CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

MONTEZUMA WETLANDS RESTORATION PROJECT

ORDER No. R2-2012-0087

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 (Water Code) and in the Regional Water Board's Resolution No. 73-16.

2. The principal purposes of a monitoring program by a waste discharger, also referred to as a self-monitoring program, are: 1) to document compliance with waste discharge requirements and prohibitions established by the Regional Water Board, and 2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge.

B. SAMPLING AND ANALYTICAL METHODS

1. Sample collection, storage, and analyses shall be performed according to 40 CFR 136 or other methods approved and specified by the Executive Officer of the Regional Water Board.

2. Water and soil analyses shall be performed by a laboratory approved for these analyses by the State Department of Public Health.

3. The director of the laboratory whose name appears on the certification, or his/her laboratory supervisor who is directly responsible for the analytical work performed, shall supervise all analytical work including appropriate quality assurance/quality control procedures in his/her laboratory and shall sign all reports of such work submitted to the Regional Water Board.

4. 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 defined as an individual sample collected in a short period of time not exceeding 15 minutes. It is used primarily in determining compliance with daily maximum limits and instantaneous maximum limits. Grab samples represent only the condition that exists at the time the sample is collected.

2. A **discharge episode** consists of effluent discharge from the make-up water pond that does not cease for more than 30 consecutive days. If discharge stops for more than 30 consecutive days and then starts up again, the date of start-up will be considered the beginning of a new discharge episode for monitoring purposes.

3. **Receiving waters** refers to any water body that actually receives or potentially could receive surface or groundwater that passes over, through, or under dredged sediment during placement, dewatering, and settling/consolidation activities. For the purpose of discharge episode monitoring, the receiving waters are the Sacramento River and Montezuma Slough.

4. **Receiving Waters Standard Observations** refer to:
   a. Evidence of floating and suspended materials generated by project activities, as recorded by visual observations.
   b. Discoloration and turbidity: description of color, source, and size of affected area.
   c. Evidence of odors, presence or absence, characterization, source, and distance of travel from source.

5. **Site Standard Observations** refer to visual inspection of:
   a. Overall condition and integrity of the sediment placement cell containment levees.
   b. Location of placed material, amount of freeboard available, and whether any discharge of dredged sediments outside of the containment levees has occurred.
   c. Overall condition and integrity of the make-up water pond containment levee, effluent discharge weir, and discharge outfall pipeline.
   d. Overall condition and integrity of the dredged material transport pipeline from the intake at the connection point with the Liberty offloader to the point of discharge into a sediment placement cell.
   e. Location and identification of vertebrate wildlife nesting onsite and foraging in partially or fully filled sediment placement cells prior to restoration of tidal action.

D. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The Discharger shall perform sampling and analyses according to the schedule in **Table 1** in accordance with the most-current Quality Assurance Project Plan (QAPP) accepted by the Executive Officer and the following conditions:

1. Make-up Water Pond and Phase I-IV Levee Breach Discharges
   a. If analytical results are received showing any daily limit is exceeded for any inorganic constituent, a confirmation sample shall be taken within 24 hours and the results shall be known within 24 hours of the sampling.
   b. If any instantaneous maximum limit for a constituent is exceeded in the confirmation sample(s), then the preliminary confirmation results shall be reported immediately to the Regional Water Board case manager via email and the discharge shall be restricted to the extent practical, until the cause of the violation can be found and corrected. Within five days of the discharge limit exceedance, the Discharger shall submit a contingency report as described in Section H.

c. For other violations, the Discharger shall implement procedures that are acceptable to the Executive Officer on a case by case basis.

2. Receiving Waters

a. Receiving water sampling in the Sacramento River shall be conducted on days coincident with discharges from the make-up water pond.

b. In tidally-influenced receiving waters, samples shall be collected at each station on each sampling day during the period within 1 hour following low slack water. Where sampling at the lower slack water period is not practical, sampling shall be performed during the higher slack water period.

c. Samples shall be collected at least one foot below the surface and at least one foot above the slough or river bottom.

