California Regional Water Quality Control Board
Los Angeles Region

320 West Fourth Street, Suite 200, Los Angeles, California 90013
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http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Acting Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

April 19, 2011

Joseph R. Gully, Supervising Environmental Scientist
Ocean Monitoring and Research Group
Los Angeles County Sanitation Districts
1955 Workman Mill Road
P.O. Box 4998
Whittier, CA 90607-4998

Dear Mr. Gully:

ADOPTED RESOLUTION NO. R11-005 APPROVING OF SPECIAL STUDY – JOINT WATER POLLUTION CONTROL PLANT (NPDES NO. CA0053813, CI-1758)

Pursuant to Division 7 of the California Water Code, this Regional Water Board approved Resolution No. R11-005 at a public hearing on April 14, 2011. The complete final resolution will be sent only to the Los Angeles County Sanitation Districts. However, the document is available for public review on the on the Regional Water Board's website: www.waterboards.ca.gov/losangeles/.

Please submit all reports to the Regional Water Board, Attn: Information Technology Unit. When submitting monitoring reports, technical reports, or any correspondence regarding this resolution, please include a reference to our compliance file number CI-1758 to assure that the reports are directed to appropriate staff. Please do not combine your required reports with any other reports. Instead, submit each type of report as a separate document.

Should you have any questions, please contact the undersigned at (213) 576-6664.

Sincerely,

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

Enclosure

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

RESOLUTION NO. R11-005
Approving the Los Angeles County Sanitation Districts' Proposed Special Study
for
Joint Water Pollution Control 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 Los Angeles County Sanitation Districts' Joint Water Pollution Control Plant on April 6, 2006.

2. The NPDES permit contains a requirement for the Los Angeles County Sanitation Districts to consult annually with the Regional Water Board to determine the need for Special Studies. Detailed scopes of work for proposals shall be presented to obtain Regional Water Board 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 October 25, 2010, representatives from the City met with Regional Board staff to discuss the following proposed Special Study for 2011: Measuring the Flux of Persistent Organic Pollutants (POPs) across the Sediment-Water Interface on the Palos Verdes Shelf Using Passive Samplers.

4. Regional Water Board staff believe that the proposed Special Study fulfills the requirements of the NPDES permit, will further the Regional Board's knowledge of the health of the Palos Verdes Shelf Superfund site, and recommend that they be approved by the Regional Board.

THEREFORE, BE IT RESOLVED THAT:

1. The Regional Water Board believes that the following proposed Special Study for 2011: Measuring the Flux of Persistent Organic Pollutants (POPs) across the Sediment-Water Interface on the Palos Verdes Shelf Using Passive Samplers merits approval.

2. The Regional Water Board hereby approves the Los Angeles County Sanitation Districts' Special Study proposal.

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 April 14, 2011.

Samuel Unger

Samuel Unger, P.E.
Executive Officer

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

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STEPHEN R. MAGUIN
Chief Engineer and General Manager

January 12, 2011
File No. 31-300.25

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

2011 Special Study Proposal Revision
Joint Water Pollution Control Plant, Los Angeles County Sanitation Districts
(NPDES Permit No. CA0053813, CI-1758)

Dear Mr. Unger:

The Los Angeles County Sanitation Districts (Districts) request that the Los Angeles Regional Water Quality Control Board (Regional Board) consider adoption of the proposed Special Study entitled "Measuring the Flux of Persistent Organic Pollutants (POPs) across the Sediment-Water Interface on the Palos Verdes Shelf using Passive Samplers." This proposal is submitted in response to the Special Studies provision of the Joint Water Pollution Control Plant (JWPCP) NPDES permit Monitoring and Reporting Program (Order No. R4-2006-0042).

