEXX quantitray tables	Duplicates within 95% confidence limits	Positive standard within ½ of an order of magnitude	80%
Enterococcus Bacteria	Enterolert 24 hour	MPN/ 100m l	10	See IDEXX quantitray tables	Duplicates within 95% confidence limits	Positive standard within ½ of an order of magnitude	80%

### Accuracy and Precision

All results will be reviewed and checked for accuracy by the Data Manager and the Quality Assurance Personnel. Precision and accuracy are also assessed by yearly proficiency testing from ELAP.

### Comparability

Comparability is the degree to which data can be compared directly to similar studies. To ensure that the data can be compared to other bacteriological characterization studies for AB411 and receiving water monitoring by municipalities in San Diego County, the monitoring group will use the methods described in EPA's Standard Methods for Examination of Water and Wastewater.

### Completeness

Completeness is the fraction of planned data that must be collected in order to fulfill the statistical criteria of the project. There are no statistical criteria that require a certain percentage of data. However, it is expected that 80% of all measurements will be taken when anticipated. This accounts for adverse weather conditions, safety concerns, and equipment problems.

The City will determine completeness by comparing the number of planned measurements to the number of measurements that are actually collected and deemed valid. An invalid measurement would be one that does not meet the sampling methods requirements and the data quality objectives. Completeness results will be checked quarterly. This will allow the City to identify and correct problems. The Data Quality Form: Completeness, found in Appendix 1, will be used to record completeness.

### **Representativeness**

Representativeness describes how relevant the data are to the actual environmental condition. Problems can occur if:

- Samples are taken in a stream reach that does not describe the area, or samples are taken in an unusual habitat type (e.g. a stagnant backwater instead of in the flowing portion of the storm drain)
- Samples are not analyzed or processed appropriately; causing conditions in the sample to change (e.g. water chemistry measurements are not taken immediately).

Representativeness will be ensured by following the established methods in this plan, and by obtaining approval of this document.

### **Method Detection Limit and Sensitivity**

The Method Detection Limit is the lowest possible concentration the instrument or equipment can detect. This is important to record because the City cannot determine that bacteria were not present, only that it was not detected. Sensitivity is the ability of the instrument to detect one concentration from the next. Detection Limits and Sensitivities for Total Coliform, Fecal Coliform, and Enterococcus are noted in the Data Quality Objectives for Biological Parameters table.

## **ELEMENT 8      TRAINING REQUIREMENTS**

### **Special Training or Certifications**

#### *Field Sampling*

Field personnel will be trained to collect samples and make observations that are consistent with those methods used for AB411 and receiving water monitoring by municipalities in San Diego County.

#### *Analytical Laboratory*

The selected consultant's laboratory will have the appropriate accreditations.

### **Training and Certification Documentation**

Personnel are responsible for complying with QA/QC requirements that pertain to their organizational/technical function. Each technical staff member must have a combination of experience and education to adequately demonstrate a specific knowledge of their function and a general knowledge of laboratory operations, test methods, QA/QC procedures, and records management.

### **Training Personnel**

The selected consultant will provide training for field personnel in proper sampling techniques prior to work initiation to ensure consistent and appropriate sampling, sample handling/storage, and COC procedures. The selected consultant is responsible to ensure training has been completed.

## **ELEMENT 9      DOCUMENTATION AND RECORDS**

All field results will be recorded at the time of completion, using the field data sheets (see Appendix 2). Data sheets will be reviewed for outliers and omissions before leaving the sample site. Data sheets will be signed after review by the Team Captain leader. Data sheets will be stored in hard copy form at the location specified. Field data sheets are archived for three years from the time they were collected. Hard copies of all data, as well as computer back-up disks, are maintained at City Department of Public Works offices.

## **ELEMENT 10    SAMPLE PROCESS DESIGN**

### **Rationale for Selection of Sampling Sites**

Sampling site is indicated on the map in Appendix 3. The site is in the diverter to achieve accurate flow measurements and representative water quality data from the diverted urban runoff.

Access to the diverter will be achieved through floor panels providing access to the diverter pump. Prior to sampling, the plaza will be partially cordoned off to allow for observations of the diverter pump and reading of the jock pump flow meter. Samples can then be taken from an easily accessible spigot off the diverter pump. The site visit also includes visual observations of the water sample and site area, which includes written descriptions and photographs.

