



Department of Toxic Substances Control

Linda S. Adams
Acting Secretary for
Environmental Protection

Deborah O. Raphael, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Edmund G. Brown Jr.
Governor

July 27, 2011

Mr. Greg Haet
EH&S Associate Director, Environmental Protection
317 University Hall, No 1150
Berkeley, California 94720

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Environment, Health
and Safety - UCB

Dear Mr. Haet:

The Department of Toxic Substances Control (DTSC) received the Year 5 Monitoring Report Response to Comments dated May 16, 2011 for the University of California, Berkeley, Richmond Field Station site located in Richmond, California. Your letter responds to comments provided by DTSC in a letter dated November 19, 2010. DTSC's Human and Ecological Risk Office, Ecological Risk Assessment Section (ERAs) reviewed the responses provided and found that continued monitoring through the Annual Public Health Assessment of the West Stege Marsh is acceptable as long as the sediment mercury concentrations are compared to an ecologically relevant screening value protective of the California Clapper Rail. ERAs full review is enclosed with this letter. DTSC has no further comments on this report.

If you have any questions regarding this letter, please call me at (510) 540-3839 or email at: lnakash@dtsc.ca.gov.

Sincerely,

Lynn Nakashima
Senior Hazardous Substances Scientist
Brownfields and Environmental Restoration Program
Berkeley Office

Enclosure

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cc: J. Michael Eichelberger, Ph.D
Human and Ecological Risk Office
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200



Linda S. Adams
Secretary for
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Department of Toxic Substances Control

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Edmund *Gerald* Brown Jr.
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MEMORANDUM

TO: Lynn Nakashima
Senior Hazardous Substances Scientist
Department of Toxic Substances Control (DTSC)
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721

FROM: J. Michael Eichelberger, Ph.D.
Staff Toxicologist
Human and Ecological Risk Office (HERO)
Ecological Risk Assessment Section (ERAS)

DATE: June 6, 2011

SUBJECT: YEAR 5 MONITORING REPORT FOR THE WESTERN STEGE MARSH RESTORATION PROJECT, RESPONSE TO DTSC COMMENTS, UNIVERSITY OF CALIFORNIA, BERKELEY, RICHMOND FIELD STATION, RESPONSE TO COMMENTS DEPARTMENT OF TOXIC SUBSTANCES CONTROL, NOVEMBER 19, 2010

PCA: 11050 SITE CODE: 201605-00

Background

The University of California Richmond Field Station is located on former industrial land and consists of 96-acres of uplands and 13-acres of tidal marsh and marsh edge habitat. Industrial use of the uplands, particularly for the manufacture of blasting caps containing mercury fulminate, has been documented as early as the 1870's and continued until 1950 when the University of California purchased the property for use as a research facility. Documented releases of chemicals of potential ecological concern

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(COPECs) including metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs) have been reported. An ecological risk evaluation of the uplands and West Stege Marsh was completed in 2001. Several remedial measures have been implemented since 2002, and include, but are not limited to, treatment and transport to the adjacent Zeneca property of mercury-contaminated soils, installation of a biologically active permeable barrier and excavation and removal of contaminated sediments from a portion of West Stege Marsh, and backfilling with clean fill to restore California clapper rail (*Rallus longirostris obsoletus*) habitat. The site includes upland habitats, including rare coastal prairie, and wetlands consisting of saltwater marsh.

Under the direction of the San Francisco Bay Regional Water Control Board, the University of California was required by Order No. 01-102 to conduct a 5-year monitoring program to assess the reestablishment of West Stege Marsh to a functioning habitat capable of supporting the California clapper rail (*Rallus longirostris obsoletus*), a federally endangered species (Federal Register 35: 1504; October 13, 1970). The monitoring plan was based on 4 project targets;

1. Restore the hydrologic complexity
2. Improve water quality within the marsh – surface water, storm water and sediment sampling with comparisons to screening criteria
3. Restore the low salt marsh (Pacific cordgrass), middle salt marsh (pickleweed), and the emergent and coastal scrub native plant communities – measurements of plant cover, vigor and diversity
4. Establish a compositionally and structurally complex ecosystem within the Western Stege Marsh with attributes important to wildlife, specifically focused on increasing habitat functions for the California clapper rail – California clapper rail surveys

The University of California is seeking concurrence with their conclusion that no further monitoring or remedial activities are required within the remediated marsh. ERAS provided comments to the Year 4 Monitoring Report for the West Stege Marsh in a memorandum dated December 14, 2009.

ERAS provided comments to the 5-year monitoring report for the "Western Stege Marsh Restoration Project" in a memorandum dated October 20, 2010. This memorandum is in response to University of California responses to ERAS remarks to the 5-year monitoring report. The University of California has provided responses to the ERAS comments in italics below. ERAS comments to those responses are presented in bold type.

