

**LOS PEÑASQUITOS WMA
BACTERIA TMDL COMPLIANCE MONITORING PLAN**

**Submitted to:
City of Del Mar
City of Poway
City of San Diego
County of San Diego**

**Submitted by:
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San Diego, California**

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
≥	greater than or equal to
%	percent
*.pdf	Portable Document Format
µS/cm	micro-Siemens per centimeter
303(d) List	Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments
AB 411	Assembly Bill 411, the Beach Safety Act
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc., formerly AMEC
Annual Summary	Annual Bacteria TMDL Monitoring Summary
Bacteria TMDL	San Diego Regional Water Quality Control Board Resolution Number R9-2010-0001, <i>Revised TMDL for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)</i>
CEDEN	California Environmental Data Exchange Network
CFU	colony forming units
COC	chain of custody
CWA	Clean Water Act
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Accreditation Program
FIB	fecal indicator bacteria
GIS	Geographic Information System
ID	identification
mL	milliliter
MPN	most probable number
MPN/100mL	most probable number per 100 milliliters
MS4	Municipal Separate Storm Sewer System
MS4 Permit	Order Number R9 2013-0001, National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer System Draining the Watersheds Within the San Diego Region
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity unit
NWS	National Weather Service
OAL	Office of Administrative Law
QA	Quality Assurance

ACRONYMS AND ABBREVIATIONS (CONTINUED)

QA/QC	Quality Assurance and Quality Control
QC	Quality Control
REC-1	water contact recreation
Responsible Agency	Phase I MS4 Copermittee
RL	Reporting Limit
RPD	relative percent difference
RWL	receiving water limitation
SANDAG	San Diego Association of Governments
SCCWRP	Southern California Coastal Water Research Project
SDRWQCB	San Diego Regional Water Quality Control Board
SM	Standard Method
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
USEPA	United States Environmental Protection Agency
WLA	waste load allocation
WMA	Watershed Management Area
Wood E&I	Wood Environmental & Infrastructure Solutions, formerly Amec Foster Wheeler
WQBEL	water-quality-based effluent limit
WQO	water quality objective

1.0 PROJECT DESCRIPTION

1.1 Introduction

The San Diego Regional Water Quality Control Board (SDRWQCB) issued Resolution No. R9-2010-0001, *A Resolution Amending the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Revised Total Maximum Daily Loads (TMDL) for Indicator Bacteria Project I-Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*, referred to as the Bacteria TMDL (SDRWQCB, 2011). The Bacteria TMDL has identified the Municipal (Phase I and Phase II) Separate Storm Sewer Systems (MS4s) within the San Diego Region as the primary point sources that have been assigned a Waste Load Allocation (WLA) requiring a reduction. Owners and operators of small MS4s (Phase II MS4s) and controllable nonpoint sources, identified by the SDRWQCB as significant sources of bacteria discharging to the receiving waters and/or Phase I MS4s, are subject to the Bacteria TMDL. The recently adopted *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges From the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the San Diego Region* Order No. R9-2013-0001, referred to as the MS4 Permit, also incorporates the Bacteria TMDL and outlines monitoring requirements for Phase I Copermittees (SDRWQCB, 2013). The 2013 MS4 Permit was amended in 2015 to incorporate Orange County and Riverside Copermittees (R9-2015-0001 and R9-2015-0100; SDRWQCB, 2015). The Phase I MS4s (hereafter called the Responsible Agencies) have developed this Monitoring Plan for the Los Peñasquitos Watershed Management Area (WMA) to meet the requirements of the MS4 Permit. Phase II MS4s are not included in the Monitoring Plan because they are regulated under individual permits. The ultimate goal of the Bacteria TMDL is to achieve the necessary pollutant load reductions to restore and protect the designated beneficial use of water contact recreation (REC-1).

1.2 Purpose

The following four principal types of monitoring will be conducted to address the goals of the Los Peñasquitos WMA Bacteria TMDL Compliance Monitoring Program.

- Compliance Monitoring is required by the Bacteria TMDL to demonstrate progress toward meeting TMDL requirements, including numeric targets and WLAs. This plan reflects the compliance monitoring approach as described in Section 2.1.
- Optional Monitoring is not required by the Bacteria TMDL; however, if sufficient funds are available, it may be implemented by Responsible Agencies to better understand water quality conditions in the receiving water and support the goals of compliance monitoring. Optional Monitoring may be added to (and removed from) the compliance monitoring effort as deemed appropriate by the Responsible Agencies. This plan reflects optional monitoring components, as described in Section 2.2.
- Follow-up Monitoring may be implemented after the Dry Weather Exceedance Reduction Milestone in 2019 to characterize the source, magnitude, and duration of exceedances of bacteria water quality objectives (WQOs) in the receiving water on the basis of the results of compliance monitoring. A follow-up monitoring approach is described in Section 2.3.
- Special Studies are not a requirement of Attachment E of the MS4 Permit; however, studies may be implemented on the basis of the available data and resources to address

compliance strategies described in the Water Quality Improvement Plans. Special studies may require the development of separate agreements and funding opportunities between the Responsible Agencies. A bacteria-related special study was completed during the current MS4 Permit cycle in the Los Peñasquitos WMA to fulfill the requirements of the Los Peñasquitos Water Quality Improvement Plan. The monitoring approaches for these special studies are provided separately in project-specific plans and, therefore, are not included in this plan.

This Monitoring Plan describes and outlines the Los Peñasquitos WMA Bacteria TMDL Compliance Monitoring Program. It is designed to fulfill the compliance monitoring requirements of the Bacteria TMDL as incorporated in Attachment E of the MS4 Permit. The goals of the Los Peñasquitos WMA Bacteria TMDL Compliance Monitoring Program include the following:

- Assess progress toward meeting the Bacteria TMDL numeric targets
- Characterize existing fecal indicator bacteria concentrations in receiving waters

1.3 Watershed Background

The Los Peñasquitos WMA drains an area of 94 square miles in central San Diego County. The WMA includes portions of the Cities of Poway, San Diego, and Del Mar, a small portion of San Diego County, and several major transportation corridors maintained by the California Department of Transportation. Much of the WMA is composed of vacant or undeveloped land (13 percent), open space parks and recreation (33 percent), and residential (27 percent) land uses. Most of the development is concentrated in the lower or western portions of the WMA.

The Pacific Ocean Shoreline at Torrey Pines State Beach at Del Mar was placed on the Clean Water Act (CWA) Section 303(d) List (303(d) list) of impaired waters in 2002 for indicator bacteria. As a result, this segment was included in the Bacteria TMDL. The Pacific Ocean Shoreline at Torrey Pines State Beach at Del Mar was then removed from the 303(d) list in 2010 (United States Environmental Protection Agency [USEPA], 2003 and 2011).