### **Sample Design Logistics**

Safety measures will be discussed with the City of Imperial Beach's Team Captain and Consultant's monitoring technicians.

## **ELEMENT 11    SAMPLING METHOD REQUIREMENTS**

Water samples for bacteriological testing should be submitted to testing laboratory on the day of sampling. Sampling will be coordinated with the AB-411 monitoring samples days at Imperial Beach. Samples will be taken during dry weather, with no less than 72 hours since the last measurable rain event.

The selected consultant will verify with the lab in advance which specific upper endpoints are anticipated and needed. Endpoints (i.e., the number of dilutions) will ensure an accurate estimate of MPN/100 ml of bacteria in the samples. Routine water testing has an upper endpoint of  $\geq 1,600,000$  MPN/100 ml.

---

## ELEMENT 12 SAMPLE HANDLING CUSTODY

### Sample Handling

Identification information for each sample will be recorded on the field data sheets (see Appendix 2) when the sample is collected. Samples will be labeled with the stations ID, sample location, sample number, date and time of collection, sampler's name, and method used to preserve sample (if any).

### Custody Procedures

Samples will be considered to be in custody if they are (1) in the custodian's possession or view, (2) retained in a secured place (under lock) with restricted access, or (3) placed in a container and secured with an official seal such that the sample could not be reached with breaking the seal.

Chain of Custody (COC) procedures will be initiated during sample collection. A COC record will be provided with each sample or group of samples. When samples are transferred from one member of the monitoring group to another member of the same organization for analysis, or from one monitoring group to someone outside of the group, then a COC form will be used. Each person who will have custody of the samples will sign the COC form and ensure the samples will not be left unattended unless properly secured. COC procedures will be used for samples throughout the collection, transport, and analytical process.

Documentation of sample handling and custody includes the following:

- Sample number/identifier
- Sample collection date and time
- Any special notations on sample characteristics or analysis
- Initials of the person collecting the sample
- Date the sample was sent to the analytical laboratory
- Shipping company and waybill information

Completed COC forms will be placed in a plastic envelope and kept inside the cooler containing the samples. Once delivered to the analytical laboratory, the COC form will be signed by the person receiving the samples. The condition of the samples will be noted and recorded by the receiver. COC records will be included in the final reports prepared by the analytical laboratories and are considered an integral part of the report.

When quality control checks are performed by the environmental testing laboratory, their samples will be processed under their chain of custody procedures with their labels and documentation procedures.

### Disposal

All analyzed samples or spent chemicals including used reagents, buffers or standards will be collected in a plastic bottle clearly marked "Waste" or "Poison". This waste material will be disposed of according to appropriate state and local regulations. This will usually mean disposal into a drain connected to a sewage treatment plant.

---

## ELEMENT 13 ANALYTICAL METHODS

The table below outlines the methods to be used, any modifications to those methods, and the appropriate reference to a standard method.

**Analytical Methods for Water Quality Parameters Table**

<b>Parameter</b>	<b>Method</b>	<b>Modification</b>	<b>Reference (a)</b>
Total Coliform Bacteria	Colilert 18 hour	none	IDEXX Corp.
<i>E. coli</i> Bacteria	Colilert 18 hour	none	IDEXX Corp.
Enterococcus Bacteria	Enterolert 24 hour	none	IDEXX Corp.

(a) All of the above methods have been approved by the EPA and are described in Standard Methods for the Examination of Water and Wastewater 20<sup>th</sup> Edition. American Public Health Association et al, 1998.

## ELEMENT 14    QUALITY CONTROL

Quality control samples will be taken to ensure valid data are collected. Quality control samples will consist of blanks, replicate samples, and split samples.

### **Blanks, Replicates, Split Samples, and Standardization**

Field/Laboratory Blanks: For bacterial analysis, a laboratory blank will be performed in accordance with the procedures outlined in the EPA's Standard Methods for the Examination of Water and Wastewater.

Replicate Samples: Replicate samples are two or more samples collected at the same time and place. When there are only two replicates then these are referred to as duplicates. For bacterial analysis lab duplicates will be run per the procedures outlined in the EPA's Standard Methods for the Examination of Water and Wastewater.

