CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING AND REPORTING PROGRAM
FOR

UNITED STATES ARMY CORPS OF ENGINEERS
AND
PORT OF OAKLAND

OAKLAND HARBOR NAVIGATION IMPROVEMENT (50 FOOT) PROJECT

OAKLAND, ALAMEDA COUNTY

ORDER NO. 00-110

CONSISTS OF

PART A

AND

PART B

PART A

A. GENERAL

1. Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16. This Self-Monitoring Program is issued in accordance with Provision 3 of Regional Board Order No. 00-110.

2. The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste dischargers in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the dischargers in complying with the requirements of the California Code of Regulations.

B. SAMPLING AND ANALYTICAL METHODS

1. Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with an approved Quality Assurance Project Plan (Provision 2, Task 1 of Order No. 00-110).

2. Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

3. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A **grab sample** is a discrete sample collected at any time.

2. **Receiving waters** refers to any surface or groundwater which actually or potentially receives surface or groundwater, which pass over, through, or under waste materials or contaminated soils. For these requirements, the samples to evaluate the condition of the receiving water should be taken within 100 feet of the Project Boundary.

3. **Project boundary** as defined in Board Order No. 00-110, is any point along the silt curtain in the Inner Harbor Turning Basin (IHTB) widening area and any point along the outer limit (the "toe") of the containment dike buttress in the Middle Harbor Enhancement Area (MHEA).

4. **Standard observations** refer to:

   a. Receiving Waters

      i) Evidence of floating and suspended materials generated by the construction activities, as recorded by visual observations, video or photographic records, continuous, fixed-turbidity meters that have been calibrated to total suspended solids and grab samples.
      ii) Discoloration and turbidity: description of color, source, and size of affected area.
      iii) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.

   b. IHTB Widening Area- On-shore

      i) Evidence of liquids leaving or entering the shoreline excavation/demolition area, estimated size of affected area and flow rate. (Show affected area on map)
      ii) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
      iii) Evidence of erosion of stockpiled materials or generation of dust from the stockpiles.

5. **Operations monitoring** refers to the following information:

   a. A description of and a map showing the area(s) dredged during the previous month.
   b. Estimates of the daily volume in cubic yards and the disposal location(s) of dredged materials removed during each day of the previous month.

6. **Construction activities** refer to dredging, excavation, and filling.

D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The Dischargers are required to perform sampling, analyses, and observations in the following media:

1. The total suspended solids (TSS) in the top 5 feet of the water column at the IHTB and MHEA Project Boundaries shall be continuously estimated with turbidity meters (optical backscatter sensors) that have been calibrated with grab samples.

2. Dissolved mercury in the top 5 feet of the water column shall be monitored at turbidity/TSS station using the methods described in Part B and according to the schedule in Table A-1.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Dischargers or their laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.

2. Date and time of sampling.

3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.

5. Calculation of results.

6. Results of analyses, and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE BOARD

1. Written monitoring reports shall be filed according to the schedule set forth in Table A-1. The reports shall contain the following:

    a. Letter of Transmittal

    A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the Dischargers have previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by the Army Corps District Engineer or his

duly authorized representative or a principal executive officer at the level of Deputy Port Director or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. Each monitoring report shall include a compliance evaluation summary. The summary shall contain:

    i) An estimation of the volume of the facility discharge on a daily, weekly and monthly basis.
    ii) The method and time of measurement, equipment and methods used to monitor turbidity and total suspended solids (TSS) in the field.

c. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.

d. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.

    i. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer.

    ii. In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than the recovery acceptance limits specified in the USEPA method procedures or the laboratory's acceptance limits, if they are more stringent than those in the USEPA method procedures; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

e. A summary and certification of completion of all Standard Observations for the facility including the IHTB and MHEA Project Boundaries in the receiving waters and the demolition and excavation areas on the Alameda shoreline that are part of the IHTB widening.

f. A summary and certification of completion of all Operations Monitoring information.

