



California Department of Public Health
MEMORANDUM

DATE: February 2, 2014

TO: Remedios Sunga
Project Manager
Brownfields and Environmental Restoration
Program - Berkeley Office - Department of
Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710-2721

FROM: Sheetal Singh, PhD
Senior Health Physicist
Environmental Management Branch
1616 Capitol Avenue, MS-7405
P. O. Box 997377
Sacramento, California 95899-7377

A handwritten signature in black ink, appearing to read "S. Singh", is written over the typed name and title of the sender.

SUBJECT: Review comments for *Draft Radiological Work Plan Radiological Surveys at Various Areas Former Naval Station Treasure Island San Francisco, California*. Issued December 24, 2014.

Upon the request of the Department of Toxic Substance Control (DTSC), the Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) has reviewed the *Draft Radiological Work Plan Radiological Surveys at Various Areas Former Naval Station Treasure Island San Francisco, California*. Issued December 24, 2014. This review was performed in support of the Interagency Agreement between DTSC and CDPH.

If you need further assistance about this response please contact Matthew Wright of my staff at (916) 449-5687.

Activity: Review comments for *Draft Radiological Work Plan Radiological Surveys at Various Areas, Former Naval Station Treasure Island, San Francisco, California*. Issued December 24, 2014.

January 26, 2015

Page 1 of 5

The Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) appreciates the opportunity to review the submitted document, *Draft Radiological Work Plan Radiological Surveys at Various Areas, Former Naval Station Treasure Island, San Francisco, California*.

General Comments:

1. The California Department of Public Health - Environmental Management Branch (CDPH-EMB) utilizes the California Code of Regulations (CCR), Title 17, Section 30256(k), which requires that radioactive material be removed, a reasonable effort has been made to eliminate residual radioactive contamination and the licensee can demonstrate the site is suitable for unrestricted release. In practice this means utilizing the decision making process outlined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), which includes establishing a reference background area for each of the materials to remain in situ. These background measurements are then compared to survey units using the MARSSIM statistical approach.
2. While Cs-137 is a radionuclide of concern (ROC) for portions of Treasure Island encompassed by this document, a radiological screening criterion for Cs-137 in soil has not been developed. CDPH-EMB appreciates the utility of a radiological screening criterion for Cs-137 in soil to identify residual radioactivity requiring remediation and to develop characterization or final status surveys. However; in order to compare a Final Status Survey (FSS) to a reference background area; a reference background dataset for Cs-137 must be established.

Specific Comments:

3. The title of this document does not make clear if the surveys to be performed are Scoping and/or Characterization surveys. Please amend the title as needed.
4. Section 6.3.2 Avenue M Wastewater Sewer Lines - Radiological Measurements and Samples Summary, page 6-5, paragraph one, sentence three, "The wastewater line will remain in service during the inspection by setting up a bypass line in close coordination with the WWTP." CDPH-EMB recognizes the unique challenges associated with conducting radiological surveys of an active waste water line. CDPH-EMB suggests that given the complexity and uniqueness of this radiological survey; that the Department of Navy (DON) submit the Task Specific Plan (TSP) for this work to CDPH-EMB for review before conducting the radiological surveys.

Activity: Review comments for *Draft Radiological Work Plan Radiological Surveys at Various Areas, Former Naval Station Treasure Island, San Francisco, California*. Issued December 24, 2014.