The current JWPCP Monitoring and Reporting Program requires the Districts to annually consult with the Regional Board to determine the need for special studies related to the permitted discharge. The Districts met with members of your staff (Deborah Smith, Cathy Chang, Michael Lyons, and Brandi Outwin) on October 25th, 2010 to discuss the need for this Special Study. The Regional Board staff indicated that the study had sufficient merit to be formally considered for adoption by the Regional Board as a Special Study under this provision of the permit. The Districts prepared and submitted a formal proposal on December 15th, 2010. On December 28th, 2010, Regional Board staff (Cathy Chang) requested revisions to the "Deliverables" section of the proposed Special Study to more clearly define the progress report submission frequency as well as submission of other publications and presentations associated with the study. The Districts revised the proposal language accordingly and are resubmitting the Special Study Proposal to the Regional Board for their consideration. If you have any questions regarding this request, please contact me at jgully@lacsd.org or 562-908-4288 ext. 2818.

Very truly yours,

Stephen R. Maguin

Joseph R. Gully
Supervising Environmental Scientist
Ocean Monitoring and Research Group

JRG:CT:dhs
Enclosure
DOC #1733741

Sanitation Districts of Los Angeles County
Joint Water Pollution Control Plant

Proposed Special Study
2011

MEASURING THE FLUX OF PERSISTENT ORGANIC POLLUTANTS (POPS) ACROSS THE SEDIMENT-WATER INTERFACE ON THE PALOS VERDES SHELF USING PASSIVE SAMPLERS (JWSS-11-001)

Introduction:

In September 2009, the United States Environmental Protection Agency (USEPA) published an Interim Record of Decision (IROD) that summarized the selected remedy for the Palos Verdes Shelf (PVS) Superfund site. The remedy is comprised of three components, including: (1) Continuing the Institutional Controls (ICs) program that uses outreach, education, enforcement, and monitoring to minimize consumption of fish contaminated with Dichlorodiphenyltrichloroethane related compounds (DDTs) and Polychlorinated biphenyls compounds (PCBs); (2) Placing a clean sand sediment cap over the most contaminated portions of the seafloor to minimize exposure and stabilize erosion of the deposit; and (3) Monitoring the natural recovery that is occurring in other areas of the shelf.

Capping the most contaminated sediments on the Palos Verdes shelf is the only engineered aspect of the remedy to reduce the release of these contaminants into the water column. Therefore, a thorough understanding of the process and flux rates by which these contaminants move from sediment porewater to the water column is essential to design an effective cap. The proposed Special Study will focus on understanding this process and will serve as a baseline upon which the effectiveness of the cap will be evaluated.

Goals and Objectives:

The goal for this Special Study is to refine the conceptual site model (**Figure 1**) to better understand the diffusive flux transfer of DDTs/PCBs from Palos Verdes Shelf Superfund site sediments to the water column. This aspect of contaminant transport and exposure has not been well studied but may be a significant source of contamination and risk to aquatic life including some seafood and a primary mechanism for the loss of DDT and PCB inventories over time on the Palos Verdes shelf. Towards this goal, the following objectives have been identified for the proposed Special Study: (1) to quantify and define gradients of DDTs and PCBs in the sediment porewater and near bottom water column; (2) to calculate baseline flux rates of DDTs and PCBs at the sediment–water interface; (3) to assess effective cap thickness and composition to minimize or reduce flux to the water column; and (4) to compare results along the known contamination gradient within the Palos Verdes Shelf Superfund site.

