Department of Toxic Substances Control

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Secretary for
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December 18, 2020

Greg Haet, P.E.
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COMMENTS TO PHASE V, WESTERN TRANSITION AREA SAMPLE RESULTS FOR THE UNIVERSITY OF CALIFORNIA BERKELEY RICHMOND FIELD STATION SITE, RICHMOND, CONTRA COSTA COUNTY (SITE CODE: 201605)

Dear Mr. Haet:

The Department of Toxic Substances Control (DTSC) received the Phase V, Western Transition Area Sample Results (Report), dated October 16, 2020, for the University of California Berkeley, Richmond Field Station site (Site), located at 1301 South 46th Street in Richmond, California. The Report, prepared by Tetra Tech, Inc. on behalf of the University of California Berkeley (UC), provides (1) the analytical results of the archived samples from the pothole investigation of the Western Transition Area (WTA), (2) describes the proposal for additional sampling of dark, odorous sediments at WTA-17, -19, -20, and -30, and (3) describes the proposed supplemental sampling for PCBs adjacent to the Mercury Fulminate Area. DTSC program, Geological Services Branch (GSU), Human and Ecological Risk Office (HERO), and HERO Ecological Risk Assessment Section (ERAS) reviewed the report. Comments from program, GSU and HERO are as follows while comments from ERAS are enclosed.

1. Sample Results, PAHs, Page 4: Sample Results: Please verify or clarify the reported benzo(a)pyrene and benzo(a)pyrene equivalency concentrations. If nine samples are reported to exceed benzo(a)pyrene human health criteria, then a minimum of nine samples should be reported to exceed benzo(a)pyrene *equivalency* human health criteria. However, benzo(a)pyrene equivalency factor concentrations are reported to exceed human health criteria in only six samples.

2. Based on the PCB results for samples collected at WTA-22 and WTA-23 propose additional samples around these two potholes.

3. Indicate on the figures the locations of additional potholes WTA-38.2 and WTA-38.3, located 15 and 30 feet east of WTA-38, respectively.

4. Explain why no soil samples were collected for metals or PCB analysis at WTA-38.2 and WTA-38.3 as sheet metal was observed in WTA-38.2 and cinder was identified above the bay mud in WTA-38.3. Also, please clarify whether the cinder is related to burnt organic materials/matter (i.e., ashes) or is it similar to pyrite cinders related to the sulfuric acid manufacturing process.

5. The Report should be revised to respond to the comment above and those found in the enclosed comment memorandum.

DTSC has no objection with the recommended sampling to delineate the extent of the dark, odorous sediment and the supplemental sampling for PCBs; however, development of PCB ecological screening levels in consultation with DTSC, US EPA and other resource trustees is necessary to identify remedial action objectives and inform future sampling efforts to fully characterize the WTA. Please submit a work plan/letter within 60 days of the date of this letter describing UC's proposal to develop the screening levels and a list of proposed ecological screening levels for all other chemicals of concern (including the citation of the source of the screening value). After development of the screening levels, the scope of future site characterization will be discussed.

If you have any questions regarding this letter, please contact Lynn Nakashima by email at Lynn.Nakashima@dtsc.ca.gov.

Sincerely,

Lynn Nakashima

Gerard F Aarons

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Enclosure

cc: See next page

cc: (via email)

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MEMORANDUM

TO: Lynn Nakashima
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FROM: J. Michael Eichelberger, Ph.D. J. Michael Eichelberger
Staff Toxicologist
Ecological Risk Assessment Section (ERAS)
Human and Ecological Risk Office (HERO)
Department of Toxic Substances Control (DTSC)
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DATE: 10 November 2020

SUBJECT: ERAS REVIEW: PHASE V, WESTERN TRANSITION AREA SAMPLE RESULTS RICHMOND FIELD STATION UNIVERSITY OF CALIFORNIA, BERKELEY, [RICHMOND, CALIFORNIA]

Project: DTSC201605-00 Activity: 11018 MPC: OTHrpt

DOCUMENT REVIEWED

ERAS reviewed the "Phase V, Western Transition Area Sample Results Richmond Field Station University of California, Berkeley, [Berkeley, California]". The report is dated 16 October 2020, and was prepared by Tetra Tech, Inc., (Oakland, California). ERAS received the report for review via an EnviroStor request dated 30 October 2020.

BACKGROUND

The Western Transition Area (WTA) is a 5.5-acre upland area adjacent to West Stege Marsh. The WTA is believed to be reclaimed mudflats deposited on shore. Investigations of the site are ongoing with prior sampling results provided in the report. Further sampling is proposed and presented in this submittal.

SCOPE OF THE REVIEW
The document 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

1. The Western Transition Zone will remain as habitat and is adjacent to the sensitive West Stege Marsh which is known habitat for the federal and state endangered Ridgeway's Rail (*Rallus longirostris obsoletus*). However, the report fails to adequately address ecological receptors in its comparison of site samples to ecological screening levels. Avian and mammalian screening levels for polycyclic aromatic hydrocarbons (PAHs) are almost entirely lacking, and no screening levels are provided for the Aroclors. Given the high value of the onsite and adjacent estuarine habitat, and the proximity to an endangered species, the report should place greater significance on providing adequate information to aid the sampling strategy.