3. Incoming Sediment Confirmation

a. Surface grab samples of incoming dredged sediment shall be collected from at least four locations in each placement cell at the same volume-based frequency per dredging project source as is prescribed by the Dredged Material Management Office (DMMO) pre-dredge sediment testing program. Each set of four or more samples corresponding to a specific range of dredged sediment volume in cubic yards may be combined to form one composite sample per cell.

b. If confirmation sampling shows that sediment placed at the Project site has exceeded numeric acceptance criteria listed in Specification B.2, additional higher resolution sampling shall be immediately conducted to establish the nature and extent of the exceedance. Discrete grab samples shall be collected at one-foot depth intervals from at least three locations in each affected cell and analyzed for each chemical constituent that exceeded an acceptance criterion in the original confirmation sample.

c. Within five days of receipt of the higher resolution sampling analytical results, the Discharger shall submit a contingency report to the Regional Water Board case manager per Section H.

E. DESCRIPTION OF SAMPLING STATIONS

1. Incoming Sediment Confirmation

During each sampling event, the Discharger shall use its discretion to collect grab samples of sediment from at least four locations per placement cell where the sediment slurry has undergone sufficient consolidation to make chemical analysis of the sediment solids practical.

2. Make-up Water Pond (effluent limits apply during discharges to the Sacramento River)

Station	Description
MUWP	The inboard side of the overflow weir for the discharge pipeline

3. Phases I-IV on Inboard Side of Levee Breaches

Sampling locations shall be proposed in the **Levee Breach Water Quality Monitoring and Management Plan**, to be submitted at least 90 days prior to breaching levees in Phase I pursuant to Provision E.5 of this Order.

4. Receiving Waters

Station	Description
RW1-down	At a point in the Sacramento River about 100 feet down-current (dependent on tide) from the make-up water pond discharge outfall
RW1-up	At a point in the Sacramento River about 100 feet up-current (dependent on tide) from the make-up water pond discharge outfall
RW2-down	At a point in Montezuma Slough about 100 feet down-current (dependent on tide) from the breach in the levee separating the particular Phase of the Project undergoing breaching from Montezuma Slough
RW2-up	At a point in Montezuma Slough about 100 feet up-current (dependent on tide) from the breach in the levee separating the particular Phase of the Project undergoing breaching from Montezuma Slough

5. Shallow Groundwater Monitoring Wells

Stations	Description
MWP1	Onsite shallow and intermediate water quality monitoring wells in Phase I.
Well Series	Monitoring well locations for future Project phases shall be determined during the detailed design of those phases. At a minimum, the Discharger shall install two wells in the shallowest encountered groundwater zone and one well in the next deeper groundwater zone below a confining silt or clay layer in each Project phase.

6. Pre-Breach Methylmercury Biosentinel Monitoring

   Specific sampling locations in the sediment placement cells and the make-up water pond shall be determined based on the species chosen by the Discharger in consultation with the TRT and per future revisions to the QAPP submitted pursuant to Provision E.4 of this Order and accepted by the Executive Officer.

7. Post-Breach Habitat Performance

   Sampling and observation locations shall be proposed in the **Post-Breach Habitat Performance Monitoring Plan**, to be submitted at least 60 days prior to breaching levees in Phase I pursuant to Provision E.6 of this Order.

F. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the Discharger or its 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 Regional Water Board staff. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling and the name of the person performing the 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.

G. REPORTING REQUIREMENTS

By March 1 of each year, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year's activities. The Discharger shall upload an electronic copy of the report to the California Wetlands Portal website at http://www.californiawetlands.net/tracker/ba/fileset/1062 and provide an electronic copy to Regional Water Board staff via email, CD, or FTP site.