2. Contingency Reporting

a. A report to the Executive Officer and Regional Board case manager shall be made by telephone of any accidental discharge of whatever origin immediately after it is discovered. A written report shall be filed with the Board within five days thereafter. This report shall contain the following information:

i) A map showing the location(s) of discharge(s);
ii) Approximate flow rate;
iii) Nature of effects, ie., all pertinent observations and analyses; and
iv) Corrective measures underway or proposed.

b. If the receiving water limits for Total Suspended Solids and/or dissolved mercury shown in Table A-1 are exceeded, the Dischargers shall implement contingency actions per the *Receiving Water Monitoring and Contingency Plan* to be submitted by the Dischargers pursuant to Provision 2, Task #2 of Board Order No. 00-110 and approved by Board staff.

3. Final Reporting

The Dischargers shall notify the Regional Board by letter upon completion of the project. Project completion is considered to be the date on which all dredged material has been deposited at its final disposal location(s). The Dischargers shall also submit a final report containing the following information:

a. A comprehensive discussion of the compliance record, and the corrective actions taken or planned, which were needed for compliance with the waste discharge requirements;
b. A comprehensive discussion of the effectiveness of receiving water monitoring methods;
c. An evaluation of the effectiveness of dredging and filling methods used (at minimizing water quality impacts);
d. An estimate of the total volume of material dredged or excavated from each discrete site during the project and the total volume of material placed at each disposal or reuse location; and,
e. An estimate of the total volume of decant water generated from dewatering of the dredged material (handled and disposed of under Waste Discharge Requirements Order No. 98-019 for the Port of Oakland’s Berth 10 Dredged Sediment Rehandling Facility).

PART B: MONITORING AND OBSERVATION SCHEDULE

I. DESCRIPTION OF MONITORING STATIONS AND ANALYSES

A. RECEIVING WATERS

1. Number and locations of turbidity (optical backscatter) meters[1]:

    a. Minimum of one turbidity meter no more than 100 feet beyond the Project Boundary in the MHEA (monitoring for constituents other than turbidity is described in Table A-2)

    b. Minimum of one turbidity meter per construction area, no more than 100 feet beyond the Project Boundary in the IHTB widening area (may be attached to clamshell dredging barge/ electrical spool barge combination)

        i. If simultaneous construction activities (e.g. land excavation on Alameda shoreline and offshore dredging in the IHTB widening area) occur > 300 yards apart, each construction area will have a turbidity meter located no more than 100 feet beyond the boundary of that particular area, as defined by the silt curtain.

        ii. If simultaneous construction activities occur > 100 feet but ≤ 300 yards apart, the Dischargers may deploy one turbidity meter for both areas (see special receiving water limits for this scenario in Table A-1).

    c. One turbidity meter located > 300 yards from all construction activities in the MHEA and the IHTB to measure ambient conditions

2. Dissolved Total Mercury grab samples (to be located coincident with turbidity/TSS moorings, including the ambient station)

    a. Grab water samples shall be collected and analyzed using two different methods for comparison purposes:

        i. US EPA Method 245.1: Mercury in Water by Cold Vapor Atomic Absorption; and,

[1] Specific locations to be proposed in *Receiving Water Monitoring and Contingency Plan* to be submitted by the Discharger pursuant to Provision 2, Task #2 of Board Order No. 00-110

ii. Ultra-Clean Sampling and Analytical Methods consisting of:

- Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, US EPA; and,
- Method 1631: Mercury in water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, Proposed Rule, US EPA, Federal Register June 8, 1999.

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis is provided in the attached Tables A-1 and A-2.

III. REPORTING SCHEDULE

Reports submitted in compliance with this Self-Monitoring Program shall be submitted on the following basis:

Initial Construction Phase Turbidity/TSS Reporting - Reports of the turbidity measurements and TSS estimates downloaded daily during the first five days of each new construction phase shall be submitted on the fifth day after initiation of that phase during all dredging and fill placement operations that may impact surface waters.

Monthly Reporting - Monthly reports shall be submitted during all dredging, fill placement and decanting operations. Monthly reports shall be submitted by the 15th day of the month following the reporting period, beginning with the first month of dredging. Monthly reports shall include the measurements, observations and monitoring as enumerated in Table A-1.

Annual Reporting – Annual reports on the various phases of development of the Middle Harbor Enhancement Area shall be submitted starting with the first year of construction and shall continue for 10 years after completion of construction. Annual reports shall include the measurements, observations and monitoring as enumerated in Table A-2.

Final Reporting - The Dischargers shall notify the Regional Board by letter upon completion of the project. Project completion is considered to be the date on which all dredged material has been deposited at its final disposal location(s). The Dischargers shall also submit a final report within 60 days of the project completion date.