In May 2013, SDRWQCB issued the MS4 Permit; Attachment E.6 of the MS4 Permit clarifying the requirements for the Bacteria TMDL (SDRWQCB, 2013). The Bacteria TMDL was considered a receiving water condition to develop goals and strategies as part of the Water Quality Improvement Plan process to continue compliance with the Bacteria TMDL requirements and to meet water-quality-based effluent limits (WQBELs) as required by the MS4 Permit. Monitoring data collected at the Pacific Ocean Shoreline at Torrey Pines State Beach at Del Mar will be used to demonstrate compliance with the water quality standards.

1.4 Project Organization and Responsibilities

Attachment E of the MS4 Permit identifies the Responsible Agencies of the Phase I MS4s as point sources that have been assigned WLAs requiring a reduction. The Phase I MS4s (collectively called the Responsible Agencies) have developed this Monitoring Plan in accordance with Attachment E of the MS4 Permit as part of the Bacteria TMDL Compliance Monitoring Program for the Los Peñasquitos WMA ¹. Responsible Agencies include the following entities:

- City of Del Mar
- City of Poway
- City of San Diego
- County of San Diego

Since the Bacteria TMDL was adopted in 2011, the Responsible Agencies have been developing strategies and programs to address indicator bacteria and to maintain REC-1 uses throughout the Los Peñasquitos WMA. The City of San Diego leads implementation efforts and act as the liaison between the Responsible Agencies and the monitoring team for the Bacteria TMDL Compliance Monitoring Program. The monitoring team and laboratory staff have the following roles and responsibilities:

- **Monitoring Manager:** The Monitoring Manager is responsible for implementing the Monitoring Program and will act as the liaison between the Responsible Agencies and the monitoring team. The Monitoring Manager will oversee monitoring activities and act as Quality Assurance (QA) Officer.
- **Wet Weather Sampling Lead:** The Wet Weather Sampling Lead is responsible for implementing the wet weather program in accordance with the MS4 Permit requirements and this Monitoring Plan, as well as overseeing day-to-day activities.
- **Dry Weather Sampling Lead:** The Dry Weather Sampling Lead is responsible for implementing the dry weather program in accordance with the MS4 Permit requirements and this Monitoring Plan, as well as overseeing day-to-day activities.
- **Participating Laboratory QA Officer/Project Manager:** Each participating laboratory must identify a QA Officer or Project Manager for this monitoring program. The Laboratory Project Manager is responsible for performing sample analyses and implementing quality control procedures in accordance with this plan.

¹ Owners and operators of small MS4s (Phase II MS4s) and controllable nonpoint sources, identified by the SDRWQB as significant sources of bacteria discharging to the receiving waters and/or Phase I MS4s, are subject to the Bacteria TMDL; however, they are not included in this Monitoring Program.

1.5 Implementation Schedule

The Bacteria TMDL provides a compliance timeline outlining the interim reduction milestones over the 20-year compliance period (2011–2031), which began in April 2011 after approval of the Bacteria TMDL by the State Water Resources Control Board’s Office of Administrative Law (OAL). Data collected at the historical² California State Assembly Bill (AB) 411 monitoring location at the Los Peñasquitos Pacific Ocean Shoreline will continue to be used to demonstrate compliance with the water quality standards.

The Responsible Agencies opted to include modifications to both the Dry and Wet Weather Interim Exceedance Reduction Milestone in the approved Water Quality Improvement Plan (Los Peñasquitos WMA Copermittees, 2016). After the Dry Weather Interim Exceedance Reduction Milestone in 2019 (for the Cities of Del Mar, Escondido, Poway, San Diego, and Solana Beach) and 2020 (for the County of San Diego), follow-up monitoring may be implemented on the basis of annual exceedances of receiving water limitations (RWLs) in the Los Peñasquitos WMA to investigate potential sources. The Los Peñasquitos WMA Responsible Agencies have also developed the Water Quality Improvement Plan to address bacteria (as well as other pollutants) in the WMA. During the current Permit cycle, the Los Peñasquitos WMA Responsible Agencies participated in a regional special study to evaluate natural sources of bacteria in reference streams (SCCWRP, 2013).

Table 1-1 provides the project schedule for the Bacteria TMDL Compliance Monitoring Program.

² Monitoring location used prior to April 1, 2015

**Table 1-1.
 Project Schedule**

TMDL Compliance Monitoring	Date	Deliverable
TMDL Compliance Monitoring Plan	Submitted herein	Monitoring Plan
Dry Weather Compliance Monitoring	Beginning 30 days following approval of Water Quality Improvement Plan	Annual Bacteria Monitoring Summary to be included in the Water Quality Improvement Plan Annual Report
Wet Weather Compliance Monitoring	Beginning the first wet season following approval of Water Quality Improvement Plan	
Dry Weather 50% Reduction Milestone	April 2019/2020 ^(a)	
100% Dry Weather Reduction	April 2021	
Wet Weather 50% Reduction Milestone	April 2024/2028 ^(a)	
100% Wet Weather Reduction	April 2031	
Special Studies	Date	
San Diego Regional Reference Stream Study ^(b)	November 1, 2011 through June 30, 2015	Report provided by SCCWRP and submitted in the Water Quality Improvement Plan Annual Report

Notes:

GIS = geographic information system

SCCWRP = Southern California Coastal Water Research Project

TMDL = total maximum daily load

(a) Dry and Wet Weather Interim Milestones were modified by the approved Water Quality Improvement Plans. The Cities of Del Mar, Poway, and San Diego have modified the interim dry weather milestone 2019 and the interim wet weather milestone to 2024; the County of San Diego has modified the interim dry weather milestone to 2020 and the interim wet weather milestone to 2028.

(b) This study began in Fiscal Year 2012 with the goal of completion by Fiscal Year 2014. However, because of below-average rainfall amounts during the beginning of the current Permit cycle, project deadlines were extended to enable sufficient data collection.

1.6 TMDL Numeric Targets and Compliance Pathways

The MS4 Permit defines the Bacteria TMDL numeric targets and compliance pathways for the Responsible Agencies. Data collected during the Los Peñasquitos WMA Bacteria TMDL Compliance Monitoring Program will be used to evaluate progress and attainment of Bacteria TMDL targets. Compliance pathways have been integrated into the Los Peñasquitos WMA Water Quality Improvement Plan.

Attainment of the TMDLs in the receiving water is based on the exceedance frequency of the respective numeric objective in a given year. For dry weather, the Bacteria TMDL numeric target is based on the geometric mean and single-sample maximum and a 0 percent final allowable exceedance frequency, as presented in Table 1-2. For wet weather, the TMDL final numeric target

is based on the single-sample maximum and a 22 percent final allowable exceedance, as presented in Table 1-2.