Continuous Monitoring Devices: The continuous monitoring flow devices used will be calibrated and deployed according to the manufacturer's specifications and field confirmation will be performed. Confirmations using a flow meter will be performed at the time of deploying and retrieving the device. This will serve to determine the accuracy of the continuous monitoring device.

## **ELEMENT 15 DATA ACQUISITION REQUIREMENTS**

Only certified analytical laboratories, such as a private laboratory like EnviroMatrix, or academic laboratories will be used for quality assurance checks and analysis of field samples. The Technical advisory Committee (TAC) or technical advisors will review the data of these laboratories. They may also review the labs own quality control data to ensure data validity.

## **ELEMENT 16    GEOGRAPHICAL INFORMATION/ MAPPING**

Construction drawings provided by the City of Imperial Beach will be used to identify the diverter and storm drain system geometry. Land use information is available through the City of Imperial Beach.

## **ELEMENT 17 DATA MANAGEMENT**

Field data sheets are checked and signed in the field by the Team Captain. The Team Captain will identify any results where holding times have been exceeded, sample identification information is incorrect, samples were inappropriately handled, or calibration information is missing or inadequate. Such data will be marked as unacceptable by the Team Captain and will not be entered into the electronic data base.

The contracted environmental testing laboratory will report their results to the Team Captain. The Team Captain will verify sample identification information, review the chain-of-custody forms, and identify the data appropriately in the database. These data are also reviewed by the Public Works Environmental Program Manager.

The Data Manager will review the field sheets and enter the data deemed acceptable by the Quality Assurance Personnel, Team Captain and Environmental Program Manager. Upon entering the data, the Data Manager will sign and archive the field data sheets. Data will be entered into a spreadsheet (MS Excel) in a way that will be compatible with EPA's STORET and the RWQCB's database guidelines. Following initial data entry the Quality Assurance Personnel will review electronic data, compare to the original data sheets and correct entry errors. After performing data checks, and ensuring that data quality objectives have been met, data analysis will be performed.

Raw data will be provided to the State Water Board and Regional Water Board in electronic form at least once a year so that it can be included in the 305(b) report. Appropriate quality assurance information may be provided upon request.

## **ELEMENT 18    ASSESSMENT AND RESPONSE ACTIONS**

Review of all field and data activities is the responsibility of the Team Captain, with the assistance of the Public Works Environmental Program Manager. Within the first three months of the monitoring project, the State Water Board or Regional Water Board staff, or its designee, may evaluate field and laboratory performance and provide a report to the monitoring group. All field and laboratory activities, and records may be reviewed by State and EPA quality assurance officers as requested.

## **ELEMENT 19    REPORTS**

Project updates will be provided on a monthly basis to the City of Imperial Beach, Project Director. The reports will be in memo format and contain the relevant information regarding project progress, data collection, and any issues and associated resolution. In addition, data reports will be prepared on a quarterly basis for submission to the Project Director and the State Water Board Program Manager. These data reports will contain summaries of project progress and preliminary findings.

## **ELEMENT 20 DATA REVIEW, VERIFICATION AND VALIDATION**

The technician generating the data has the prime responsibility for the accuracy and completeness of the data. Each technician reviews the data to ensure that:

- Sample description information is correct and complete.
- Analysis information is correct and complete.
- Results are correct and complete.
- Documentation is complete.

Data are entered in a database, and comparisons are made for any discrepancy, which is then resolved. In the event that a discrepancy cannot be resolved, the Project Manager will be notified.

In the data review process, the data are compared to information such as the sample's history, sample preservation, and QC sample data to evaluate the validity of the results. Corrective action is minimized through the development and implementation of routing internal system controls. Data sheets or data files are reviewed quarterly by the technical advisors to determine if the data meet the QAPP objectives. They will identify outliers, spurious results or omissions to the monitoring leader. They will also evaluate compliance with the data quality objectives. They will suggest corrective action that will be implemented by the monitoring leader. Problems with data quality and corrective action will be reported in final reports.

## **ELEMENT 21    VALIDATION AND VERIFICATION METHODS**

As part of standard field protocols, any sample readings out of the expected range will be reported to the monitoring leader. A second sample will be taken as soon as possible to verify the condition. If the data is invalid, then the data will be noted (flagged) on the data sheet. Further actions will be taken to trace the sources of error, and to correct those problems.