Each annual report shall contain the following:

1. 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 violations of this Order found during the last report period and actions taken or planned for correcting the violations. If the Discharger has 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 annual 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 duly authorized representative of the Discharger. 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.
2. A map or aerial photograph showing observation and monitoring stations.
3. Tabular and graphical summaries of the monitoring data obtained during the previous year.
4. A description of the compliance record and any corrective actions taken or planned that may be needed to bring the Discharger into full compliance with the Order.
5. Laboratory statements of results of analyses specified in Table 1; 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.
   a. 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 USEPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer.
   b. 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 shall 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.

H. CONTINGENCY REPORTING

Unauthorized Releases: A report to the Regional Water Board case manager shall be made by telephone and email 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:

a. A map showing the location(s) of discharge(s);

b. Approximate flow rate;

c. Nature of effects, i.e., all pertinent observations and analyses; and

d. Corrective measures underway or proposed.

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in the Regional Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in this Order.

2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

3. Is effective as of November 14, 2012.

Digitally signed by Bruce H. Wolfe
Date: 2012.11.27 16:05:25 -08'00'

Bruce H. Wolfe
Executive Officer

Attachment:
Table 1 - Schedule for Sampling, Measurements, and Analyses

TABLE 1
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

Station	Constituent	Unit	Type of Sample	Frequency of Sampling & Analysis
Site & Receiving Water Standard Observations	Varies – see Definitions of Terms, C.4 and C.5	Not Applicable	Visual Inspection	Weekly during sediment placement operations
Incoming Sediment Confirmation (minimum 4 locations per placement cell TBD at time of sampling)	Inorganics[1] Organics[2]	mg/kg dry wt. µg/kg dry wt.	Surface grab samples combined into one composite per cell per sampling event	Varies based on volume of sediment delivered from a particular dredging project –minimum number of samples same as in pre-dredge testing program[3]
MUWP (Make-up Water Pond)	Flow Rate	mgd	Weir volume calculation	Daily during discharge
	TSS	mg/L	Grab	Daily for first five days of discharge episode; weekly for remainder of episode
	Turbidity	NTU	Field	Daily during discharge
	Dissolved Oxygen	mg/L	Field	Daily during discharge
	pH	Std Units	Field	Daily during discharge
	Temperature	°C	Field	Daily during discharge
	Conductivity	µmhos/cm	Field	Daily during discharge
	Inorganics[1]	µg/L	Grab	Daily for first five days of discharge episode; weekly for remainder of episode
	Acute Toxicity (ASTM 48- or 96-hour static non-renewal)[4]	% Mortality % Normal Development	Grab – volume varies according to test organism used	Once within one week prior to discharge; weekly for remainder of discharge episode
RW1-up & RW1-down (Two points in Sacramento River 100 ft up- & down-current of discharge)	Turbidity TSS	NTU mg/L	Field Grab	Twice during each discharge episode – once within first week and once within last week. Once if episode lasts less than one week.
	Dissolved Oxygen	mg/L	Field	Twice during each discharge episode – once within first week and once within last week. Once if episode lasts less than one week.
	pH	Std Units	Field	Twice during each discharge episode – once within first week and once within last week. Once if episode lasts less than one week.
	Temperature	°C	Field	Twice during each discharge episode – once within first week and once