**Table 1-2.
 Final Receiving Water Limitations for Beaches (Maximum Bacteria Densities and Allowable Exceedance Frequencies)**

Constituent	Wet Weather Days		Dry Weather Days	
	Single-Sample Maximum ^(a,b) (MPN/100mL)	Single-Sample Maximum Allowable Exceedance Frequency ^(c)	30-Day Geometric Mean ^(b) (MPN/100mL)	30-Day Geometric Mean Allowable Exceedance Frequency
Total Coliform	10,000	22%	1,000	0%
Fecal Coliform	400	22%	200	0%
<i>Enterococcus</i>	104	22%	35	0%

Notes:

% = percent; mL = milliliters; MPN = most probable number

Source (including footnotes): MS4 Permit, Order Number R9 2015-0001, San Diego Regional Water Quality Board, November 18, 2015.

- a. During wet weather days, only the single sample maximum receiving water limitations are required to be achieved.
- b. During dry weather days, the single sample maximum and 30-day geometric mean receiving water limitations are required to be achieved.
- c. The 22% single sample maximum allowable exceedance frequency only applies to wet weather days. For dry weather days, the dry weather bacteria densities must be consistent with the single sample maximum REC-1 water quality objectives in the Ocean Plan.

The Responsible Agencies must achieve a 50 percent reduction in “existing” dry and wet weather exceedance frequencies by the 2019/2020 and 2024/2028 interim compliance dates, respectively (Table 1-3). The “existing” dry weather exceedance frequencies were calculated using available historical data collected between years 1996 to 2002 at the historical AB 411 monitoring location (FM-100) per the Bacteria TMDL. The Bacteria TMDL includes “existing” wet weather exceedances frequencies. As a clarification to the Bacteria TMDL, the MS4 Permit provides interim wet weather reduction milestones, expressed as a percentage, for each compliance constituent. Responsible Agencies will compare annual dry and wet weather exceedance frequencies with mandated exceedance frequency reductions to evaluate progress toward attaining the TMDL targets.

**Table 1-3.
 Interim TMDL Reduction Goals**

Segment	Interim Dry Weather Allowable Exceedance Frequencies ^(a)			Interim Wet Weather Allowable Exceedance Frequencies ^(b)		
	Total Coliform	Fecal Coliform	Enterococcus	Total Coliform	Fecal Coliform	Enterococcus
Los Peñasquitos River Mouth	0.5%	2%	9.5%	26%	26%	26%

Notes:

- (a) Interim dry weather goals are the 50% reduction of the “existing” dry weather exceedance frequencies, based on available historical data from the years 1996 to 2002.
- (b) Interim wet weather goals are provided in Attachment E of the MS4 Permit.

In addition to Bacteria TMDL numeric targets, this Monitoring Program will be used to evaluate the following Water Quality Improvement Plan dry weather goals and wet weather goals for the Los Peñasquitos WMA and as presented in Section 4 of the Water Quality Improvement Plan (Los Peñasquitos WMA Copermittees, 2016).

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2.0 MONITORING APPROACH

This section describes the purpose, scope, and type of sampling conducted for the Bacteria TMDL Compliance Monitoring Program.

2.1 Compliance Monitoring

Compliance monitoring is designed to meet the receiving water monitoring requirements of the Bacteria TMDL as it is incorporated by Attachment E of the MS4 Permit. The MS4 Permit provides clarification for segments that have been removed from the 303(d) list, stating that Responsible Agencies may propose alternative methods to demonstrate that these water bodies continue to remain in compliance with water quality standards under wet and dry weather conditions (E.6.d(1)(b)(iv)). Compliance monitoring, including wet and dry weather sampling, will be conducted each year at the compliance monitoring locations. The data generated will be used to address the following questions:

- Are TMDL numeric targets for bacteria indicators being met at the compliance monitoring location?
- What are the fecal indicator bacteria levels at the compliance monitoring location?

The scope of compliance monitoring accounts for the frequency and type of sampling activities required to meet the MS4 Permit requirements. Monitoring will be conducted at the historical AB 411 monitoring location to maintain continuity with the TMDL numeric goals that are based on historical wet and dry weather data collected at this site. Table 2-1 provides the general scope of the Bacteria TMDL Compliance Monitoring Program.

**Table 2-1.
 Scope of Compliance Monitoring**

Date Range	Number of Monitoring Locations	Event Type	Grab Samples Per Site Per Event ^(a)	Event Frequency in Ocean	Estimated Maximum Number of Samples Per Annum ^(a)
April 1 through October 31	1	Dry	1	Minimum monthly, up to weekly ^(b)	35
November 1 through March 31	1	Dry	1	Minimum monthly	5
October 1 through April 30	1	Wet	1	Minimum 1 and up to 3 storm events. One sample within the first 72 hours of the end of the storm event	3 ^(c)

Notes:

- (a) Not including QA samples.
- (b) Minimum 5 events per month for weekly sampling
- (c) Number of wet samples represents maximum possible.

2.1.1 Compliance Monitoring Locations

The Bacteria TMDL identifies the Pacific Ocean Shoreline at the Los Peñasquitos River Mouth as the impaired segment. The Bacteria TMDL requires the receiving water monitoring to occur at the same location monitored under the historical AB 411 beach monitoring program. The historical AB 411 monitoring location is considered representative of the segment of Pacific Ocean Shoreline listed in the Bacteria TMDL. The Responsible Agencies will continue to monitor the historical AB 411 monitoring location to maintain consistency with the historical dataset and to support a more appropriate evaluation of the effectiveness of TMDL implementation. Figure 2-1 presents a map of the compliance monitoring location within the WMA. Table 2-2 provides the location name and coordinates for the compliance monitoring location.

Table 2-2.
TMDL Compliance Monitoring Location

Site ID	Site Name	Site Type	Latitude	Longitude
FM-100 ^(a)	Los Peñasquitos River Outlet/Beach	Shoreline	32.93507462600	-117.26195516600

Notes:

(a) Historical AB 411 location is approximately 25 meters north of the river outlet