## **ELEMENT 22 RECONCILIATION WITH DQOS**

The QA personnel will review data quarterly to determine if the data quality objectives (DQOs) have been met. If data do not meet the project's specifications, the QA personnel review errors and determine if the problem is due to equipment failure, calibration/maintenance, sampling techniques, or other factors, and they will suggest corrective action. It is expected that the problem would be correctible through personnel re-training, technique revision, or supplies/equipment replacement. If not, the DQOs will be reviewed for feasibility. If the specific DQOs are not achievable, the QA personnel will recommend appropriate modifications. Any revisions would need approval by the City Project Manager and the State Water Board Program Manager.

Data produced as part of this project will be reviewed following the completion of data validation and verification procedures. Data flagged with validation or verification issues will be qualified to data users.

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## **MONITORING PLAN for the Palm Avenue Low Flow Urban Runoff Diverter Project**

### **Monitoring Mission and Goals**

#### ***Mission***

The mission of the monitoring program is to assess the effectiveness of the project that is implemented in the CBI program described above, and produce environmental information which is needed to evaluate the pollution prevention measures within the watershed that has been implemented by the City of Imperial Beach.

This project is being led by the City of Imperial Beach, Public Works Department (CIBPWD). The CIBPWD will cooperate with and utilize data from the following groups to monitor and assess the Palm Avenue storm drain diverter within the City of Imperial Beach:

1. San Diego County Department of Environmental Health
2. The City of San Diego Metropolitan Wastewater Department

#### ***Problem Statement***

*i. Identify and characterize baseline data*

Despite aggressive programs to manage urban runoff and storm water, coastal storm drains in the City of Imperial Beach continue to exhibit high levels of indicator bacteria. A year-long water quality monitoring study at the Date Avenue coastal storm drain (0.2 miles south of the Palm Avenue street end) determined that the concentration of indicator bacteria in non-storm water flows exceeded AB411 public health standards 80-90% of the time. In addition, beach water quality samples collected along the Imperial Beach shoreline during the AB411 sampling season (April 1 – October 31) show frequent exceedances of water quality standards for bacterial indicators. Elevated concentrations of indicator bacteria have been shown to correlate with increased health risks to ocean water recreators.

*ii. Identify pollution source categories*

The project will treat runoff from a drainage area of approximately 81 acres of predominately residential and light commercial uses.

*iii. Summarize how the effectiveness of the proposed practices or measures in preventing or reducing pollution will be determined*

Benefits to water quality and beneficial uses will be measured in two ways. First, weekly monitoring of the quantity and quality of runoff diverted to the sanitary sewer system will help quantify the total bacterial load prevented from entering the ocean. This post-construction monitoring will be carried out for one year following project completion. Second, beach advisory and closure data will be obtained from the County of San Diego Department of Environmental Health to observe any noticeable changes in the number of beach postings and closures upcoast (Carnation Avenue station) and downcoast (Imperial Beach Pier station) of Palm Avenue during dry weather conditions.

### **Program Goals**

The general goals of the monitoring include:

- Assess the effectiveness of the CBI Project in minimizing bacteriological contamination near Pacific Ocean outfall areas in and surrounding the City of Imperial Beach
- Provide screening for water quality
- Identifying pollution sources and illegal activities (spills, wetland fill, diversions, discharges)
- Establish trends in water quality for waters that may otherwise be un-monitored
- Evaluate the quality of water compared to specific water quality criteria.

### **Intended Usage of Data**

All of the data will be used by the City of Imperial Beach for the purpose of assessing the effectiveness of the CBI project components. The assessment of this data will also be useful in providing information for watershed management and pollution prevention. The data will be made available to the public for purposes of watershed education. It will also be made available to the regulatory and resource management agencies to supplement their existing data collection efforts. One potential application of the data will be to provide information to the Regional and State Water Boards for their use, if they so choose, in Section 305(b) and 303(d) reporting.

Data will be compiled by selected consultant and shared with the State Water Resources Control Board, the San Diego Regional Water Quality Control Board, and upon request to other state, federal, and local agencies and organizations. The main database will be maintained at the City of Imperial Beach.

