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Los Angeles Regional Water Quality Control Board

January 7, 2013

Mas Dojiri, Ph.D., Division Manager
Environmental Monitoring Division, Bureau of Sanitation
City of Los Angeles Department of Public Works
Hyperion Treatment Plant
Harry Pregerson Bldg. 5TH Floor
12000 Vista Del Mar
Playa Del Rey, CA 90293

Dear Dr. Dojiri:

TENTATIVE RESOLUTION FOR REGIONAL WATER BOARD APPROVAL OF PROPOSED SPECIAL STUDIES – HYPERION TREATMENT PLANT (NPDES NO. CA0109991, CI-1492) AND TERMINAL ISLAND TREATMENT PLANT (NPDES NO. CA0053856, CI-2171)

Regional Water Board staff has prepared the enclosed tentative Resolution for Regional Water Board consideration and approval of your proposed special studies. Written comments on the tentative Resolution are due to the Regional Water Board by **12:00 p.m.** (noon) on **February 7, 2013**.

This tentative Resolution will be considered by the Regional Water Board at the March 7, 2013, Regional Water Board hearing, to be held at the Metropolitan Water District of Southern California, Board Room, 700 North Alameda Street, Los Angeles, California beginning at 9:00 a.m.

The tentative Resolution can also be viewed on the Regional Water Board's website at www.waterboards.ca.gov/losangeles. Should you have any questions, please contact the undersigned at (213) 576-6664.

Sincerely,

Brandi Outwin-Beals, P.E.
Unit Chief, Municipal Permitting Unit (NPDES)

Enclosure

State of California
California Regional Water Quality Control Board, Los Angeles Region

RESOLUTION NO. R13-XXX
Approving the City of Los Angeles' Proposed Special Studies for the Hyperion Treatment Plant and the Terminal Island Water Reclamation Plant

WHEREAS, the California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Water Board), finds that:

1. The Regional Water Board adopted National Pollutant Discharge Elimination System (NPDES) permits for the City of Los Angeles' Hyperion Treatment Plant on November 2, 2010, and for the Terminal Island Water Reclamation Plant on May 6, 2010.

2. Both NPDES permits contain a requirement for the City of Los Angeles to consult annually with the Regional Water Board and the United States Environmental Protection Agency (USEPA) to determine the need for special studies. Detailed scopes of work for proposals must be presented to obtain Regional Water Board and USEPA approval and to inform the public. Special studies are intended to focus on refined questions regarding specific effects or development of monitoring techniques. Questions regarding effluent or receiving water quality, discharge impacts, ocean processes in the area of the discharge, or development of techniques for monitoring the same, arising out of the results of core or regional monitoring, may be pursued through these special studies.

3. On December 11, 2012, a representative from the City met with Regional Water Board staff to discuss two proposed special studies for 2013: 1) The Response of a Coastal Phytoplankton Community to Hyperion Treatment Plant's Effluent: An Environmental Experiment, and 2) Comparison of Bacterial Densities of Enterococcus in the Sand and Water at Inner Cabrillo Beach.

4. Regional Water Board staff believe that these proposed special studies fulfill the requirements of the NPDES permits, will further the Regional Water Board's knowledge of the health of Los Angeles Harbor and Santa Monica Bay and of emerging issues associated with the discharges from both Plants, and recommend that they be approved by the Regional Water Board.

TENTATIVE

THEREFORE, BE IT RESOLVED THAT:

1. The Regional Water Board believes that the three Special Studies proposed for 2013,1) The Response of a Coastal Phytoplankton Community to Hyperion Treatment Plant's Effluent: An Environmental Experiment, and 2) Comparison of Bacterial Densities of Enterococcus in the Sand and Water at Inner Cabrillo Beach, merit approval.

2. The Regional Water Board hereby approves the City of Los Angeles' proposals for the special studies.

I, Samuel Unger, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Los Angeles Region, on March 7, 2013.

_____
Samuel Unger, P.E.
Executive Officer

TENTATIVE

City of Los Angeles
Bureau of Sanitation
Hyperion Treatment Plant

Proposed Special Study, 2013

PROJECT NAME: ***THE RESPONSE OF A COASTAL PHYTOPLANKTON COMMUNITY TO HYPERION TREATMENT PLANT'S EFFLUENT: AN ENVIRONMENTAL EXPERIMENT***

Goal: Our goal is to determine the optimal season for effluent diversion, based on the potential ambient phytoplankton community response, which will assist Hyperion Treatment Plant to decide when to schedule its Effluent Pumping Plant Header Replacement Project and its associated effluent diversion to its 1-Mile Outfall, thereby minimizing potential adverse environmental and human-related effects.