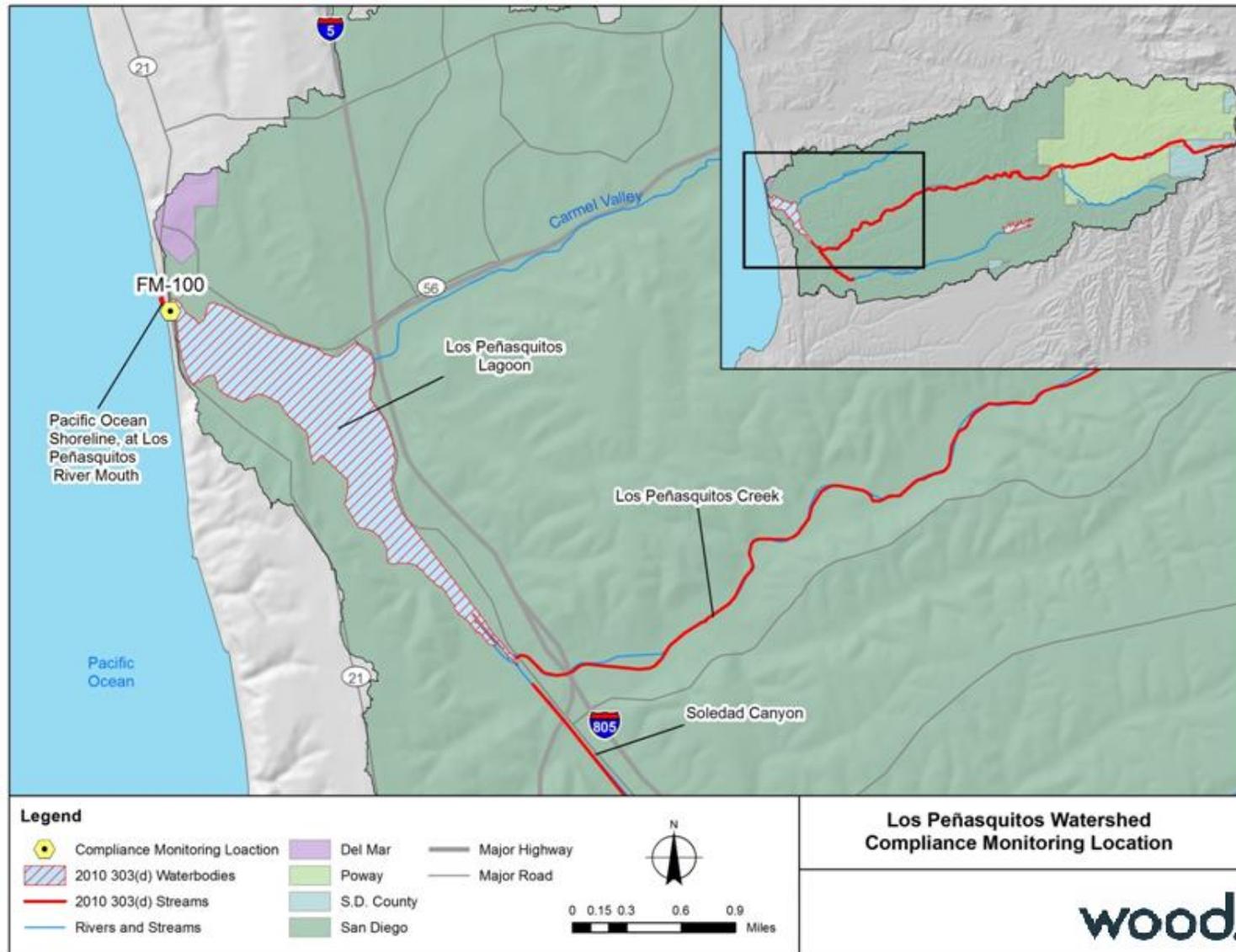


Figure 2-1. Map of Compliance Monitoring Location

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2.1.2 Constituents

Fecal indicator bacteria (FIB) are the target constituents for the Pacific Ocean Shoreline at Los Peñasquitos River Mouth, as indicated by Attachment E of the MS4 Permit. Grab samples will be collected in a manner consistent with the AB 411 program. Samples collected during wet and dry weather monitoring will be analyzed for FIB generally in accordance with Surface Water Ambient Monitoring Program (SWAMP) requirements. Samples will be submitted to an Environmental Laboratory Accreditation Program (ELAP)-certified laboratory for analysis. The laboratory will conduct the appropriate dilutions to generate results and avoid greater than values. Table 2-3 presents the compliance constituents, reporting limits, and analytical methods.

**Table 2-3.
 Compliance Analyses for Bacteria TMDL**

Parameter	Project Reporting Limit ^(a) (per 100mL)	Analytical Method ^(b)
<i>Enterococcus</i>	10 CFU	EPA 1600
Fecal coliform	20 MPN/CFU	SM 9221D (3 or 5 dilutions) or SM 9222D (3 or 5 dilutions)
Total coliform	20 MPN/CFU	SM 9221B (3 or 5 dilutions) or SM 9222B (3 or 5 dilutions)

Notes:

- CFU = colony forming units
- EPA = U.S. Environmental Protection Agency
- MPN = most probable number
- SM = Standard Method

- (a) The reporting limits are consistent with those of the existing AB 411 program to facilitate overlap with that program. However, lower reporting limits are desirable and may be requested depending on the laboratory used to conduct the analysis.
- (b) Membrane filtration is the preferred method. However, methods may vary depending on the laboratory used to conduct the analysis.

2.1.3 Dry Weather Monitoring

Dry weather monitoring will be conducted on dry weather days, after an antecedent dry period of 72 hours with less than 0.1 inch of rainfall per day, in accordance with the MS4 Permit. Dry weather sampling will be conducted minimum monthly year-round. Responsible Agencies may opt to increase monitoring between April 1 and October 31, when recreational activities are more likely to occur, to weekly to be consistent with AB 411 Program requirements. Weekly dry weather samples will be collected so that at least five samples are collected in each calendar month (30 days). Between November 1 and March 31, when recreational activities are less likely to occur, dry weather samples will be collected at least once per month, consistent with the MS4 Permit. During each dry weather monitoring event, optional field observations and water quality measurements may also be recorded, and a grab water sample will be collected at the compliance monitoring location.

2.1.4 Wet Weather Monitoring

Wet weather monitoring will be conducted at the compliance monitoring location during a minimum of one and up to three storm events each wet season (October 1 to April 30). A wet weather day is defined as the day(s) of active precipitation and the 72 hours after the end of rainfall. Wet weather samples will be collected within 72 hours after end of rainfall. Storms resulting in greater than 0.2 inch of precipitation will be targeted for sample collection. The storm events will be spread throughout the wet season to the maximum extent practicable as follows:

- Storm Event 1 (October to November)
- Storm Event 2 (December to January)
- Storm Event 3 (February to April)

During each wet weather monitoring event, optional field observations and water quality measurements may also be recorded and a grab water sample will be collected at the compliance monitoring location. Grab samples will be collected using the same sample technique as during a dry weather monitoring event, taking additional safety precautions as needed.