All reports shall be submitted to the Regional Board case manager at:

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

I, Lawrence P. Kolb, Acting Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 00-110;
2. Was adopted by the Board on October 18, 2000; and
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Dischargers, and revisions will be ordered by the Executive Officer or the Board.

Lawrence P. Kolb
Acting Executive Officer

Attachments: Tables A-1 and A-2

Table A-1. Receiving Water Monitoring Schedule for Inner Harbor Turning Basin Widening Area (IHTB) and Middle Harbor Enhancement Area (MHEA)

Type of Monitoring	**Receiving Water Limits ≤ 100 Feet Beyond Project Boundary**	**Receiving Water Limits > 100 Feet But ≤ 300 Yards Beyond Project Boundary**	**Frequency**	**Reporting Period**	**Report Due Date**
Total Suspended Solids - estimated from turbidity measurements (See Part B, I.A.1.)	90% of all measurements ≤ 1500 mg/l 50% of all measurements ≤ 750 mg/l	90% of all measurements ≤ 500 mg/l 50% of all measurements ≤ 250 mg/l	Continuous	First 5 days of each new construction phase – data downloaded daily Following weeks – data downloaded twice weekly	5th day after new construction phase begins Monthly
Dissolved Total Mercury (See Part B, I.A.2.)	0.025 μg/l	0.025 μg/l	Grab	First 5 days of each new construction phase – Daily sampling (72-hour lab turnaround) For remainder of phase – Monthly sampling	10th day after new construction begins or sooner, depending on when all 5 days' lab results have been received Monthly
Standard Observations (See Part A, C.4.a&b)	--	--	Daily	Monthly	15th of month following reporting period
Operations Monitoring (See Part A, C.5.a&b)	--	--	Daily	Monthly	15th of month following reporting period
MHEA Construction Period and Long-Term Monitoring (See Table A-2 for description)	--	--	Varies depending on project phase and type of measurement	Annual	January 31 for previous monitoring year (Beginning with 1st year of construction and continuing for 10 years after completion of construction)

Table A-2. Monitoring Schedule for Middle Harbor Enhancement Area

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
I. Construction	4-4.5 years[3]	Water Quality	TSS (mg/l)	≤ 100 ft bayward of toe of containment dike	Continuous	2.4.1
		Biological Windows/ Surveys	Herring Spawn	Observations from dredge by trained observers & coordination with CDFG monitors	Seasonal: weekly during 12/01 through 3/01	2.4.2
			Least Tern Foraging Activities	Trained observers	Seasonal: weekly during 4/15 through 9/01	2.4.2
II. Design Verification	4 years (concurrent with construction)	Sheetpile Jetty Reflected Waves	Wave Properties (wave height and steepness)	Sheetpile Wall (1 location)	Every daytime hour over 1-2 months, starting 6-9 months after jetty construction	2.5.1
		Sediment Fill Stratigraphy & Material Placement	Source & Placement data; Bathymetry	Cell placement locations	Weekly during material placement (approx. 1 year)	2.5.2
		Hydrodynamic Model Verification/Adjustment	Flow velocity, wave height & direction, tidal delay & muting	Current data measured both at 2 fixed monitoring stations & along 7 transects. Wave data from 3 fixed stations	Approx. 1 year with various periods of deployment depending on constituent	2.5.4
		Light, Sediment, Water Quality	Sediment erosion & accretion, TOC, grain-size distribution measured from top 2 cm	MHEA will be divided into several sectors with fixed monitoring points at 38 stations of future pilot planting areas	4, 6, 8 & 10 months following 2nd fill placement.	2.5.5

[1] *Middle Harbor Enhancement Area Construction Period and Long-Term Monitoring, Maintenance and Adaptive Management Program* (Winzler & Kelley and Merkel & Associates, August 2000)
[2] Specific monitoring protocols identified in *Middle Harbor Enhancement Area: Construction Period and Long-term Monitoring Protocols (Program* (Winzler & Kelley and Merkel & Associates, August 2000)
[3] Includes jetty construction, initial fill placement, initial settlement, 2nd fill placement and 2nd settlement period& surface sculpting.