### **General Overview of Monitoring**

The effectiveness assessment monitoring will take place over period of one year after the completion of the Palm Avenue diverter, which is scheduled for December 2008, and includes the following five components:

1. Flow and bacteriological monitoring of the Palm Avenue diverter by the City of Imperial Beach once per week (year-round)
2. Bacteriological monitoring data by County Department of Environmental Health staff at Camp Surf jetty and Imperial Beach Pier Station as part of the County-wide AB411 program from April 1 to October 1 each year. (See Figure 2) Water analyses are contracted to the County Public Health Laboratory to ensure consistency of data between the AB411 program and the City outfall monitoring program.
3. Monthly bacteriological monitoring data of the Pacific Ocean surf zone at Carnation Avenue Station, End of Seacoast Drive Station,  $\frac{3}{4}$  mile north of Tijuana River Station, Tijuana Rivermouth Station, Monument Road Station and Border Fence, North side Station by the San Diego Metropolitan Wastewater District.
4. The total amount of nuisance urban runoff that is diverted at the outfall diversion structure as recorded by selected consultant staff.

Table 6.1 summarizes the monitoring design that relates to the different agencies, including the physical, chemical and biological parameters to be measured, whether the samples will be analyzed by the City, or sampled for later analysis by the County Public Health laboratory, and the frequency of measurement.

**Table 6.1  
 Summary of Monitoring Design**

	<b>City of Imperial Beach</b>	<b>County Department of Environmental Public Health Laboratory</b>	<b>San Diego Metropolitan Wastewater District</b>
<b>Flow</b>	Field observations and calculations performed on a monthly basis at a minimum	Not Applicable	Not Applicable
<b>Bacteria</b>	Sampling once per week at the Palm Avenue diverter by selected consultant. Samples analyzed by contractor's laboratory.	Seasonal AB411 sampling and testing at two beaches from April 1 to October 1 and sampling once per week at two outfalls by County Department of Environmental Health. Samples analyzed by County Public Health Laboratory.	Monitoring once per week throughout the year at Carnation Avenue Station, End of Seacoast Drive Station, ¾ mile north of Tijuana River Station, Tijuana Rivermouth Station, Monument Road Station, and Border Fence, North Side Station by the San Diego Metropolitan Wastewater District.

All of the water quality data will be compared to the Regional Water Quality Control Board, Region 9, Basin Plan.

This QAPP only addresses data quality objectives for the following parameters:

- Total Coliform Bacteria
- *E. coli* Bacteria
- Enterococcus Bacteria

Bacteriological parameters will be monitored using protocols outlined in the EPA's Standard Methods for the Examination of Water and Wastewater.

## 6.2. Project Timetable

Table 6.2 identifies the schedule of major activities associated with this project.

**Table 6.2  
 Project Schedule**

<b>Activity</b>	<b>Date</b>
Identify monitoring leaders	December 3, 2008
Obtain training for monitoring leaders	December 10, 2008
Recruit monitors	December 3-10, 2008
Obtain and check operation of instruments	December 10, 2008
Train monitors	December 10-12, 2008
Initiate monitoring	December 23, 2008

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Initiate data entry	December 23, 2008
Calibration and quality control sessions	Begin January 2009 and quarterly thereafter

This section identifies how accurate, precise, complete, comparable, sensitive and representative measurements will be. For purposes of this Monitoring Plan, the data quality is considered adequate for the determination of general water quality conditions, with a potential application of the data to Section 305(b) reporting purposes.

## Sampling Method Requirements

Water samples for bacteriological testing should be submitted to testing laboratory on the day of sampling. Sampling will be collected on the same day that the other agencies are collecting their samples, which is Tuesday morning.

Consult with the lab in advance to specify what upper endpoints are anticipated and needed. Endpoints (i.e. the number of dilutions) will ensure an accurate estimate of MPN/100 ml of bacteria in the samples. Routine water testing has an upper endpoint of  $\geq 1,600,000$  MPN/100 ml.

Use rigid, sterile, plastic screw cap bottles for samples such as salt water, streams, lakes, sewage, seepage, and other non-potable waters. These bottles contain 30 mg of sodium thiosulfate which is sufficient to dechlorinate 125 ml of water containing 45 mg/liter (or 45 PPM) of chlorine. Bottles for this project have been supplied by Environmental Engineering Laboratory (EEL).