2.1.5 Storm Selection Criteria

The monitoring team will target continuous rain events and avoid events predicted to be episodic and/or scattered in nature. The following criteria will be used to determine whether mobilization will occur for an impending storm event:

- Storm events must be preceded by at least 72 hours of dry conditions (less than 0.10 inch of precipitation per day).
- Storms must be forecast to produce at least 0.20 inch of rainfall.
- The probability of precipitation occurring must be greater than 60 percent.
- Final mobilization will be based on the recorded precipitation of at least 0.2 inch. The main rain gauge used to determine mobilization will be the National Weather Service (NWS) San Diego 13.9N rain gauge; however, additional gauges throughout the WMA may be utilized at the monitoring team's discretion. The San Diego 13.9N gauge is the nearest NWS gauge with continuous data that is representative of rainfall in the central Los Peñasquitos WMA.

Field teams will not be mobilized during or near certain holidays if the mobilization or laboratory analyses should continue through that holiday. This includes the following holidays:

- Independence Day
- Labor Day
- Thanksgiving
- Christmas Eve
- Christmas Day
- New Year's Eve
- New Year's Day
- Memorial Day

2.1.6 Weather Tracking

The National Oceanic and Atmospheric Administration (NOAA) website will be used to track the forecast and initiate mobilization based on recorded rainfall amounts at the NWS San Diego 13.9N rain gauge.

Weather will be tracked by the Wet Weather Sampling Lead for monitoring purposes for the duration of the wet season (October 1 through April 30). Throughout the wet season, the forecast and recorded precipitation at San Diego 13.9N as reported by the NWS will be the main data sources. However, several sources of weather information will be monitored continuously, including other related rain gauges within the Los Peñasquitos WMA as reported by the NWS and local ALERT systems.

2.2 Optional Monitoring

Optional monitoring is not mandatory to meet TMDL monitoring requirements. Optional monitoring for the Los Peñasquitos Bacteria TMDL Monitoring Program may include *in-situ* water quality and field observations, which are beyond the requirements of the MS4 Permit. These optional data parameters may be referenced to support key findings or patterns indicated by the compliance analytical data. For example, conductivity readings may be used to estimate relative freshwater contribution at the compliance monitoring location, and turbidity trends may be paired with bacteria concentrations to examine potential associations between bacteria and turbidity. Optional field measurements and notable field observations (e.g., potential FIB sources) may be conducted with each collected wet and dry weather sample. Table 2-4 provides the range of accuracy of optional field meter *in-situ* measurements.

**Table 2-4.
 Detection Ranges for Optional *In-Situ* Field Meters**

Parameter	Method	Range	Units
Conductivity	Field Meter	0 to 200,000	µS/cm
pH	Field Meter	0 to 14	pH units
Temperature	Field Meter	-5 to +75	°C
Turbidity	Field Meter	0 to 1,000	NTU

Notes:
 µS/cm = micro-Siemens per centimeter; °C = degree Celsius; NTU = nephelometric turbidity units

General observations may include site conditions and actions taken during sampling. Potential sources of bacteria in the vicinity of the site may also be identified, including human-related sources, activities, and natural sources. An example field data sheet is provided in Appendix A. The following general information may be recorded on a field data sheet during each site visit:

- Site identification (ID), location and description (deposits, stains, vegetation, biology)
- Monitoring project name
- Grab sample ID, date, and time
- Field team personnel

- Water quality observations including but not limited to:
 - Flow status (flowing, trickle flow, ponded) and estimated flow rate
 - Floatables, surface scum, sheens, odor, color
- Potential bacteria sources including presence and approximate count of trash, wildlife, etc.
- Weather conditions (cloud cover, precipitation)
- Berm and tide status
- Runoff characteristics
- Miscellaneous comments

2.3 Follow-up Monitoring

Follow-up monitoring may be implemented after the 2019 interim dry weather milestone to characterize the source, magnitude, and duration of exceedances of WQOs. Follow-up monitoring requires an adaptive monitoring approach as these factors may change from year to year. For this reason, the follow-up monitoring approach will be determined by the monitoring team on a case-by-case basis and may include, but is not limited to:

- Resampling at the compliance location to determine if the exceedance is persisting.
- Visual observations in the immediate upstream area for flowing outfalls and/or potential illicit discharges.
- Review of both compliance and optional monitoring data associated with the observed exceedance, to assess potential changes in site conditions and/or identify potential sources.
- Visual observations, field water quality measurements, and/or sample collection at upstream receiving water or outfall monitoring locations to inform source identification.

The data generated by follow-up monitoring may be used to address the following questions:

- What are the factors contributing to magnitude, extent, and duration of the exceedance condition?
- If the exceedance is extreme in magnitude or persistent in duration:
 - What are the potential sources/areas causing exceedances in the receiving water?
 - Are MS4 discharges causing or contributing to exceedances in the receiving water?

Follow-up monitoring may identify specific sources. If a source with the potential to impact receiving water quality is identified, the source may be addressed through abatement (if within the scope of the MS4 Permit and jurisdictional authority of RAs) or coordination with other applicable agencies.

3.0 SAMPLE METHODOLOGY

This section describes the data collection methods used to support compliance monitoring and reporting in accordance with Attachment E of the MS4 Permit.

3.1 Wet and Dry Weather Grab Sampling

Dry and wet weather sampling may be conducted on any day of the week as long as event criteria are met. For each sampling event, one grab sample will be collected and analyzed for FIB. Laboratories will be notified prior to each event and will be ready to receive and analyze bacteria samples as they are delivered during dry weather and wet weather sampling events. Field staff will deliver samples to the laboratory with sufficient time for the laboratory to initiate the analysis within the 8-hour holding time, typically within 6 hours. Grab samples will be representative of the environmental conditions of the site. The field staff sampler will wade into the surf carefully in a manner that does not disturb the sediment until he or she reaches approximately 1 foot in water column height, or a level that reaches the middle of the sampler's shinbone. During an incoming wave, not outgoing wave, the sampling staff will extend the bottle and/or sampling pole as far as practicable. The sample container will be submersed into the water column, facing downward, to mid-depth (approximately 4 to 8 inches) and turned slightly upwards while moving the bottle horizontally through the water until full to eliminate cross-contamination from the sampling equipment. Sampling will occur below the water surface to avoid floating debris. If surface residue, sediment, or debris enters the sample bottle, the sample will be discarded and resampled with a new, sterile bottle.

3.2 Precipitation Data

Per the MS4 Permit, rainfall precipitation data are not a requirement for Bacteria TMDL compliance monitoring. Precipitation data from the NWS San Diego 13.9N rain gauge will be used to track the total number of wet weather days as defined in the MS4 Permit. Historical daily rainfall amounts generated by the NWS at the San Diego 13.9N rain gauge will be used to assess the annual rainfall and historical average for San Diego County. The NWS San Diego 13.9N rain gauge will be used as the main source of precipitation data. However, other rain gauges may be used to verify applicability for the Los Peñasquitos WMA.

3.3 Sample Handling and Chain of Custody

This section describes sample handling and chain of custody procedures employed when collecting samples and delivering samples to the laboratory to minimize the possibility of contamination.