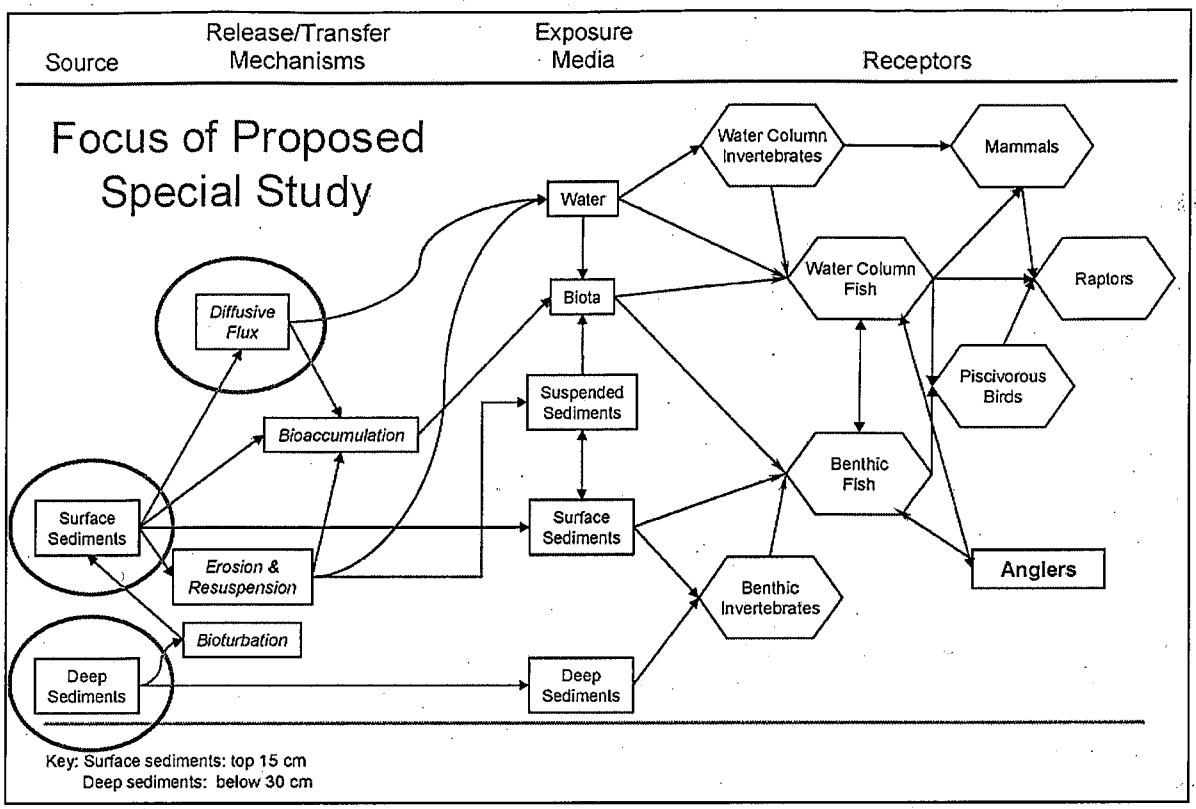

Figure 1 Conceptual Site Model (CSM) for the Palos Verdes Shelf Study Area

The conceptual model includes past sources of contamination (outfalls), existing sources of contamination (effluent-affected sediment), affected media (sediment and water), known and potential routes of migration (water), and known or potential human and environmental receptors (benthic organisms, fish, anglers). Diffusive flux, surface sediments and deep sediments are the main focus of proposed Special Study

General Approach:

Vertically oriented passive sampling devices (**Figure 2**) will be deployed for 30 days at five locations (**Figure 3**) along the DDT and PCB contamination gradient. Samplers will include polyethylene (PE), polyoxymethylene (POM) and solid phase micro-extraction (SPME). The design of these devices are such that when deployed, the lower portion of the sampler will penetrate the sediment column and absorb persistent organic pollutants (POPs), including DDT and PCBs, from localized porewater within the sediment column while the upper portion will absorb dissolved POPs from the overlying near bottom water. The vertical orientation of the samplers allows for the resolution of POP gradients within the sediment and water columns. Proper orientation of the devices will be confirmed using SCUBA and/or a Remotely Operated Vehicle (ROV).

