

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR
CULLINAN RANCH RESTORATION PROJECT

TENTATIVE ORDER No. R2-

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 in this Water Board's Resolution No. 73-16.
2. The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Water Board, (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 Code of Federal Regulations Title 40, Section 136 (40 CFR S136), or other methods approved and specified by the Executive Officer of this Water Board.
2. Water and soil analyses shall be performed by a laboratory approved for these analyses by the State Department of Public Health (DPH), or a laboratory waived by the Executive Officer from obtaining a DPH certification for these analyses, or by properly calibrated field equipment when approved by the Executive Officer of this Water Board.
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 Water Board.
4. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. 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 wastewater is collected.
2. Duly authorized representative is one whose:
 - a. Authorization is made in writing by a principal executive officer or ranking elected official;
 - b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such chief engineer, project manager, or field supervisor.
3. Instantaneous maximum is defined as the highest measurement obtained for the calendar day.
4. Median of an ordered set of values is that value below and above which there is an equal number of values, or which is the arithmetic mean of the two middle levels, if there is no one middle value.
5. Receiving waters refers to any water which actually or potentially receives surface water discharged from the Napa Plant Site Project Area. The receiving waters in this case are the South and Dutchman Sloughs which flow to the Napa River..
6. Construction phase is defined as that period of time when the site is prepared for marsh restoration and includes all activities leading up to the restoration of tidal action.
7. Construction phase activities are defined as all site activities including the movement of soil or sediment, such as placement of dredged material via slurry techniques, excavation of trenches and toe drains, and all other soil handling such as berm and levee construction.
8. Post-construction phase is defined as the period of time beginning when site construction is substantially completed, and tidal action has been restored to the Cullinan Ranch site.
9. Post-construction phase activities are defined as all monitoring, site maintenance, and adaptive management activities which take place after construction is completed and tidal action has been restored to the Cullinan Ranch.
10. Project boundary shall be defined as the limit of the receiving waters at mean low low water level, which is the topographic contour representing an elevation of 0 ft. NAVD88.
11. Monitoring period for purposes of reporting for water quality shall be defined as that period of time beginning on the day the levees are breached, and ending when the water quality objectives have been met for three consecutive months. Habitat and geomorphic

assessment monitoring period ends 15 years after breaching for each breach. Avian monitoring period ends at 15 years post breach or when vegetation cover reaches 80% or the predominant bird use shifts from shorebirds and waterfowl to resident marsh species, whichever is sooner. After 15 years, if vegetation cover does not reach 75-80% cover, the Discharger will attempt to analyze aerial or satellite photos once every 5 years and assess the extent of habitat development, if feasible, until 75-80% cover is reached or until the Technical Advisory Committee for this project determines that monitoring is no longer warranted..

12. Ambient Water Quality shall be defined as the water quality (salinity, dissolved oxygen, temperature, turbidity, and pH) measured in the Dutchman Slough, South Slough, Napa River, or other appropriate reference site at a point 50 feet upcurrent from the breach in the levee separating the Dutchman Slough from the Napa River.

D. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The Discharger is required to perform sampling and analyses according to the schedule in **Table E-1** in accordance with the following conditions:

1. Pond Water
 - a. Grab samples of pond water shall be collected during periods of maximum peak discharge flows, and shall coincide with receiving waters sample days.
 - b. If analytical results are received showing any instantaneous maximum limit is exceeded for any organic constituent, a confirmation sample shall be taken within 24 hours and results known within 24 hours of the sampling.
 - c. If any instantaneous maximum limit for a constituent is exceeded in the confirmation sample(s), then the discharge shall be restricted to the extent practical, until the cause of the violation can be found and corrected.
 - d. 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 shall be conducted on days coincident with pond water of effluent.
 - 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 lower slack water period is not practical, sampling shall be performed during higher slack water period.

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- c. Samples of downstream receiving water shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated.
- d. Samples of background receiving water shall be collected upcurrent of the discharge point.
- e. If feasible, samples shall be collected within one foot below the surface of the receiving water body and one foot above the channel or pond bottom.

E. DESCRIPTION OF SAMPLING STATIONS

1. A site plan drawing showing the location of all sampling points is included as Figure C-1 in Attachment C. A site plan drawing showing the location of all sampling points shall be submitted with all monitoring reports submitted under this Plan.
2. Receiving water sampling point NR-1 shall be established at a point 100-150 feet upstream from the point of discharge into the receiving water, or if access is limited, at the first point upstream which is accessible.
3. Receiving water sampling point NR- 2, 3, 4 shall be established at a point 100-150 feet downstream from the point of discharge into the receiving water, or if access is limited, at the first point downstream which is accessible.

F. STANDARD OBSERVATIONS

1. Receiving Water
 - a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.
 - b. Discoloration and turbidity: description of color, source, and size of affected area.
 - c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
 - d. Evidence of beneficial water use: presence of waterfowl or wildlife, fishermen, and other recreational activities in the vicinity of the sampling stations.
 - e. Hydrographic condition, if relevant:
 - 1) Time and height of corrected high and low tides (corrected to nearest NOAA location for the sampling date and time of sample and collection).
 - 2) Depth of water columns and sampling depths.