The following procedures apply when collecting samples and delivering them to the laboratory:

Sample Handling Procedures

- Unused (new), clean, powder-free nitrile gloves will be worn while collecting samples and will be replaced with new, clean gloves between samples and sites.
- Field personnel will be thoroughly trained in the proper use of sample collection gear.

- FIB samples will be collected directly into a sterilized polyethylene or polypropylene containers provided by the analyzing laboratory. Sample bottles will remain sealed and protected from dust or other contaminants during storage and bottle handling.
- Field personnel will make an effort, within reason, to prevent large gravel and uncharacteristic floating debris from entering the sample containers.
- The insides of the sampling containers and lids will not be touched during preparation and sampling activities.
- New bags of previously unopened ice will be used to cool samples following collection.

Once sample containers are filled, they will be promptly placed on ice, in a clean cooler (maximum temperature of 10 degrees Celsius), in the dark, and transported to the laboratory for processing to meet holding times. After sampling is complete, all waste (gloves, ice bags, etc.) will be placed in the trash. Extra sample water volume will be disposed of according to laboratory protocols. New, sterile containers provided by the laboratories will be used during each event.

Chain of Custody Procedures

Grab samples will be marked with a unique sample ID that will be used to track the sample throughout its analyses. These sample IDs will also be entered directly on to field and laboratory data sheets. All field observations and processed sample information will be recorded and transcribed to Microsoft Excel spreadsheets. Hard copies of these field and laboratory data sheets will be maintained by the Sampling Lead. All bottles will be pre-labeled with the following information:

- Project name
- Date
- Time
- Sampling location name and number
- Sample matrix
- Collector's initials
- Sample ID number
- Analysis name

The Chain of Custody (COC) form provided in Appendix B will accompany the collected water samples. The member of the field staff delivering the samples as well as the receiving member of the laboratory staff will sign the COC when samples are delivered. Sampled water will be kept in the dark and below 10 degrees Celsius and transferred to an analytical laboratory within holding times. COC forms for the samples will be completed and transported with the samples to the analytical laboratory. Transportation will be coordinated to ensure that all samples are handled and analyzed within the proper holding time requirements. Sample holding times are listed in Table 3-1. Custody of all samples will be transferred from the field personnel to laboratories.

**Table 3-1.
 Sample Handling and Custody**

Analysis	Container	Minimum Sample Volume ^(a)	Initial Preservation	Holding Time
<i>Enterococcus</i>	Factory-sealed and/or pre-sterilized, 500- or 1000-mL sterile plastic (high density polyethylene or polypropylene) container	500 mL	< 10°C in the dark	8 hours
Fecal coliform				
Total coliform				

Notes:

mL = milliliter; °C = degree Celsius

(a) Minimum sample volume is representative of total volume needed to analyze all constituents at lowest reporting limits.

If a failure to meet a sample handling requirement occurs, sampling teams will notify the Field Sampling Lead immediately to reschedule the event in coordination with the laboratory. The Project Manager will notify the Monitoring Manager immediately and complete a write up of the issue and corrective action. Failures may include samples not delivered within specified holding times, potential contamination of samples, or improper handling.

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4.0 QUALITY CONTROL

This section addresses quality assurance and quality control (QA/QC) activities associated with both field sampling and laboratory analyses. The field QC samples are used to evaluate potential contamination and sampling error introduced prior to submittal of samples to the analytical laboratory. Laboratory QA/QC activities provide information needed to assess laboratory contamination, analytical precision, and analytical accuracy. If any QA/QC standards are not met, the appropriate corrective actions will be taken in a timely manner to avoid continuation of the same issues. The Monitoring Manager, in collaboration with the Laboratory Manager, is responsible for making decisions on corrective actions pertaining to laboratory analysis. If issues are identified by the monitoring team, the Laboratory Project Manager or Contract Manager will be notified immediately and documentation of the issue and the corrective action will be made.

4.1 Quality Control Types

A set of QC samples will be submitted to the laboratory on the basis of the frequencies noted in Table 4-1. The analytical laboratory may also require more QC samples if one type of analysis is to be run in more than one batch. The main types of QC samples that will be utilized for this study include field blanks, field duplicates, laboratory replicates, and positive and negative controls. The field blanks, duplicate samples, and laboratory replicates may be collected from different sites during a particular sampling event.

4.2 Field Quality Control Samples

The number and frequency of field QC samples to be collected are presented in Table 4-1. Field QC samples will be submitted blind to the analytical laboratory. For laboratory replicates, additional sample volumes will be collected and it will be clearly identified on the COC form.

Field Blanks

Field blanks are samples of reagent-grade, analyte-free, deionized water collected in the field to verify the field conditions and air deposition are non-contaminating during field sampling activities. Field blanks will be analyzed for the same suite of analyses as regular samples. The project frequency for field blanks is 5 percent of the total sample count. Concentrations of field blanks should be below the reporting limit (RL) for each analyte.

Field Duplicates

Duplicate samples consist of two distinct samples (an original and a duplicate) of the same matrix collected at the same time and location using the same sampling technique. Field duplicate samples will be collected by filling two grab sample containers at the same time, or in rapid sequence. The purpose of field duplicates is to measure the consistency of field sampling. The project frequency for field duplicates is 5 percent of samples. The result for each field duplicate will be compared to the sample result to estimate a relative percent difference (RPD) between the two sample results. The RPD between the two results will be calculated using the RPD equation presented in Table 4-1.

**Table 4-1.
 Field Quality Control**

Field QC	Frequency	Acceptance Limits
Field Blank	≥5% of all project samples	Concentrations should be below the RL
Field Duplicate	≥5% of all project samples	Mean $R^{\log} / \bar{R} < 25\%$ ^(a)

Notes:

RL = reporting limit; R_{\log} = range of logarithms for each pair of duplicates; \bar{R} = mean of R_{\log} for duplicates analyzed

(a) The precision calculation recommended by SWAMP is applicable to laboratory replicates.

4.3 Laboratory Quality Control

Laboratory QC samples include laboratory duplicates, and positive and negative controls as described below. Laboratory QC sample results will be provided in a laboratory report and CEDEN-compatible electronic data deliverable (EDD) with a batch ID number to correlate with the corresponding environmental sample data set. Table 4-2 describes the frequency and types of quality control samples for each constituent category.

- Laboratory Replicate** – For a laboratory replicate, a sample is prepared and analyzed twice to assess the repeatability (precision). The results are evaluated by calculating the RPD between the two sets of results. This serves as a measure of the reproducibility, or precision, of the sample analysis. A minimum of one laboratory replicate will be analyzed per batch.
- Positive and Negative Controls** – A negative control is created as a separate plate count after the buffered rinse water is filtered and incubated the same way as a sample. There should be no bacteria growth on the filter after incubation. It is used to detect laboratory bacterial contamination of the sample. A positive control is created as a separate plate count after a water sample known to contain bacteria (such as wastewater treatment plant influent) is filtered and incubated the same way as a sample. There should be bacteria growth on the filter after incubation. It is used to detect procedural errors or the presence of contaminants in the laboratory analysis that might inhibit bacteria growth (USEPA, 2012).