### A. EQUIPMENT AND SUPPLIES NEEDED FOR WATER SAMPLE COLLECTION

- Sample collection containers (see above for appropriate type)
- Sampling pole
- Pen with waterproof ink
- Ice chest with ice pack(s)
- Laptop computer
- Digital camera
- Field data sheets

### B. COLLECTION AND LABELING

- Wearing nitrile gloves, remove cap from opaque screw cap bottle. Taking care not to place fingers into bottle, place the bottle in the pole sampling device, and plunge the bottle mouth down into the water to avoid introducing surface scum. Position the mouth of the bottle into the current, if any, and away from the hand of the collector. Tip the bottle slightly upward to allow air to exit and the bottle to fill. All samples are taken approximately one inch below the surface.
- Do not fill the bottle to the brim. Leave a small airspace of approximately 1/4 to 1/2 inch at the top of the bottle to allow mixing of the sample in the laboratory.
- Screw cap firmly on bottle.
- Record observations of odor, water clarity and debris on the field data sheet.
- Flow measurements are taken using the installed flow meter and attaching that to a laptop in the field. Record the flow measurement on the field data sheet.
- Take photographs of the site and diverter.

### C. PACKAGING AND DELIVERY

- For non-potable samples, keep lab forms in a clean dry place - not in ice chest.
- Place all samples and mailers with samples into an ice chest with ice packs.

- Deliver samples directly to the lab office. Always keep samples on ice. If a courier is used to deliver samples, it is the responsibility of the sampler to make sure the samples will be received by the laboratory within the holding time limits. The holding time for bacteria samples for surface and waste waters is 6 hours. Samples received in the lab after the holding time will be reported as “Unsatisfactory: Sample received > 6 hours) after collection. Please resample.”

## Sample Handling and Custody Procedures

### Sample Handling

Identification information for each sample will be recorded on the field data sheets (see Appendix 2) when the sample is collected. Samples will be labeled with the stations ID, sample location, sample number, date and time of collection, sampler’s name, and method used to preserve sample (if any).

### Custody Procedures

When samples are transferred from one member of the monitoring group to another member of the same organization for analysis, or from one monitoring group to someone outside of the group, then a Chain of Custody form will be used. This form identifies the waterbody name, sample location, sample number, date and time of collection, sampler’s name, and method used to preserve sample (if any). It also indicates the date and time of transfer, and the name and signature of the sampler and the sample recipient.

When quality control checks are performed by the environmental testing laboratory, their samples will be processed under their chain of custody procedures with their labels and documentation procedures.

### Disposal

All analyzed samples or spent chemicals including used reagents, buffers or standards will be collected in a plastic bottle clearly marked “Waste” or “Poison”. This waste material will be disposed of according to appropriate state and local regulations. This will usually mean disposal into a drain connected to a sewage treatment plant.

## Analytical Methods Requirements

The table below outlines the methods to be used, any modifications to those methods, and the appropriate reference to a standard method.

**Analytical Methods for Water Quality Parameters Table**

Parameter	Method	Modification	Reference (a)
Total Coliform Bacteria	Colilert 18 hour	none	IDEXX Corp.
<i>E. coli</i> Bacteria	Colilert 18 hour	none	IDEXX Corp.
Enterococcus Bacteria	Enterolert 24 hour	none	IDEXX Corp.

(b) All of the above methods have been approved by the EPA and are described in Standard Methods for the Examination of Water and Wastewater 20<sup>th</sup> Edition. American Public Health Association et al, 1998.

## Quality Control Requirements

Quality control samples will be taken to ensure valid data are collected. Quality control samples will consist of blanks, replicate samples, and split samples.

### **Blanks, Replicates, Split Samples, and Standardization**

Field/Laboratory Blanks: For bacterial analysis, a laboratory blank will be performed in accordance with the procedures outlined in the EPA's Standard Methods for the Examination of Water and Wastewater.