Objective(s): The primary objective of this Special Study (experiment) is to determine whether harmful phytoplankton, such as *Pseudo-nitzschia seriata* and *Alexandrium* species, will bloom as a result of typical-quality effluent exposure and to provide this information to the Hyperion Treatment Plant to assist their decision on when to divert its 5-Mile effluent to the 1-Mile Outfall during its Effluent Pumping Plant Replacement Project, which is scheduled for 2014. We also want to determine whether the Environmental Monitoring Division's (EMD) environmentally-controlled laboratory experiment is similar to the in-situ parallel experiment being conducted by the Caron Laboratory of the University of Southern California (USC). Finally, this experiment aims to determine whether the experimental results accurately predict what will occur during and after the effluent is diverted in 2014. (Refer to Appendix A).

Benefits: This Special Study will help Hyperion Treatment Plant potentially avoid initiation or enhancement of harmful algal blooms and safeguard the surrounding environment during and after the effluent diversion.

Background: The HTP discharges an average of 287 MGD (2007-2008) of secondary-treated wastewater into Santa Monica Bay through its 5-Mile Outfall. As the name implies, this discharge occurs approximately five miles from shore. This outfall, which was commissioned in 1960, was internally inspected during the period of November 28-30, 2006. This inspection found corrosion in the bulkheads of the Effluent Pumping Plant (EPP) Header; a critical point in the treated wastewater system. This corrosion needs to be addressed. Three alternative approaches are being considered, all of which will require removing the outfall from service for a period of two to three weeks.

During the period that the 5-Mile Outfall is out of service, the discharge from HTP will be diverted to the 1-Mile Outfall. A similar diversion, also resulting in the treated effluent being discharged through the 1-Mile Outfall, occurred during the inspection in November 2006. At that time, the EMD, working with numerous collaborators, conducted a special monitoring effort to evaluate the impact of the diversion on Santa Monica Bay with special emphasis on nearshore bathing waters. Concurrently, an intensive outreach program was mounted to inform other

governmental agencies, elected and appointed City officials, non-governmental organizations, residents of the potentially affected beach cities, as well as other stakeholders of Santa Monica Bay of the endeavor.

The diversion of the secondary-treated effluent from its usual 5-Mile Outfall to the 1-Mile Outfall in 2014 will result in a significant, localized nutrient input into the nearshore environment. The 1-Mile Outfall terminates at a depth of about 16 m and the initial dilution of the effluent plume will be low, on the order of 13:1 rather than the 84:1 dilution at the 5-Mile Outfall terminus. Additionally, the effluent discharge into substantially shallower water will result in a nutrient-rich effluent plume within the phytoplankton assemblage in the euphotic zone of this coastal region. Typically, diatoms dominate the phytoplankton community in the spring, while dinoflagellates dominate during the fall. Diverting the effluent into the 1-Mile Outfall in the spring could potentially result in a harmful algal bloom of the diatom *Pseudo-nitzschia seriata*, which produces the toxin domoic acid, while diverting in the fall may result in a bloom of the dinoflagellate *Alexandrium* sp., which is know to produce the toxin saxitoxin. Therefore, the results of this Special Study may be critical to Hyperion's decision on the timing of the diversion.

Approach: The relative abundance of diatoms to dinoflagellates differs from season to season. Diatoms, such as the harmful *Pseudo-nitzschia seriata*, are more abundant in the spring and dinoflagellates, such as *Alexandrium* species, are more abundant in the fall. However, since only some species of dinoflagellates are harmful, this experiment will determine whether harmful species have a greater response in the spring or in the fall. Therefore, this project will have three trials: one in the late spring 2012, one in the fall 2012, and the final one in early spring 2013. Surface seawater samples will be collected at the 1-Mile Outfall receiving water area from the City of Los Angeles' M/V *La Mer*. In the EMD laboratory, different concentrations of effluent will be added; 0.1%, 1.1%, and 7.1%. There will also be a control containing only seawater and a control containing deionized water. After six days, each treatment will be tested for chlorophyll, domoic acid, nutrients, and phytoplankton species abundance. We can then recommend that the Hyperion Treatment Plant divert their effluent in early spring, late spring, or in the fall based on our experimental results. The Caron Laboratory (USC) will also be conducting a parallel, but in-situ, experiment, which will allow for comparison with EMDs in-lab experiment.