**Table 4-2.
 Laboratory Quality Control**

Constituent Category	Method Blanks	
	Frequency	Acceptance Limits
Laboratory Replicate	One per 20 samples or analytical batch, whichever is more frequent	$R_{\log} \leq 3.27 \times \bar{R}$
Positive and Negative Controls	Per new lot or batch	Positive Control = Growth on filter Negative Control = No growth on filter

Notes:

R_{\log} = range of logarithms for each pair of duplicates; \bar{R} = mean of R_{\log} for duplicates analyzed

5.0 DATA MANAGEMENT AND REPORTING PROCEDURES

This section describes the management of field and analytical data and reporting procedures for the Los Peñasquitos WMA Bacteria TMDL Compliance Monitoring Program.

5.1 Data Management

Field data records and analytical data reports will be sent to and kept by the designated Lead Agency Project Manager. Data will be submitted in a standardized CEDEN-compatible format. The Lead Agency will compile the monitoring data and provide an annual Bacteria TMDL Monitoring Summary to SDRWQCB.

The monitoring team will review all Field Data Log Sheets for completeness, maintain the original hardcopies, and scan electronic copies (*.pdf) for storage in the project file. The monitoring team will provide data in electronic format: both *.pdf copies of the field data log sheets and a California Environmental Data Exchange Network (CEDEN)-compatible EDD. Additionally, photographs for each event will be submitted to the Lead Agency. The field crew will retain the original Field Data Log Sheets.

The laboratories will provide, data in electronic format, both *.pdf copies of lab reports and a CEDEN-compatible EDD. Analytical results will be submitted to the monitoring team or Lead Agency in *.pdf format and as a SWAMP-compatible EDD within three weeks of submittal of samples. A SWAMP-compatible template will generate data files that can be uploaded to the CEDEN database. The Sampling or Lead Agency will review all lab reports and EDDs for accuracy, completeness, and compatibility with SWAMP. The laboratory will retain original COC forms. The laboratory will retain copies of the preliminary and final data reports.

The Responsible Agencies may initiate follow-up monitoring on the basis of indicator bacteria results obtained at the compliance monitoring location after the first interim milestone. Responsible Agencies may choose to voluntarily conduct follow-ups to identify and abate sources, where there is a preponderance of evidence to support the action.

5.2 Reporting Procedures

The monitoring team will provide sampling summaries to the Lead Agency as a status of monitoring activities. The update will include a brief summary of activities completed in the previous period and the field observations recorded. The Lead Agency will provide updates to the other participating Responsible Agencies during regularly scheduled Watershed Workgroup meetings.

The Lead Agency will generate an Annual Bacteria TMDL Monitoring Summary (Annual Summary), which will be included in the Water Quality Improvement Plan Annual Report for Los Peñasquitos WMA. The Annual Summary will describe the sample collection methods, sampling events, and present key findings of the analytical results. Follow-up monitoring activities, if conducted, will be summarized in the Annual Summary. "Existing" dry weather exceedance frequencies will be used to evaluate progress toward attaining the TMDL. Any deviations from protocols listed in the Monitoring Plan and the implications of those deviations on the interpretation of the data will be included in the report.

5.2.1 Dry Season Geometric Mean and Exceedance Frequency

Per Attachment E of the MS4 Permit, the geometric mean calculation should be consistent with that in the Ocean Plan (State Water Resources Control Board [SWRCB], 2012). A 30-day rolling geometric mean calculation in the dry season is based on a minimum of five samples for any 30-day period. Geometric means were calculated as follows:

$$30 - \text{Day Geometric Mean} = n \sqrt{(x_1)(x_2)(x_3)(x_4)(x_5)}$$

where:

n is the number of individual results used in the calculation

X_n is week n result (e.g., X_1 = week 1 result)

Dry weather monitoring begins in early May; the first geometric mean is calculated after the fifth sample is collected when monitoring is conducted on a weekly basis. With each subsequent sample collected, the first sample from the preceding five-sample geometric mean is dropped outside of a 30-day window. Samples collected between May 1 and September 30 are used in this calculation.

A dry weather exceedance occurs when the geometric mean exceeds the dry weather numeric target. The first exceedance rate is calculated after the first geometric mean calculation. The number of geometric means that exceed the dry weather numeric target is divided by the total number of calculated dry season geometric means to determine the dry season exceedance frequency, as expressed below:

$$\text{Dry Season Exceedance Frequency (\%)} = 100 * \frac{\text{Dry Season } G_n > \text{DW NT}}{\text{Dry Season } G_n}$$

where:

Dry Season G_n is the number of dry season geometric means

DW NT is the dry weather numeric target

5.2.2 Wet Season Geometric Mean and Exceedance Frequency

Per of Attachment E of the MS4 Permit, a wet season exceedance frequency calculation uses combined wet and dry weather results between October 1 and April 30 and is compared with dry weather RWLs. During the wet season, the amount of time summarized by each geometric mean varies. Dry weather sampling is conducted monthly to weekly during the wet season in October and April, and approximately monthly from November through March. In addition, up to three wet weather events are monitored during the wet season, with one sample collected for each wet weather event. A rolling geometric mean calculation is calculated from the five most recent wet season samples. With each subsequent sample collected, the first sample from the preceding five-sample geometric mean is dropped. The wet season geometric mean is calculated as follows:

$$5 - \text{Sample Geometric Mean} = n \sqrt{(X_1)(X_2)(X_3)(X_4)(X_5)}$$

where:

n is the number of individual results used in the calculation

X_n is sample n result (e.g., X_1 = Wet Weather 1 result, X_2 = Wet Weather 2 Result)

A wet season exceedance occurs when a geometric mean exceeds the dry weather numeric target. The first geometric mean is calculated after the fifth sample collected during the wet season. To determine the wet season exceedance frequency, the number of wet season geometric means that exceed the dry weather numeric target is divided by the total number of calculated wet season geometric means, expressed as follows:

$$\text{Wet Season Exceedance Frequency (\%)} = 100 * \frac{\text{Wet Season } G_n > \text{DW NT}}{\text{Wet Season } G_n}$$

where:

Wet Season G_n is the number of wet season geometric means

DW NT is the dry weather numeric target

5.2.3 Wet Weather Single-Sample Maximum Exceedance Frequency

Wet weather exceedances are based on a comparison of the rate of exceedances of the single-sample maximum numeric target with the allowable 22% exceedance frequency. Wet weather events include the storm day(s) (0.2 inch of rainfall or greater) and the following 72 hours, resulting in a minimum wet weather event duration of 4 days. Per Attachment E of the MS4 Permit, for monitored storm events, the highest reported result from a monitored storm event is applied to each non-monitored day for the duration of that event. An inferred exceedance rate must be calculated to account for non-monitored storm events.