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## **APPENDIX 1. Data Quality Form**



**Data Quality Form: Completeness**

**Quality Control Session**

Monitoring Group Name			Type of Session (field or lab)	
Your Name			Quality Assurance Leader	
Date				
Parameter	Collection Period	No. of Samples Anticipated	No. Valid Samples Collected and Analyzed	Percent Complete
Total Coliform				
Fecal Coliform				
Enterococcus				

**Comments:**



## **APPENDIX 2. Data and Observation Sheet**



CONSULTANT LOGO

EQUIPMENT USED:

DATE \_\_\_\_\_

OBSERVER \_\_\_\_\_

PROJECT \_\_\_\_\_

SITE	STATION	TIME	SAMPLE IDENTIFICATION	FLOW	FECAL/TOTAL COLIFORM SAMPLE TAKEN?	ENTEROCOCCUS SAMPLE TAKEN?	ODOR	WATER COLOR	DEBRIS, GARBAGE WASTE	OIL OR PETROLEUM	PHOTO FRAME

OBSERVATIONS:

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

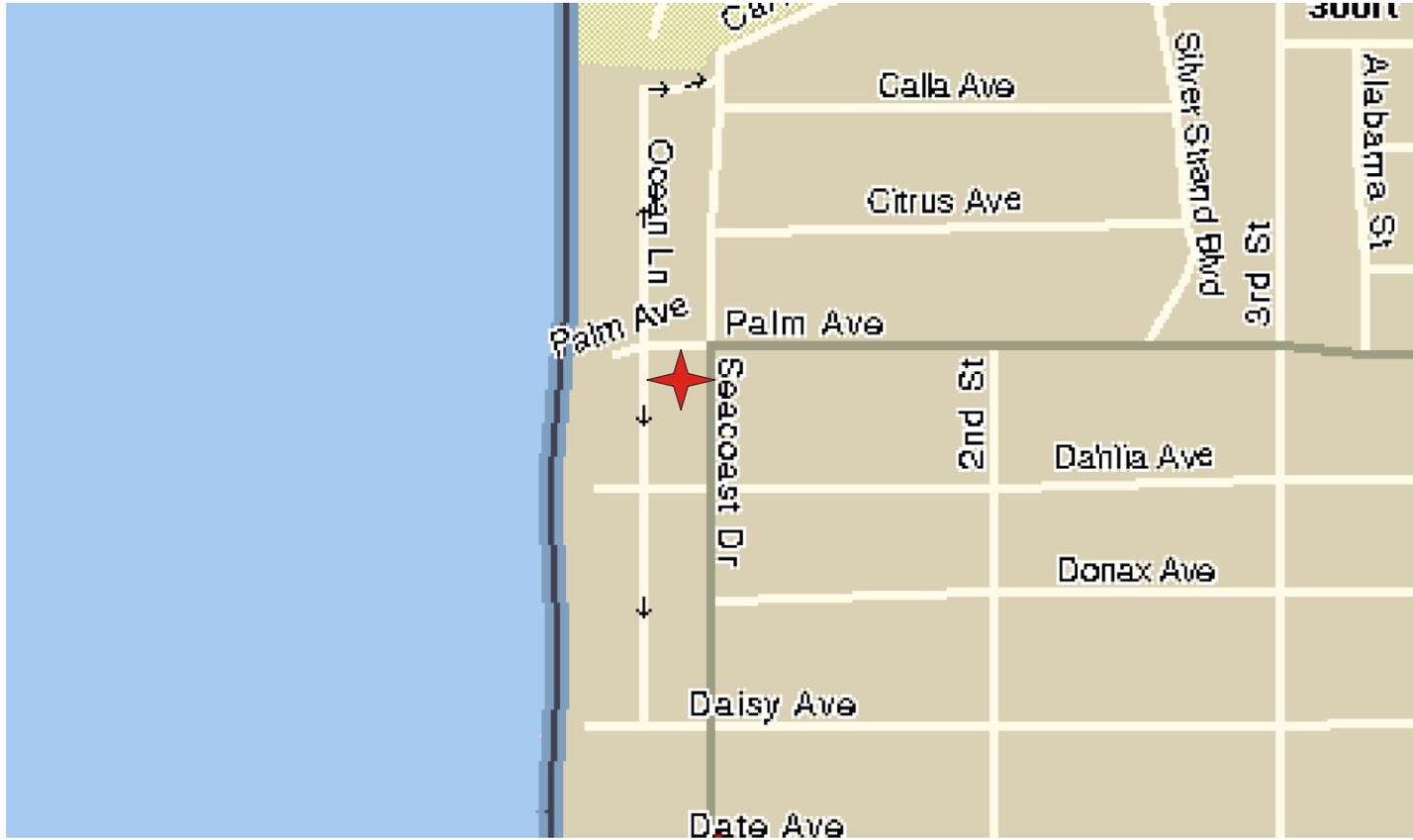
4 \_\_\_\_\_

5 \_\_\_\_\_



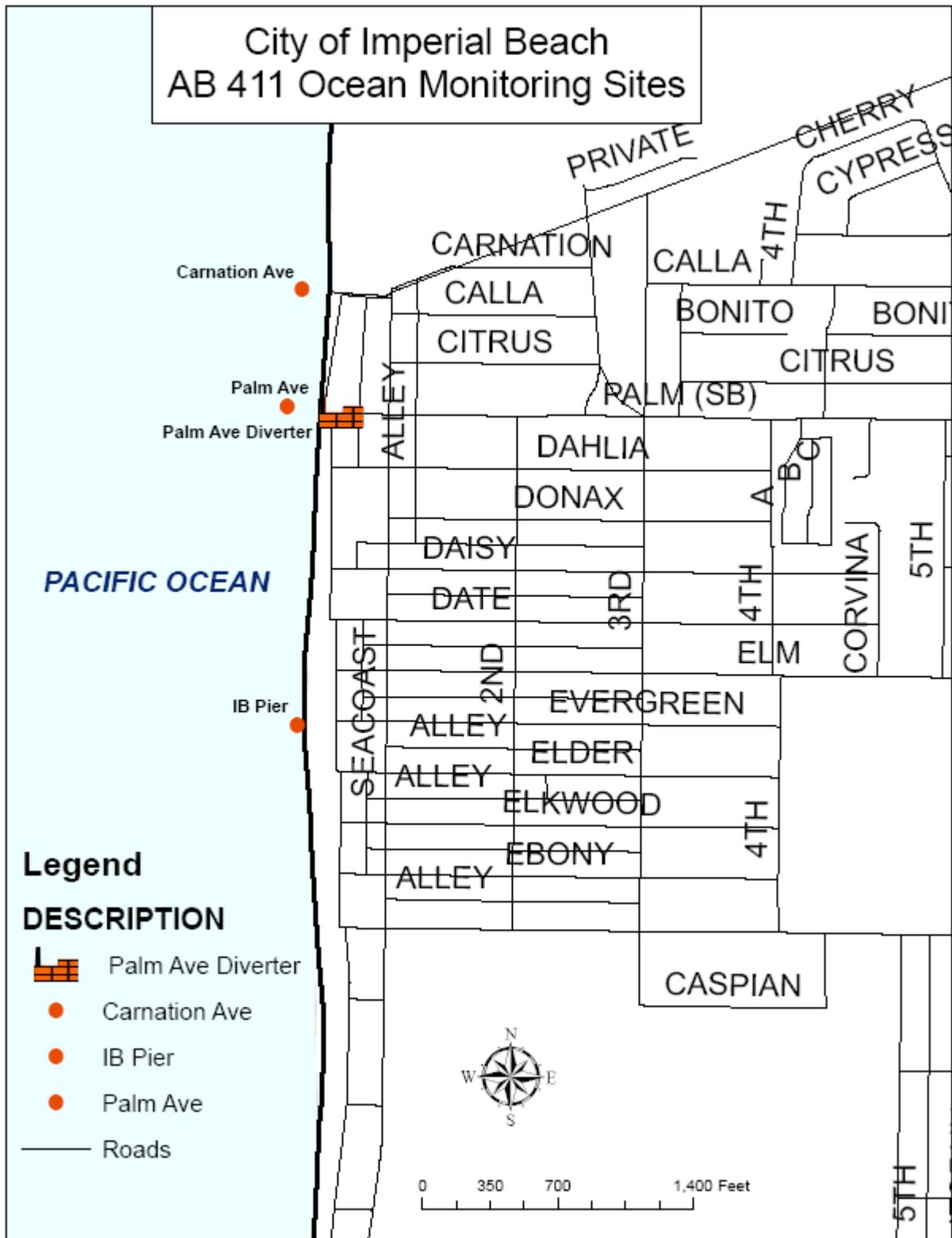
## **APPENDIX 3. Map of Sampling Site**





Palm Avenue Diverter  
32.3502266, -117.0756493

**Figure 1.**  
Palm Avenue Diverter  
Site Map



**Figure 2.**  
AB411 Monitoring Sites  
in relation to Palm Avenue Diverter