Document Reviewed

ERAS reviewed "Year 5 Monitoring Report for the Western Stege Marsh Restoration Project, University of California, Berkeley, Richmond Field Station, Response to Comments Department of Toxic Substances Control, November 19, 2010" prepared by

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Tetra Tech EM Inc. (Oakland, California) and dated September 30, 2010, hereafter referred to as the report. ERAS received an Envirostor request to review the report on May 28, 2011.

Scope of the Review

The report was reviewed for scientific content related to ecological risk assessment. Grammatical or typographical errors that do not affect the interpretation of the text have not been noted.

General Comments

The report provides results from the 5th year of monitoring for the West Stege Marsh Restoration Project. The 5-year hydrology and revegetation standards appear to have been met. Copper, mercury, nickel and zinc were all detected in storm water sampling from the last year, but not at overall greater concentrations than in the 4 prior years. Mercury, nickel and zinc concentrations occasionally exceeded the Criterion Continuous Concentration (CCC) standard, but 10 of 11 filtered copper storm water samples exceeded the Criterion Continuous Concentration (CCC) of 3.1ug/L. Low levels of copper are exiting the site via storm water but at low concentrations and during intermittent periods during storm events. There is little indication that the storm water has contributed to the sediment metal concentrations over the last 5 years. Mercury sediment concentrations continue to be detected above the Effects Range-Median (ER-M), please see specific comment 2 below.

No response was offered by UC to the General Comment.

ERAS SPECIFIC COMMENTS

1. Page ES-1, Executive summary, Recommendations. The report states "*Overall, based on data obtained Years 1 through 5, the WSMRP site is progressing toward providing the functions of a tidal marsh typical of San Francisco Bay. Based on this trajectory and evaluation against the project targets, no further remediation or monitoring activities are recommended in the WSMRP (Western Stege Marsh Restoration Project) area.*" Please rectify this statement with the following statement "*Some sample concentrations exceeded some federal and state screening criteria for protection of aquatic life, including some criteria that Are within the range of ambient Bay Area concentrations; however, more sampling is necessary to assess the significance of these results*" found on page 30, in section 6.0 Conclusions and Recommendations, Project Target 2. Please clarify if the university is intending to continue sediment and/or surface water sampling.

UC Field Station Response:

UC Berkeley intends to continue monitoring marsh sediment as part of the annual sediment sampling recommended in the 2010 Public Health Assessment, published by the California Department of Public Health.

UC Berkeley also intends use the data collected during the Marsh Monitoring effort to help guide further characterization sampling of the Marsh as part of the Field Sampling Workplan (sic). UC Berkeley does not propose to continue the semi-annual sampling, as described in the marsh monitoring annual reports.

ERAS Response

Comment accepted; however see response to Specific Comment 2.

2. Page 21, Section 4.2.3, Sediment. Mercury continues to be detected in sediment at concentrations above the ER-M but concentrations do not seem to be increasing with time. In ERAS' comments to the 4-year monitoring report, it was requested that the report include a graph showing mercury concentrations plotted over time. That was again not provided in the 5-year monitoring report. Nevertheless, given the information provided in the report, it does appear that sediment mercury concentrations have not significantly increased during the last 5-years.

UC Field Station Response

Mercury concentrations in marsh sediment will continue to be monitored through the annual Public Health Assessment sampling and as part of the FSW.

ERAS Response

Continued monitoring through the annual Public Health Assessment is acceptable as long as the sediment mercury concentrations are compared to an ecologically relevant screening value protective of the California clapper rail.

3. Page 32, Section 6.0, Conclusions and Recommendations, Project Target 4. Based on the evidence provided in the report, ERAS believes that a compositionally and structurally diverse ecosystem has been developed in West Stege Marsh and that measured concentrations of Chemicals of Potential Ecological Concern in site media do not appear to be impeding this development.

UC Berkeley agrees that the marsh is progressing toward providing the functions of a tidal marsh typical of San Francisco Bay. Based on this trajectory and evaluation against the project targets, no further remediation or monitoring activities are recommended as part of the Marsh Monitoring Restoration effort.

ERAS Response

Comment Accepted.

Conclusions

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The University of California at Berkeley, Richmond Field Laboratory appears to have substantially met the requirements outlined in the report of establishing a functional ecosystem capable of supporting the California clapper rail. Certain metals, particularly copper and mercury have been found in storm water and sediment that exceed screening levels commonly used as regulatory thresholds, but the marsh appears to be healthy and has evolved into what appears to be a functional wetland. The University needs to clarify if it intends to conduct any further monitoring regarding sediments, surface water and storm water. ERAS believes it would be prudent to continue to monitor storm water discharge and sediment sampling at the point of discharge on a reduced monitoring schedule.

No response was offered by the University of California to the ERAS Conclusions, however if the conditions of Specific Comments 1 and 2 are met ERAS has no further comment.

Reviewed by: Brian Faulkner, Ph.D.
Staff Toxicologist, ERAS

Cc: James M. Polisini, Ph.D.
Senior Toxicologist, ERAS

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