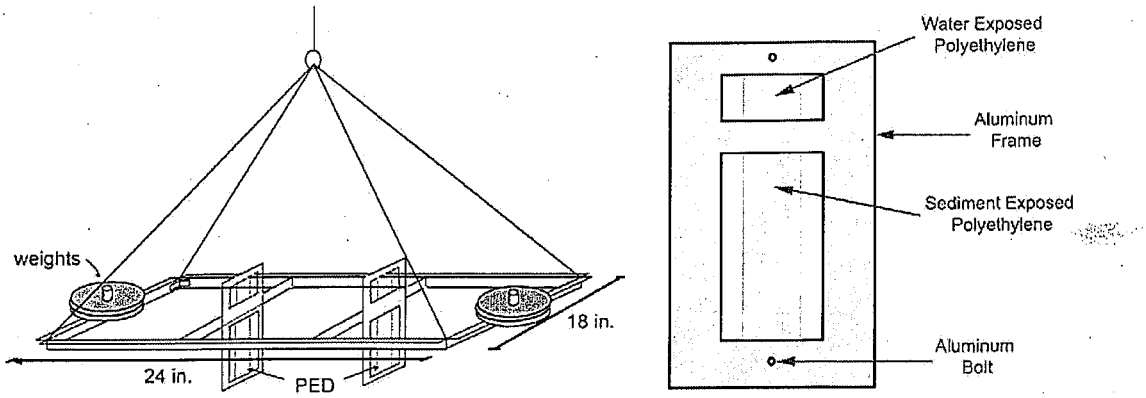

Figure 2 General Platform Design and Passive Sampler

The diagram is a general design of the platform. The platform will be modified to carry replicate passive samplers (PSs) to a depth of nearly 40-cm

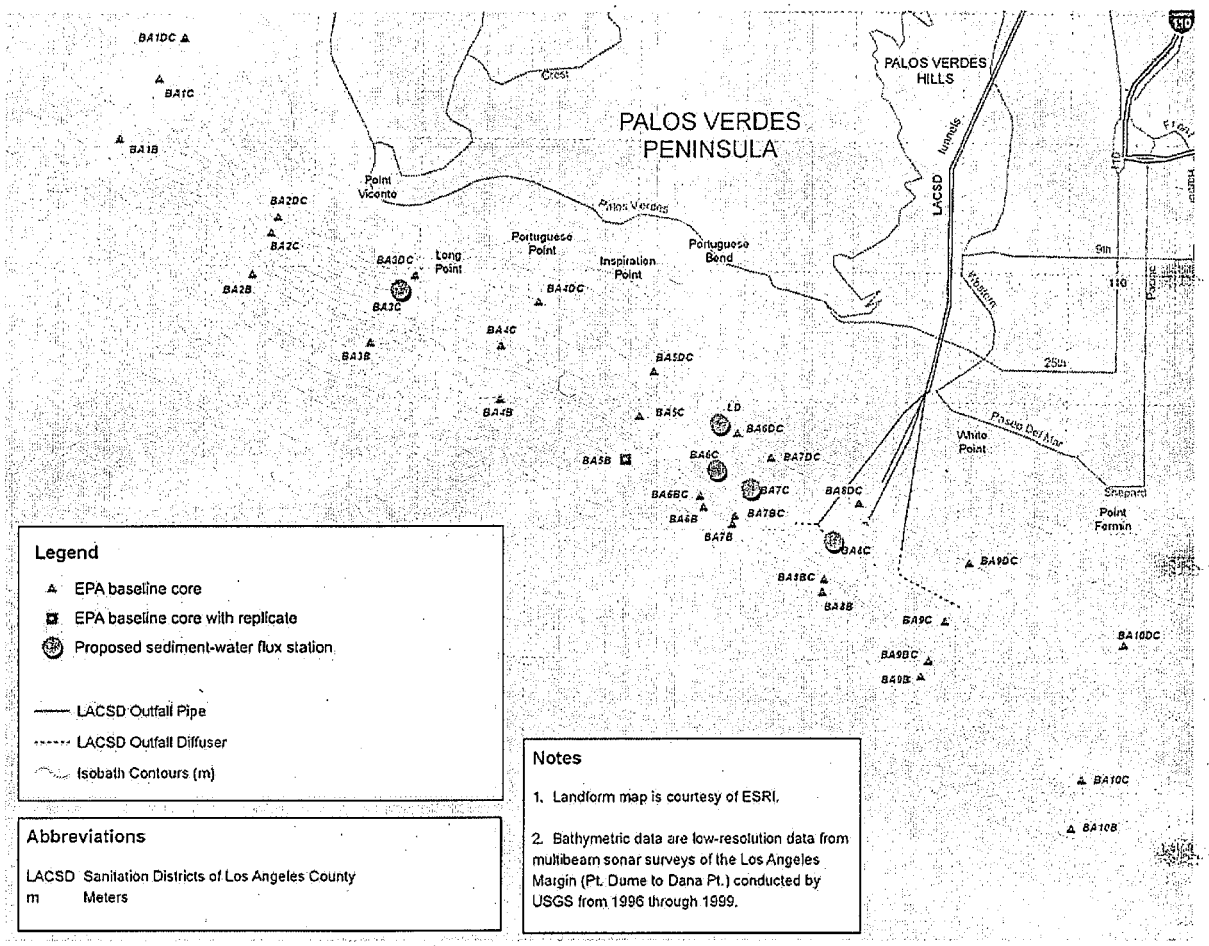

Figure 3 Proposed Sampling Sites for Measurement of Sediment-Water Flux using Passive Samplers