January 26, 2015

Page 2 of 5

5. Section 6.3.2.1 Avenue M Wastewater Sewer Lines - Radiological Measurements and Samples Summary, page 6-5, paragraph one, sentence one, "Following review of historical and current utility maps, the active 10-inch force main line shown on Figure 6 will be inspected using a video camera." Is there a history of regular maintenance and/or cleaning of the Avenue M Wastewater Sewer Lines? If so, when was the last cleaning? Is there a history of leakage or repair of these lines? Please explain.
6. Section 6.3.2.1 Avenue M Wastewater Sewer Lines - Radiological Measurements and Samples Summary, page 6-5, paragraph one, sentence one, "Following review of historical and current utility maps, the active 10-inch force main line shown on Figure 6 will be inspected using a video camera. A radiological detector will be attached to the camera to collect qualitative data."
 - a. What steps will be taken to ascertain the status of the piping between the sample locations? How does this investigative process assure regulators and the public that there are no cracks in the Avenue M Wastewater Sewer Lines which may have permitted radiologically contaminated water to drain into adjacent soil, or that there are no low spots or obstacles to the water flow which may have created localized hot spots of radioactive material. CDPH-EMB retains reservations about any scoping process which does not provide quantifiable data.
 - b. Additionally, radium compounds can precipitate out of solutions and become part of the scale on the on the bottom of pipes. Please explain how the current survey program as envisioned would detect this radioactive scale if present.
 - c. The Radioactive Contaminant of Concern (RCOC) for Avenue M Wastewater Sewer Lines is Ra-226. Will the radiological detector be calibrated to detect Ra-226? Please explain.
 - d. These Wastewater Sewer Lines have multiple pipe diameters; how will the radiological detector maintain its detection efficiency of the RCOC given the changes in subject geometry? Please explain.
7. Section 6.3.2.1 Avenue M Wastewater Sewer Lines - Radiological Measurements and Samples Summary, page 6-5, paragraph two, sentence one, "Following the video camera investigation, locations where pipe material changes or cracks are observed will be further investigated by direct push technology." Please define the dimensions of what is considered to be a crack. What assurances are there that the direct push technology has sampled the areas affected by any leaks? Please explain.
8. Section 6.3.2.1 Avenue M Wastewater Sewer Lines - Radiological Measurements and Samples Summary, page 6-5, paragraph two, sentence two, "Further, sediment samples will be collected and gamma static count rate measurements will be conducted at

Activity: Review comments for *Draft Radiological Work Plan Radiological Surveys at Various Areas, Former Naval Station Treasure Island, San Francisco, California*. Issued December 24, 2014.

January 26, 2015

Page 3 of 5

existing and accessible line cleanouts, manholes, sumps, and outfalls for the piping located along Avenue M.” Please provide piping schedule of the pipes located along Avenue M as well as locations of cleanouts, manholes, sumps and outfalls of piping located on Avenue M.

9. Section 6.3.2.1 Avenue M Wastewater Sewer Lines - Radiological Measurements and Samples Summary, page 6-5, paragraph two, sentence two, “Further, sediment samples will be collected and gamma static count rate measurements will be conducted at existing and accessible line cleanouts, manholes, sumps, and outfalls for the piping located along Avenue M.” Please provide the age, depth, composition of pipe material.
10. Section 6.3.2.3 Investigation of Storm Drain Lines and Catch Basins 545, 441, 439, 440, and 437 page 6.6, paragraph one, sentence five, “Gamma scan measurements will be collected in accessible areas and two sediment samples, one inside the pipe and one outside the pipe, will be collected from each accessible pipe end. The samples will be analyzed for gamma spectroscopy (specifically 226Ra and daughters).” What steps will be taken to ascertain the status of the piping between the two ends of the pipe? How does this investigative process assure regulators and the public that there are no cracks in the storm drain lines which may have permitted radiologically contaminated water to drain into adjacent soil, or that there are no low spots or obstacles to the water flow which may have created localized hot spots of radioactive material. Please explain. Will there be an inspection using a video camera coupled with a radiological detector to collect data? Please explain.
11. Section 6.3.2.4 Investigation of Abandoned Wastewater Sewer Lines Near Building 402 and the Wastewater Treatment Plant, page 6-7, paragraph one, sentence six, “As stated in Subsection 6.3.2.1, sediment samples will also be collected from the current and former outfalls east of the WWTP. Once located by potholing, the lines will be visually inspected and two sediment samples will be collected from each abandoned wastewater line (one sample inside and one sample outside the pipe).” How does this investigative process assure regulators and the public that there are no cracks in the Abandoned Wastewater Sewer Lines which may have permitted radiologically contaminated water to drain into adjacent soil, or that there are no low spots or obstacles to the water flow which may have created localized hot spots of radioactive material. What steps will be taken to ascertain the status of the piping between the two ends of the pipe? Will there be an inspection using a video camera coupled with a radiological detector to collect data? Please explain.
12. Section 7.4.2 Survey Investigation Levels and Background Reference Area, page 7-3, paragraph one, sentence three, “An a priori IL count rate is defined specifically for each ratemeter/scaler detector pair, for each media (e.g., soil and asphalt), and for each type

Activity: Review comments for *Draft Radiological Work Plan Radiological Surveys at Various Areas, Former Naval Station Treasure Island, San Francisco, California*. Issued December 24, 2014.