- f. Weather condition:
 - 1) Air temperature.
 - 2) Wind - direction and estimated velocity.
 - 3) Precipitation - total precipitation during the previous five days and on the day of observation.

2. Pond Water

- a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.
- b. Discoloration and turbidity: description of color, source, and size of affected area.
- c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.
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 - 1) Air temperature.
 - 2) Wind - direction and estimated velocity.
 - 3) Precipitation - total precipitation during the previous five days and on the day of observation.

G. REPORTS TO BE FILED WITH THE WATER BOARD

- 1. **Notifications and Reports**: The Water Board will be notified by email when construction starts and ends and when levee breaching occurs. The following reports will also be required:
 - (i) a start-up (or construction completion) report analyzing the first 30 days of data

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collected after levees are breached; it should include the same elements stipulated in 2 below; and

(ii) an as-built report to note any changes that have occurred from the original design.

The Start Up Report is due no more than 45 days after levees are breached. The as-built report is due between 45-90 days after construction is completed.

Biennial Self-Monitoring Reports: Written technical reports shall be submitted biennially, with intervening brief memos, if feasible, beginning on March 31st. The biennial memos will begin the first year and the technical reports will begin the second year following the completion of construction activities. The reports and memos will summarize the data collected and analyzed. The Biennial Self-Monitoring Reports (with brief intervening biennial memos, if feasible) should provide, at a minimum, a brief discussion of satellite photos comparisons based on the availability of free, non-technical imagery obtained from the web (such as Google maps). The purpose of looking at the satellite photos is to discover any unplanned, large-scale changes such as erosion, sedimentation, or non-native plant invasions that could have adverse environmental impacts. Biennial reports shall be submitted until Year 15 after construction for each phase, or until vegetation reaches 75%-80%, whichever occurs sooner. If vegetation does not reach that level before Year 15, the Water Board would like, if feasible, biennial memos and a status update every 5 years thereafter based on aerial or satellite photos documenting the types of habitats present on the site until the project goal is determined to be met by a Technical Advisory Committee for the site. The reports shall be comprised of the following: water quality data analysis and geomorphic and habitat assessments over a 15 year period for each phase beginning after each construction phase is completed.

For the Cullinan Ranch project, the monitoring elements, schedule, performance criteria, and general protocols are contained in the attached MAMP (Attachment C) for the site.

- a. **Letter of Transmittal:** A letter transmitting self-monitoring reports should accompany each report. Such a letter shall include identification of changes to the project design, and any unplanned releases or failures that may have occurred since the preparation of the previous self-monitoring report. If unplanned releases are noted, then a discussion of the corrective actions taken or planned, and a time schedule for completion, shall be included.
- b. **Map or Aerial Photograph:** A map or aerial photograph shall accompany the report showing sampling and observation station locations.
- c. **Results of Analyses and Observations:** The report format shall be a format that is acceptable to the Executive Officer.
 - 1) If the discharger monitors any pollutant more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Self-Monitoring Report.

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- 2) Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.
 - 3) The report shall also include a table identifying by method number the analytical procedures used for analyses. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.
 - 4) Lab results shall be summarized in tabular form, but do not need to be included in the report.
2. **Final Report:** Reporting requirements under Order No. R2-2004-0063 will end a) for water quality when the water quality objectives have been met for three consecutive months; b) for habitat and geomorphic assessment the monitoring period ends 15 years after breaching for each unit; c) for avian monitoring period ends at 15 years post breach or when vegetation cover reaches 80% or the predominant bird use shifts from shorebirds and waterfowl to resident marsh species, whichever is sooner. If vegetation does not reach 75-80% in any phase, and the Discharger has the resources to analyze aerial or satellite photos every 5 years, then that analysis should be done until the target is reached, or until a Technical Advisory Committee determines that the site is unlikely to achieve that habitat. The Final Report will be submitted to the Water Board that contains both tabular and graphical summaries of the monitoring data obtained during the Project. In addition, the Final Report shall contain a comprehensive discussion of the compliance record and the corrective actions taken.
3. **Spill Reports:** If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the discharger shall report such a discharge to this Water Board, at (510) 622-2300 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-office hours. A written report shall be filed with the Water Board within five (5) working days and shall contain information relative to:
- a. nature of waste or pollutant,
 - b. quantity involved,
 - c. duration of incident,
 - d. cause of spilling,
 - e. Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any,
 - f. estimated size of affected area,
 - g. nature of effects (i.e., fish kill, discoloration of receiving water, etc.),
 - h. corrective measures that have been taken or planned, and a schedule of these activities, and
 - i. persons/agencies notified.
4. Monitoring reports, and letters transmitting monitoring reports, shall be signed by a principal executive officer or ranking elected official of the Discharger, or by a duly authorized representative of that person. The letter shall contain the following certification:

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“I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

H. RECORDS TO BE MAINTAINED

1. Written reports, laboratory analytical reports, maintenance records, and other records shall be maintained by the Discharger and 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 Water Board or Regional Administrator of the U.S. Environmental Protection Agency, Region IX. Such records shall show the following for each sample:
 - a. Identity of sampling and observation stations by number.
 - b. Date and time of sampling and/or observations.
 - c. Method of sampling (See Section C - Definition of Terms).
 - d. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to a specific section of Standard Methods is satisfactory.
 - e. Calculations of results.
 - f. Results of analyses and/or observations.