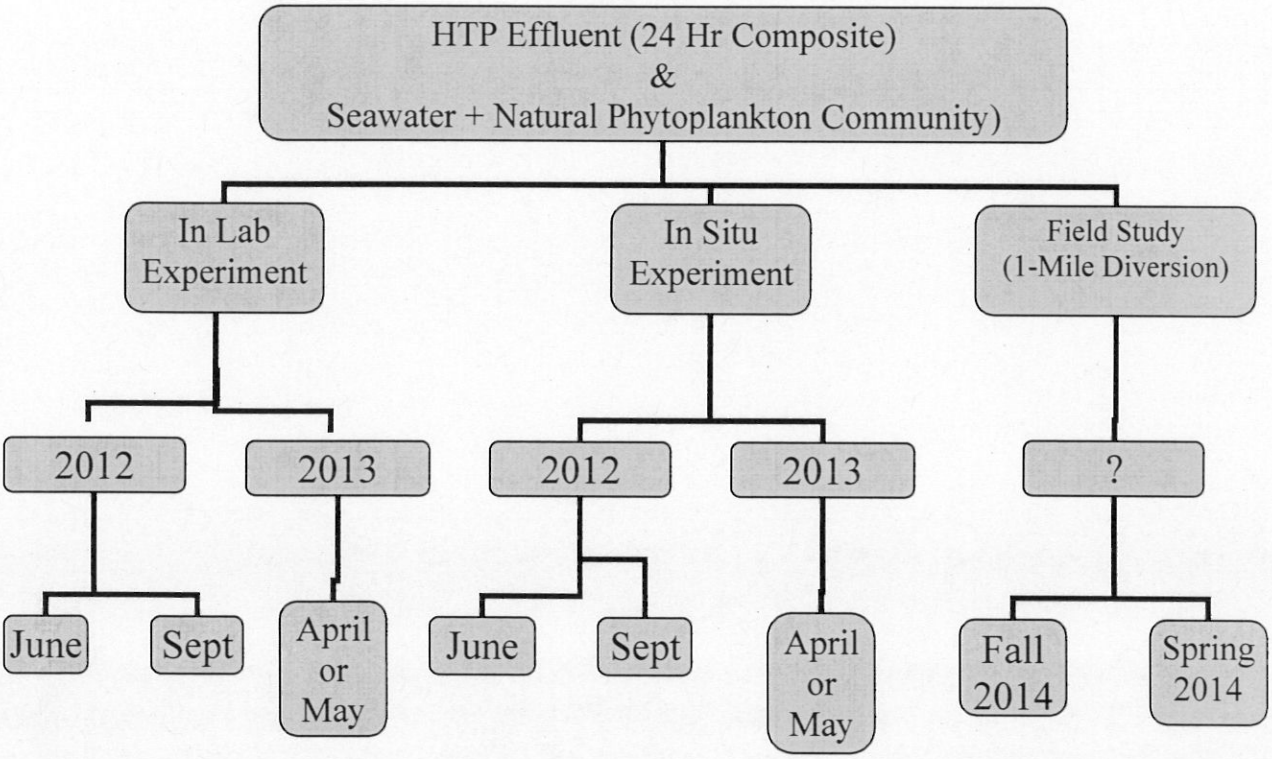
Project duration: This project began with the first trial in June 2012 (late spring), a second trial occurred in October 2012 (fall), and a third trial is planned for April/May 2012 (early spring) to allow for data comparison between the two seasons. After the phytoplankton has been counted, results will be compared to USC's and the suggestion on when to divert will be made in 2013.

Deliverables: A report will be written in 2013 and a peer-reviewed publication with USC scientists is planned for 2013.

Participants: Palos Verdes Peninsula High School students Stacey Dojiri and Kelly Woo.

Collaborators: David Caron, Erica Seubert, and Alyssa Gellene from USC will be helping us during the course of this project.

Appendix A. Overview of phytoplankton special study.



City of Los Angeles
Bureau of Sanitation
Terminal Island Treatment Plant

Proposed Special Study

Project Name: Comparison of Bacterial Densities of *Enterococcus* in the Sand and Water at Inner Cabrillo Beach

Introduction: For years Inner Cabrillo Beach has been graded as an F beach according to REC-1 water single-sample limits for *Enterococcus*. Millions of dollars have been invested into projects to improve water quality, such as sand replacement, installing water circulation pumps and bird exclusion devices, and removing the rock jetty, yet *Enterococcus* densities continue to exceed water quality limits. Identifying the source of the high bacterial densities at Inner Cabrillo Beach has been elusive; sand at the shoreline wave wash may potentially harbor elevated *Enterococcus* concentrations and may contribute to the *Enterococcus* exceedances.