For the remaining wet weather days that are not associated with a monitored event, the average (interpreted as the geometric mean) of the highest reported results from each of the three monitored wet weather events is assigned to the remaining wet weather days in the wet season:

$$\text{Geometric Mean} = n^{\text{th}} \text{ root of } (X_1)(X_2) \dots X_n$$

where:

$X_1, X_2,$ etc. is the highest reported concentrations of the monitored event

n is the number of monitored storm events

The wet weather exceedance frequency is then determined by dividing the number of wet weather days that exceeded the single-sample maximum numeric target by the total number of wet weather days observed during the wet season.

$$\text{Wet Weather Exceedance Frequency (\%)} = 100 * \frac{\sum(\text{WWD} > \text{Wet Weather RWL})}{\sum \text{WWD}}$$

where:

\sum WWD is the sum of wet weather days (0.2 inch of rainfall or more) and the following 72 hours

RWL is receiving water limitation

5.2.4 Dry Weather Single-Sample Exceedance Frequency

A dry weather single-sample maximum exceedance frequency assessment is not defined in Attachment E.6 of the MS4 Permit. To determine exceedance frequencies, dry weather samples collected between October 1 and September 30 will be compared with the single-sample maximum numeric target. The exceedance frequency will then be calculated by dividing the number of dry weather samples that exceeded the single-sample maximum numeric target by the total number of dry weather samples collected for the monitoring year (October 1 through September 30).

6.0 REFERENCES

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Los Peñasquitos Watershed Management Area
Bacteria TMDL Monitoring Plan
September 2020

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APPENDIX A

SAMPLE FIELD DATA SHEET FORM

**Bacteria TMDL Wet Weather Monitoring
FIELD DATA SHEET**

Site ID: _____ Date: _____ Time: _____
Watershed: _____ Receiving Water Storm Drain
Field Crew: _____ Photos Collected? Yes No Photo Count#: _____
Observed Land Use: Residential Commercial Industrial Agricultural Parks Open

ATMOSPHERIC CONDITIONS

Weather Partly Cloudy Sunny Overcast Fog Rain Drizzle
Tide N/A Low Incoming High Outgoing Tide Height: _____ ft.
Last Rain > 72 hours < 72 hours
Rainfall None < 0.1" > 0.1"

BEACH CHARACTERISTICS

Biology None Insects Algae Mollusk Snails Crustacean Other _____
Deposits None Sediment/Gravel Oily Deposits Stains Fine Particulates Other _____
Vegetation None Limited Excessive Normal Other _____

RUNOFF CHARACTERISTICS

Composition: Sandy Rocky Grass
Floatables None Trash Bubbles/Foam Sheen Fecal Matter Other _____
Beach Odor None Musty Rotten Eggs Chemical Sewage Other _____
Beach Color None Yellow Brown White Gray Other _____
Beach Clarity Clear Slightly Cloudy Opaque Other _____

ACTIVITIES/INDICATORS

Evidence Reclaimed Water Usage Ag/Livestock Facility Encampments # _____ Other: _____
 Waste Water Discharge Leaking Trashcan Dom. Animals # _____
 Sewer Overflow Food Waste/scraps Birds # _____
 Trash Accumulation Seaweed Accumulation Wildlife # _____
 Organic Matter Children (Diapers) # _____ Seals # _____

FLOW CONDITIONS

Outfall Reaches Receiving Waters? Yes No N/A Dry Ponded Trickle Tidal

Flow Estimation:

Width | Diameter ft. | in. Depth ft. | in. Velocity ft./sec. Flow cfs | gpm

FIELD MEASUREMENTS

pH: Temp(°C): Turbidity (NTU): Sp Conductivity (mS/cm):

SAMPLE COLLECTION

Visited, Not Sampled

Grab Sample Collected? Yes No QAQC Sample Collected? Yes No QAQC Type:
Sample ID: _____ Sample ID: _____ DUP
Date: _____ Time: _____ Date: _____ Time: _____ FB

SAMPLE CHARACTERISTICS

N/A

Floatables None Trash Bubbles/Foam Sheen Fecal Matter Other _____
Sample Odor None Musty Rotten Eggs Chemical Sewage Other _____
Sample Color None Yellow Brown White Gray Other _____
Sample Clarity Clear Slightly Cloudy Opaque Other _____

COMMENTS:

APPENDIX B

SAMPLE CHAIN-OF-CUSTODY FORM



Chain of Custody

From: Wood Environment & Infrastructure Solutions 9177 Sky Park Court San Diego, CA 92123 (858) 514-7720 (858) 278-5300 Fax Contact: Francesca DeLeon	To: City of San Diego EMTS Laboratory 2392 Kincaid Road San Diego, CA 92101 (619) 758-2300 (619) 758-2309 Fax Contact: Lab Supervisor	Lab Notes:	Received on ice? <input type="checkbox"/> Yes <input type="checkbox"/> No Temperature _____
--	--	-------------------	--

PO#:	Project Number:	Project Name:				Sample Matrix:	
	5025201041.02	Los Penasquitos Bacteria TMDL				Storm Water	
SampleID	Sample Date	Sample Time	Sample Type	Analysis	Container	Pres	No. of Bottles
2021-W___-FM-100-RW-G01			Saltwater Grab	Enterococcus (EPA 1600), Fecal Coliform (SM 9222D), Total Coliform (SM 9222B)	500mL Sterile	None	1
2021-W___-FM-100-RW-G02			Saltwater Grab	Enterococcus (EPA 1600), Fecal Coliform (SM 9222D), Total Coliform (SM 9222B)	500mL Sterile	None	1
2021-W___-FM-100-RW-G03			Saltwater Grab	Enterococcus (EPA 1600), Fecal Coliform (SM 9222D), Total Coliform (SM 9222B)	500mL Sterile	None	1

Special Instructions/Comments:
 Membrane Filtration Methods are strongly preferred. Multiple Tube Fermentation (MTF) Methods can be used on highly turbid samples. Target reporting limits: Enterococcus: RL = 1; Fecal Coliform: RL = 2; Total Coliform: RL = 2.

Sampled and Relinquished By:		Received By:	
Print:	Date/Time:	Print:	Date/Time:
Sign:		Sign:	
Print:	Date/Time:	Print:	Date/Time:
Sign:		Sign:	
Print:	Date/Time:	Print:	Date/Time:
Sign:		Sign:	