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

1. Has been developed in accordance with the procedure set forth in the Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Water Board Order No. R2-2010-xxxx.
2. Was adopted by the Water Board on.
3. May be revised by the Executive Officer pursuant to U.S. EPA regulations (40 CFR 122.36); other revisions may be ordered by the Water Board.

Bruce H. Wolfe
Executive Officer

Attachments: Table E-1
Figure C-1 (see Attachment C, the Monitoring and Adaptive Management Plan.)

TABLE E-1 - SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS FOR CULLINAN RANCH*

SAMPLE POINT:	METHOD	West-South Slough	South Slough Breach	Dutchman Slough Breach	East - Dutchman	East of Guadalcanal	Inside Guadalcanal	Inside Cullinan	Inside Pond 1
MATRIX: WATER									
Salinity ¹	multiparameter probe	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M
pH ¹	multiparameter probe	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M
Temperature ¹	multiparameter probe	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M
Turbidity ¹	multiparameter probe	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M
Dissolved oxygen ¹	multiparameter probe	D/M	D/M	D/M	D/M	D/M	D/M	D/M	D/M
Methyl mercury ² if biosentinels are not chosen	EPA 1630	A			A			A	
MATRIX: SEDIMENT									
		Cullinan Ranch	Pond 1	Pond 3	Pond 2a	Dutchman			
Methyl mercury ²	UC Davis method for biosentinel fish preferred; FGS 045 or other appropriate method for sediment and water	S-A	S-A	S-A	S-A	S-A			
BIOTA									
		Cullinan Ranch	Pond 1	Pond 3	Pond 2a	Dutchman			
Fish	net sampling	S-A Years 1-3; Yr 8, 13	--	S-A Years 1-3; Yr 8, 13	S-A Years 1-3; Yr 8, 13	S-A Years 1-3; Yr 8, 13			
Birds	area surveys	4XA Years 1-3; Yr 8, 13	4XA Years 1-3; Yr 8, 13	4XA Years 1-3; Yr 8, 13	--	--			
Vegetation	1) Observations; 2) Mapping with aerial/satellite photos; 3) field observations	1) A; 2) biennial after 20% to 75%; 3) year n when 20% attained; Yr n+10	--	--	--	--			
salt marsh harvest mice	area surveys	1 yr pre-construction; 3 yrs post-construction or when vegetation reaches 75%; annually thereafter until 3 consecutive years SMHM presence	--	--	--	--			
California clapper rails and other rails	area surveys	As determined by FWS: breeding surveys will commence once 300 ac of contiguous habitat has developed	--	--	--	--			
Geomorphic Evolution									
Tidal Channels	measure breach top width	Yrs 2, 5, 10, 15	--	--	--	--			
Sedimentation	a) deposition mapped as vegetation germinates; b) sediment plates, pins, erosion tables, or LIDAR	Yrs 2, 5, 10, 15	--	--	--	--			
Field Photo Documentation	area surveys	1+ yr pre-construction (baseline); post-construction Yrs 1, 5, 10, 15							

Cullinan Ranch Restoration Project: Self Monitoring Table

Habitat Development	Rough comparison of aerial or easily accessible free satellite photos	1 yr pre-construction (baseline); A in yrs 1-15; thereafter every 5 years, if feasible, until 75-80% cover is reached	A in yrs 1-15; thereafter every 5 years, if feasible, until 75-80% cover is reached	A in yrs 1-15; thereafter every 5 years, if feasible, until 75-80% cover is reached	--	A in yrs 1-15; thereafter every 5 years, if feasible, until 75-80% cover is reached
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Notes:

* This schedule can be changed with Water Board approval. Baselines should be conducted in cases where data does not exist. Where data does exist, it should be compiled to compare pre- to post- restoration.

¹ Field test only

² Methyl mercury
Monitoring can include water, sediment, and/or biosentinels. If biosentinels are used, the fish protocol developed by U.C. Davis (Slotton) is preferred, but not required, based on previous sampling. If biosentinels are infeasible, then mercury and methyl-mercury can be sampled in water and sediment. Mercury monitoring is preferred annually.

A Once per year

D/M Once within 3 days prior to breach; during the first and fifth day following breach; weekly during the first month; monthly thereafter until performance objective met for 3 months

FGS Frontier Geosciences (or other appropriate method)

B Biennial (every 2 years) at a minimum; annually if feasible.

US FWS U.S. Fish and Wildlife Service

S-A twice per year (semi-annual)

4XA four times annually

yrs years