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Subject: Comments on review of UC BERKELEY – RICHMOND FIELD STATION, CORPORATION YARD, RICHMOND, CALIFORNIA - ISM SAMPLING PLAN Project Code: 201605-00 Activity Code: 11018
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DATE: June 16, 2020

SUBJECT: UC BERKELEY – RICHMOND FIELD STATION, CORPORATION
YARD, RICHMOND, CALIFORNIA

ISM SAMPLING PLAN

Project Code: 201605-00

Activity Code: 11018

DOCUMENT REVIEWED

HERO reviewed the June 3, 2020 memorandum with the subject “Corporation Yard, Triplicates Sampling Approach, Richmond Field Station, University of California, Berkeley” (Tech Memo) prepared by Tetra Tech in Oakland, California.

BACKGROUND

The Richmond Field Station (RFS) Corporation Yard (Corp Yard or Site) had surface releases of PCBs in transformer oil and is currently used primarily for parking of PG&E trucks. Additional sampling for PCBs is proposed using the incremental sampling method (ISM) as a follow-up to the removal action conducted at the Corporation Yard in 2017-2018 and data gap sampling presented in the Corporation Yard Data Gaps Sampling Results letter dated November 22, 2019. The Tech Memo also provides clarifications regarding the ISM results presented in the November 22, 2019 letter and recent teleconferences on the relative standard deviation (RSD) of laboratory and field replicates and the calculation of the weighted 95 percent upper confidence limit of the arithmetic mean (95%UCL).

SCOPE OF REVIEW

The review comments herein focus solely on the ISM sampling for PCBs and use of the

ISM results to calculate a 95%UCL.

GENERAL COMMENTS

1. HERO Does Not Concur with the Proposal: HERO does not concur with some of the technical aspects of the proposed sampling, as detailed below. Furthermore, HERO observed some internal inconsistencies within the Tech Memo. HERO recommends revising the proposed ISM sampling per the below comments.
2. DUs for Triplicates – Three DUs are proposed for additional triplicate ISM collection and analysis of PCBs. HERO concurs with use of DU9 and DU10, but recommends using DU16 or DU 17 as the third DU rather than DU13. Use of DU13 is inappropriate for assessing variability (RSD) because the one replicate collected thus far from DU13 was non-detect for PCBs and therefore not representative of the RSD for DUs with PCB contamination.
3. Increment Locations – Within each DU 75 increments are proposed for collection. The Tech Memo says the spacing of increments will be determined in the field. ISM guidance (ITRC, 2012) recommends systematic planning and random locations. Furthermore, the guidance notes that the magnitude of error in the mean may be higher with simple random sampling as compared with systematic random sampling. To reduce potential error in the estimate of the mean, to guard against bias in increment sampling locations and to provide even spatial coverage in each DU, HERO recommends use of a systematic random sampling approach using 75 grids and a random number generator to determine placement of replicates 1, 2 and 3 within the first grid and applying those relative locations to the remaining 74 grids.
4. 95%UCL – Since the exposure area for risk-based decision making (exposure unit) is the entire Corp Yard, a weighted 95%UCL is proposed from the ISM data collected from DUs 9 through 14 and 16 through 18. While the concept of a weighted 95%UCL is appropriate for the Corp Yard, the proposed methods and equations are not presented. HERO recommends transparently providing the proposed 95%UCL methodology with all equations.
 - One option is using pooled variances from the DUs with triplicates to obtain an average RSD that is applied to calculate 95%UCLs for the singlet DUs and subsequently calculating a weighted 95%UCL. This method is appropriate for CSM-equivalent DUs where a statistical test that compares variances demonstrates that the differences in variances are not significantly significant (e.g., at the 95% level of confidence).
 - Another method for computing a 95%UCL could employ the random selection of 1 replicate result from each DU with multiple replicates (for example, the first replicate) after establishing in the systematic planning process how the replicate for use in calculating the UCL would be randomly selected. This approach would specify a RSD limit in the systematic planning process that must be met limit error in estimating the 95%UCLs from singlet DUs.
5. RSD Calculations – The Tech Memo provides clarification on RSD calculations in the November 2019 letter and noted those RSDs were not intended for use in

calculating 95%UCLs for risk-based decisions. However, it is unclear whether the procedure discussed is intended for the application to the proposed triplicate ISM results. HERO recommends either (a) setting lab RSD limits in the Data Quality Objectives if at random the first of the lab triplicate results will be used as the 3rd field triplicate for calculating the weighted 95%UCL, or (b) using the averaging of the lab triplicates for the 3rd field triplicate because the lab RSDs are very high in the data collected to date. HERO recommends clearly presenting the proposal for field triplicate RSD calculations that is intended for application to the ISM triplicate data results to calculate the weighted 95%UCL for the Corp Yard.

CONCLUSIONS

HERO reviewed the June 3, 2020 Tech Memo for additional ISM sampling and analysis at the Corp Yard. HERO does not concur with the proposed ISM sampling. HERO recommends addressing the comments above in a revised ISM work plan submission.

Please contact me at (916) 255-6633 or Karen.DiBiasio@dtsc.ca.gov if you have any questions.

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