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
			Untended Water Quality: temperature, turbidity, D.O., PAR, salinity, depth		At 20-minute intervals during 2-week period immediately following 2nd fill placement and repeated 6 months later.	
			Tended Water Quality: GPS location for light, turbidity, salinity, temperature, and DO.	Four water quality units (one at a reference and 3 around the 38 sediment stations)	4, 6, 8 & 10 months following fill placement.	
III. Suitability Eval/Warranty Period	±1.5 years (beginning after completion of Phase I)	Consolidation/ Settlement Assessment	Bathymetric surveys	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Once at beginning, once ± 1.5 yr. Later.	2.6.1
			Consolidation curves for settling rates and interstitial porewater pressures	Consolidation & settlement will be monitored with 4 fixed location platforms.	Semi-annually	
			Surveys of bird islands & marsh containment berm	Aerial imagery	3 times over 18 months	
		Stability & Topographic Suitability for Habitat	Sediment erosion & deposition; bottom stability	38 stations of future pilot planting areas	Total 4 – 12 months with various intervals (e.g., 20 minutes or monthly) depending on constituent	2.6.2
		Water Column	Light, temperature, turbidity, D.O., PAR, salinity, depth	MHEA Reference Areas (Crown Beach, Bayfarm Island)	Total duration 18 months: 6, 12, & 18 months (high & low and spring & neap tides) two weeks of untended sampling	2.6.3

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
IV. Establish-ment Monitor-ing Program	10 years (beginning after completion of Phase III)					2.7
Physical		Bathymetric & Avian Islands surveys	Elevation/area	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Years 1, 2, 3, 5, and 10	2.7.1
Biological		Eelgrass Vegetation	Lateral spread and turion density, survival, growth, vigor, and natural recruitment measured by side-scan sonar & diver surveys.	Donor beds MHEA & Reference areas: 20 plants measured in each of the 38 pilot transplant plots	6 & 12 months following harvest 6 months & Years 1, 2,3,5,7, & 10	2.7.2
		Salt Marsh	Vegetation cover, species composition, height, & recruitment; presence of exotic species	Stratified random quadrat field surveys & aerial surveys. 4 samples from 3 strata (high, medium, low vegetation zones) totaling 12 quadrats (quadrat size = 1 m^2).	Years 1, 2, 3, 5, 7, and 10	2.7.2
		Benthic Invertebrates	Infaunal: density, biomass, composition by major taxonomic group. Epifaunal: density, biomass, composition by species.	Infaunal: 15 cm cores taken in 15 subtidal and 5 intertidal habitats—20 samples/sampling year Epifaunal: Number of hauls and size of sampling area depends on equipment used. Methods will follow CDFG guidance.	Infaunal surveys: Years 1,2,3,5,7, and 10. Epifaunal surveys: Years 1 through 10.	2.7.2
		Fish	Density, biomass, length, composition in shallow areas, shallow channels,	Number of hauls and size of sampling area depends on equipment used.	Annually during years 1 through 10 for surveys; (April and Summer)	2.7.2

PHASE	DURATION	CATEGORY	CONSTITUENT OR MEASUREMENT	SPECIFIC MODE OF SAMPLING OR LOCATION	TYPE & FREQUENCY OF SAMPLE	Reference; COE/PORT Monitoring Plan [1, 2]
			and eelgrass habitat, as well as eelgrass habitat at reference sites.	Methods will follow CDFG guidance	Different gear and location for 2 sampling events	
		General Birds	Composition, abundance, avian activities, habitat type, tide heights, and nearby human activities.	2-4 Study blocks TBD.	2 times/yr in Years 1, 2, 3, 5, 7, and 10. (December and June, during both high and low tides)	2.7.2
		Human Use	Surveys on group size, activity, and habitat.	2-4 Study Blocks, TBD.	2 times/yr in Years 1, 2, 3, 5, 7, and 10. (December and June, during both high and low tides)	2.7.3
V. Long-Term Management	Indefinite (beginning after completion of Phase IV)	Physical	Bathymetry	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Once every 3 years in perpetuity	2.8.1
		Avian Islands	Settlement & Bird Usage	Lines run in a 200 foot grid pattern parallel and perpendicular to the fill centerline	Once every 3 years in perpetuity for island surveys Annually in perpetuity for bird use;	2.8.1
		Habitat Concerns	Conditions at site for access, compliance, and general degradation		At least monthly in perpetuity	2.8.2