Objective(s): The goal of the study is to ascertain the extent to which sand serves as a reservoir for *Enterococcus,* contributing to the high bacterial counts historically detected at the wave wash of Inner Cabrillo Beach by comparing the densities of *Enterococcus* in sand and beach water during dry winter weather.

Benefits: This study may provide valuable information as to the source of bacterial contamination at Inner Cabrillo Beach and may justify a more extensive study of the effects of sand bacteria on water quality. The majority of studies conducted are during dry-weather summer months when there are a lot of swimmers. This study will occur during dry-weather winter months which could provide additional information about dry-weather exceedances during this period.

Approach: Samples will be collected at five locations in Inner Cabrillo Beach (Fig. 1), at approximately 9:30 AM, for sand and water, and analyzed for *Enterococcus* by the chromogenic substrate method. One of the locations will be the historical Inner Cabrillo Beach sampling site designated CB2 which is monitored by the City of Los Angeles in front of the Cabrillo Beach Museum at the southern most restroom. Two sites will be north of CB2 approximately 200 and 500 feet away; the other two sites will be approximately 200 and 400 feet south of CB2. During each sampling event one of the sites will be randomly selected as a replicate sample for water and sand analysis. Sand samples will be processed by the method established in the Bight'08 Regional Monitoring Program. Bacterial results will be analyzed for any correlation between the bacterial densities of the sand and water. For the proposed project duration, one aim is to collect a minimum of 30 water and sand samples. Collection of samples will be limited to dry-weather periods; sampling will not occur during wet-weather periods, defined by the Basin Plan as days with 0.1 inches of rain

or greater and the three days following the rain event. The rainfall gage at the University of Southern California (USC) will be monitored to determine wet-weather days.

Project duration: This study will start November 24, 2012 and be completed by February 2013.

Deliverables: A research report and project board

Participants: Raya Kumar, Palos Verdes Peninsula High School student and Environmental Monitoring Division Microbiologists Amber Kuhn and Victor Ruiz, as well as Division Manager Dr. Mas Dojiri.

Collaborators: none

CITY OF LOS ANGELES
CALIFORNIA

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PLAYA DEL REY, CA 90293
TEL: (310) 648-5231
FAX: (310) 648-5731

December 18, 2012

Mr. Samuel Unger
Executive Officer
California Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

RE: Special Study Proposals for Hyperion Treatment Plant (Order No. R4-2010-0200) and Terminal Island Water Reclamation Plant (Order No. R4-2010-0071)

Dear Mr. Unger:

On behalf of the City of Los Angeles' Hyperion Treatment Plant and Terminal Island Water Reclamation Plant, the Environmental Monitoring Division is submitting special study proposals for Board approval. These special study proposals were presented to the Regional Board staff on December 11, 2012 and are entitled:

- The Response of a Coastal Phytoplankton Community to Hyperion Treatment Plant's Effluent: An Environmental Experiment
- Comparison of Bacterial Densities of *Enterococcus* in the Sand and Water at Inner Cabrillo Beach

Please do not hesitate to call me at (310) 648-5610 if you have any questions or need further information.

Sincerely,

Masahiro Dojiri, Ph.D.
Division Manager
Environmental Monitoring Division

MAD:kmy

Enclosures: Hyperion and Terminal Island Special Study Proposals

c: United States Environmental Protection Agency, Region IX

ec: Enrique Zaldivar
Traci Minamide
Varouj Abkian
Steven Fan
Roshanak Aflaki
Brandi Outwin
Talitha Sweaney
Elizabeth Erickson
Jeffrey Beller
Gerald McGowen

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FAX: (310) 648-5731

December 18, 2012

Mr. Jared Blumenfeld
Regional Administrator
Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

RE: Special Study Proposals for Hyperion Treatment Plant (Order No. R4-2010-0200) and Terminal Island Water Reclamation Plant (Order No. R4-2010-0071)

Dear Mr. Blumenfeld:

On behalf of the City of Los Angeles' Hyperion Treatment Plant and Terminal Island Water Reclamation Plant, the Environmental Monitoring Division is submitting special study proposals for approval. These special study proposals were presented to the Regional Board staff on December 11, 2012 and are entitled:

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Please do not hesitate to call me at (310) 648-5610 if you have any questions or need further information.

Sincerely,

Masahiro Dojiri, Ph.D.
Division Manager
Environmental Monitoring Division

MAD:kmy

Enclosures: Hyperion and Terminal Island Special Study Proposals

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