Five sediment-water flux stations are identified by green circles, stations BA3C, BA6C, BA7C and BA8C are located along the 60-meter isobath contour and station LD is located along the 40-meter isobath contour

Once the passive samplers are retrieved, the PE and POM will be cut horizontally into 1-10 wide-centimeter strips. Each sampler will be analyzed for DDTs, PCBs (**Table 1**) and the results reconstructed to create a vertical profile of POP contamination within the sediment and near-bottom water columns. The flux/transport rate of POPs will be calculated from the obtained contamination gradients between the sediment and water columns.

Table 1 Definitions for DDTs and PCBs

Corresponding definitions of text references used for DDTs and PCBs of proposed Special Study

Text reference	Defining compounds
DDTs	o,p'-DDE, p,p'-DDE, o,p'-DDD, p,p'-DDD, o,p'-DDT, p,p'-DDT, p,p'-DDMU.
PCBs	PCB congeners 8, 18, 28, 44, 52, 66, 77, 81, 101, 105, 114, 118, 123, 126, 138, 153, 156, 157, 169, 170, 180, 189, 195, 206.

Benefits:

The proposed Special Study is designed to address several key questions and data gaps related to the Palos Verdes Superfund site and its impacts to aquatic life including some seafood. First, it will quantify loss rates of DDTs and PCBs from sediments to the water column for contaminant inventory tracking purposes. Second, it will refine porewater and near bottom water exposure assumptions for bioaccumulation and risk assessment modeling. Third, it will provide information critical to the design of a cost-effective cap in terms of thickness and composition. Finally, it will provide baseline flux rates for comparison with post-remediation sampling to evaluate effectiveness.

While this study is essential to USEPA Superfund for implementation of the IROD, several other local environmental management agencies and programs will benefit from the findings including the Seafood Safety Program directed by Santa Monica Bay Restoration Commission (SMBRC); the Institutional Controls Program led by Montrose Settlements Restoration Program (MSRP) and USEPA; the Southern California Bight Regional Monitoring Program coordinated by Southern California Coastal Water Research Project (SCCWRP); and the monitoring program for the Marine Life Protection Act (MLPA) being implemented by the California Department of Fish and Game (CADFG).

Project Duration:

Final study design and implementation strategy will be developed from December 2010 through March 2011. Field deployment and retrieval of the passive samplers is scheduled for April and May of 2011, respectively. Sample analysis and data interpretation should be completed by December 2011 with a final report released in March 2012.

Deliverables:

The Sanitation Districts of Los Angeles County ("Districts") will provide the following reports and publications to the Executive Officer of the Los Angeles Regional Water Quality Control Board:

1. Written quarterly progress reports will be submitted to the Executive Officer of the Los Angeles Regional Water Quality Control Board by February 15th, May 15th, August 15th, and November 15th each year for the duration of the study. The first quarterly progress report will be submitted on May 15, 2011. The progress reports will summarize the specific task(s) completed during the previous quarter, identify specific participants (and agency) that performed the task(s), and concisely present an analysis of any results obtained for that quarter, as well as a summary of the results obtained to date;

2. A final written report will be submitted, which will consist of the technical report authored by USEPA and their contractors on this project;

3. Any publications in peer-reviewed journals or presentations made at technical conferences related to this Special Study will be submitted;

4. In addition, the Districts will deliver a presentation on the Special Study findings to the Regional Water Board at a regularly scheduled Board meeting.

Collaborators:

USEPA Region 9 Superfund:
Carmen White

USEPA Atlantic Ecology Division:
Rob Burgess, Mark Cantwell, Loretta Fernandez

LACSD:
Chi-Li Tang

SCCWRP:
Keith Maruya