January 26, 2015

Page 4 of 5

of survey (gamma scan or gamma static).” Please include the Investigation Level (IL) calculations for each portable radiological survey instrument used in this document.

13. Section 7.5.2.2 Soil Sampling, page 7-7 paragraph three, sentence two, “Subsurface soil samples will be collected during the investigation of the Avenue M sewer lines via soil borings. Removed soil will be radiologically screened for gamma radiation.” Please explain how the removed soil will be screened for gamma radiation and also add information regarding the depth of the soil samples.
14. Section 7.5.3.3 Static Alpha Minimum Detectable Concentration, page 7-8. CDPH-EMB appreciates the worked out calculations for Static Alpha and Beta Minimum Detectable Concentrations. CDPH-EMB notes that these calculations are appropriate for those instances when the background count times and sample count times are equal. Please ensure that in practice that background count times and sample times are equal.
15. Section 8.2 Completion Reports, page 8-1, paragraph one, sentence two, “The reports will include a description of the fieldwork, results of the analyses, an evaluation of the analytical results collected during the fieldwork, a discussion of the results, and the conclusions and recommendations based on technical evaluation of the data collected.” Please include data analysis with a calculation and comparison of statistical quantities; visual inspection of data distributions using cumulative frequency diagrams and frequency plots to identify data distribution trends and potential outliers; and spatial assessment using z-score mapping to identify radiological statistical outliers.
16. Appendix A: Sampling and Analysis Plan, Worksheet #10: Problem Definitions, Section 10.1.3 Installation Restoration Site 30 and Related Areas, page 27, paragraph two, sentence one, “According to the HRASTM (TriEco-Tt, 2014a), no radiological or IR Program (IRP) related work has been performed at IR Site 30, or the areas north or south of the IR sites, since publication of the HRASTM.” Please explain this sentence.
17. Appendix A: Sampling and Analysis Plan: Worksheet #11: Project Quality Objectives/Systematic Planning Process Statements, page 31, step two, bullet three, “Do the sampling results support a conclusion that concentrations of radionuclides of concern in these project areas are indistinguishable from background?” In order to compare a Final Status Survey (FSS) to a reference background area; a reference background data set for Cs-137 must be established. Please establish a reference area background data set for Cs-137.
18. Appendix A: Sampling and Analysis Plan: Worksheet #15: Reference Limits and Evaluation Table—Soil Radionuclides of Concern, Project Action Limit Reference,

Activity: Review comments for *Draft Radiological Work Plan Radiological Surveys at Various Areas, Former Naval Station Treasure Island, San Francisco, California*. Issued December 24, 2014.

January 26, 2015

Page 5 of 5

Analyte, Cesium-137, Project Action Limit Reference, none established (NE). Please establish a Project Action Limit Reference for Cesium-137.

19. Appendix A: Sampling and Analysis Plan: Worksheet # 17: Sampling Design and Rationale, Section 17.1 Radiological Survey and Sampling, page 46, paragraph three, sentence one, "Remediation will be performed where land areas exhibit discrete areas of elevated gamma count rate readings." Please define the term, "...elevated gamma count rate readings".
20. Appendix A: Sampling and Analysis Plan: Worksheet # 17: Sampling Design and Rationale, Section 17.3 Radiological Survey Sampling—Excavated Soil Laydown Pads, page 47, paragraph one, sentence two, "Thickness of soil on the pad will range from approximately 6 to 12 inches deep and will be determined based on the scan sensitivity of the gamma scan system used." Please provide worked out calculations demonstrating the scan sensitivity of the gamma scan system used.
21. Appendix A: Sampling and Analysis Plan: Worksheet #22: Field Equipment Calibration, Maintenance, Testing, and Inspection Table, page 55. Please include Quality Assurance (QA) and Quality Control (QC) records, Certificates of Calibration for the radiological instruments and sources, along with the chi-squared calculations when appropriate; for the portable radiological instruments used in this document.
22. Appendix A: Figure 4, "Sewer Line Sampling Locations", shows regularly spaced, "Soil Boring Locations", do these locations represent an a priori estimate of these sampling locations? Please explain.