Station	Constituent	Unit	Type of Sample	Frequency of Sampling & Analysis
				within last week. Once if episode lasts less than one week.
	Conductivity	µmhos/cm	Field	Twice during each discharge episode – once within first week and once within last week. Once if episode lasts less than one week.
	Inorganics[1]	µg/L	Grab	Twice during each discharge episode – once within first week and once within last week. Once if episode lasts less than one week.
Phase I-IV Levee Breaches (Stations TBD)	Turbidity	NTU	Field	D/W/M[5]
	Dissolved Oxygen	mg/L	Field	D/W/M
	pH	Std Units	Field	D/W/M
	Temperature	°C	Field	D/W/M
	Conductivity	µmhos/cm	Field	D/W/M
	Inorganics[1]	µg/L	Grab	D/W/M
RW2-up & RW2-down (Two points in Montezuma Slough 100 ft up- & down-current of levee breach)	Turbidity	NTU	Field	D/W/M
	Dissolved Oxygen	mg/L	Field	D/W/M
	pH	Std Units	Field	D/W/M
	Temperature	°C	Field	D/W/M
	Conductivity	µmhos/cm	Field	D/W/M
	Inorganics[1]	µg/L	Grab	D/W/M
MWP1 Well Series (Phase I Groundwater Monitoring Wells)	Groundwater Elevation	meters	Field – measuring tape	Bi-Annual (once during wet season and once during dry season)
	pH	Std Units	Field	Bi-Annual (once during wet season and once during dry season)
	Temperature	°C	Field	Bi-Annual (once during wet season and once during dry season)
	Conductivity	µmhos/cm	Field	Bi-Annual (once during wet season and once during dry season)

Station	Constituent	Unit	Type of Sample	Frequency of Sampling & Analysis
	Inorganics[1]	µg/L	Grab	Bi-Annual (once during wet season and once during dry season)
Pre-Breach Biosentinel Monitoring (sediment placement cells & make-up water pond)	Methylmercury[6]	mg/kg wet weight	Tissue[7]	Annual – during breeding season for selected biosentinel species
Post-Breach Habitat Performance	**TBD** based on **Post-Breach Habitat Performance Monitoring Plan**, to be submitted at least 60 days prior to breaching levees in Phase I pursuant to Provision E. 6 of this Order. The Self-Monitoring Program shall be revised as ordered by the Executive Officer upon acceptance of this plan. At a minimum, the plan shall describe monitoring protocol for the following biological performance measures: • Vegetation colonization (spatial extent, distribution, and diversity); • Presence of special status wildlife species; • Water quality conventional parameters (e.g., TSS, turbidity, dissolved oxygen, pH, temperature, conductivity); • Methylmercury bioaccumulation in appropriate "biosentinel" (resident or breeding) vertebrate species; and • Physical development of habitat features (e.g., channel morphology, seasonal wetland hydrology). The plan shall be designed to monitor the performance criteria specified in the original MMRP, as well as any updates to the performance criteria in the MMRP as recommended by the TRT and approved by the appropriate regulatory and resource agencies. In addition, the plan shall include a decision tree linking monitoring data to management actions that the Discharger can implement to improve site conditions if performance criteria are not met.			

[1]Arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc – reported as dissolved except for mercury and selenium, which should be analyzed and reported as total concentrations.

[2]PAHs (25 compounds reported by RMP), PCBs (40 congeners reported by RMP), organochlorine pesticides (total Chlordanes, total DDT [sum of 6 isomers], Dieldrin)

[3]DMMO (2001) Guidelines for Implementing the Inland Testing Manual in the San Francisco Bay Region, Table 1. Minimum Sediment Sampling Guidelines.

[4]ASTM E1192-97(2008) Standard Guide for Conducting Acute Toxicity Tests on Aqueous Ambient Samples and Effluents with Fishes, Macroinvertebrates, and Amphibians, or equivalent method if acceptable to the Executive Officer.

[5]Once within 3 days prior to breach; during the first and fifth day following breach; weekly during the first month; monthly thereafter until receiving water limits (Basin Plan water quality objectives for inorganics) met for three consecutive months.

[6]If wildlife are identified foraging in uncovered foundation material placement cells during the breeding season, additional bioaccumulative contaminants may be added to the constituent list as appropriate based on sediment concentrations reported during pre-dredge testing and placement cell confirmation sampling.

[7]Appropriate biosentinel species for each area will be determined in consultation with the TRT. Likely biosentinels for the sediment placement cells include the eggs of non-special status shorebirds such as black-neck stilts and American Avocets nesting near the cells. Small fish (whole body), if present, may be appropriate biosentinels for the make-up water pond.