2. Data indicates significant concentrations of mercury, copper, and in particular, polychlorinated biphenyls (PCBs). The PCBs are evaluated as three Aroclors: Aroclor-1248, Aroclor 1254, and Aroclor 1260. Based on their ratios of specific congeners and resulting toxicity, each Aroclor has its own screening level. The subsequent report that will include both the present and the proposed data needs to include a figure for each potential risk driver. These figures should be data flagged with concentrations and depths denoted. There should be a separate figure for each Aroclor.

SPECFIC COMMENTS

1. Field Sampling Activities, pdf page 2 of 66. The description of incremental sampling (ISM) is not sufficient. The report states "*An incremental sample methodology (ISM) sample consisting of 75 increments was also collected from the excavated soil at each of the 38 pothole locations. The ISM samples were not included in the original field sampling plan but were collected to help characterize PCB [polychlorinated biphenyls] concentrations within the entire volume of soil excavated from each pothole, defined as the decision unit*". The potholes collectively are defined as a decision unit. ERAS fails to understand the

inclusion of 'ISM' data as presented. The report includes discrete samples from 38 locations and Figure 4 shows PCB pothole locations with ranges of PCB concentrations of not detected; 1-5 mg/kg; 5-10 mg/kg; 10-15 mg/kg; and 15 + mg/kg. According to the Interstate Technology and Regulatory Council (IRTC) (https://www.itrcweb.org/Guidance/ListDocuments?topicID=11&subTopicID=16), ISM needs to include replicates to derive a 95-percent upper confidence limit on the mean and to estimate variance to describe variability around the mean. Without this it would be better to describe this data set as a composite sample.

2. Figure 4, PCB Sample Results, pdf page 10 of 66. Table 6: Soil Detected PCB Analytical Results, shows 5 sampling depths per pothole with varying Aroclor concentrations at different depths. The figure needs to include the sampling depths of the PCB concentrations presented in the figure that are identified in the legend and this must correlate with the concentrations presented in Table 6. It should be noted in the figure that Total PCBs equals the summation of Aroclor-1248, Aroclor-1254, and Aroclor-1260.

3. Figure 5 Proposed Investigation Areas, pdf page 11 of 66. The recommended supplemental sampling recommends sampling within the "*dark odorous sediment at the Bay Mud interface*" and within the mercury fulminate area. However, it appears that previous sampling did not bound elevated PCB concentrations south of WTA-23 and west of WTA-34, WTA-35, and WTA-27. Additional discrete PCB samples should be proposed in this area. Additional PCB samples in the vicinity of WTA-12 are also warranted to bound that location.

4. Table 2 Statistical Summary of Chemicals Detected in Soil, pdf page 18 of 66. The report states that there are no screening criteria for almost all the 16 PAHs. Ecological screening levels for all but 2 of the PAHs are found in the Los Alamos National Laboratory (LANL) Eco Risk Database (https://www.intellusnm.com/documents/documents.cfm). Alternatively, the high molecular weight and low molecular weight PAHs concentrations could be summed and compared to the High Molecular Weight and Low Molecular Weight US EPA Ecological Screening Levels (https://www.epa.gov/sites/production/files/2015-09/documents/eco-ssl_pah.pdf).

5. Table 2 Statistical Summary of Chemicals Detected in Soil, pdf page 18 of 66. The report lacks screening levels for PCBs. The University of California needs to develop an ecological screening level or levels, in consultation with DTSC, USEPA and other resource trustees who have vested interests in environmental resources of West Stege Marsh. Table 2 states that screening criteria are not available for Aroclors 1248, 1254, and 1260. Screening levels for all three of these Aroclors are available in the LANL Eco Risk Database. Also, Table 2 lists a column for Total Aroclors. Please explain what this means. Note, in a risk

assessment since risk would be calculated for each Aroclor, and since Aroclors have the same mode of action, a hazard index would be required.

6. Table 2: Statistical Summary of Chemicals Detected in Soil, pdf page 19 of 66. The reference to the source of Ecological Screening Criteria from a May 16, 2016 Technical Memorandum is insufficient. The report should be a stand-alone document with sufficient information to interpret the presented information without conducting a file search to verify what is presented. For example, the bird mercury Ecological Screening Level of 39 mg/kg seems inordinately high. There is no USEPA Ecological Screening level for mercury so what is the source of the screening level in Table 2?

7. Table 6: Soil Detected PCB Analytical Results, pdf page 33 of 66. The table lists 5 sampling depths and discrete sampling results for Aroclor-1248, Aroclor-1254, and Aroclor-1260 as well as 'Total Aroclors'. Total Aroclors represent concentrations of all three Aroclors where concentrations of non-qualified data and J-flagged data are summed for a total. Table 6 and Figure 4 should be linked in a manner that allows the reader to interpret Figure 4. See Specific Comment 2.

CONCLUSIONS

Ecological screening levels need to be presented for PAHs and Aroclors. The report needs to be strengthened by providing sources for the screening levels. The PCB ISM samples don't follow ITRC guidelines and should be considered as a composite sample. Additional samples should be included as described in Specific Comment 3. When additional sample data is available the combined data of past sampling with the new should be presented in individual figures for risk drivers. Sample locations should be data flagged with concentrations and sample depths. Each Aroclor should have its own figure.

Reviewed by: Edward A. Fendick, Ph.D.
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Concurrence: Brian Faulkner, Ph.D.
Senior Toxicologist, Unit Chief
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