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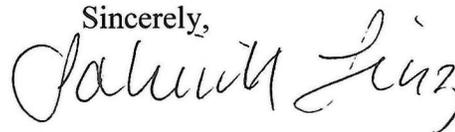
Mr. Richard Chang
Nuclear Regulatory Commission
11545 Rockville Pike
M.S. T5A10
Rockville, MD 20852

Dear Mr. Chang:

SUBJECT: RESPONSE TO COMMENTS, DRAFT FINAL STATUS SURVEY REPORT FOR SELECT AREAS WITHIN THE EXCAVATION BOUNDARY, NON-TIME CRITICAL REMOVAL ACTION FOR SOLID WASTE DISPOSAL AREAS WESTSIDE DRIVE, BAYSIDE DRIVE, AND NORTH POINT DRIVE, INSTALLATION RESTORATION SITE 12, FORMER NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA

The U.S. Nuclear Regulatory Commission provided comments and a request for additional information on the subject document in a letter to the Navy dated March 7, 2019. The Navy is providing the requested additional information in a Response to Comments table as Enclosure 1.

Thank you for your continued support and monitoring of the radiological program at Treasure Island. Should you have any questions or need additional information, please contact me at (619)524-6073.

Sincerely,


TAHIRIH LINZ
BRAC Environmental Coordinator
By direction of the Director

Enclosure: 1. Response to Comments, Draft Final Status Survey Report for Select Areas Within the Excavation Boundary, Non-Time Critical Removal Action for Solid Waste Disposal Areas Westside Drive, Bayside Drive, and North Point Drive, Installation Restoration Site 12, Former Naval Station Treasure Island San Francisco, California

Response to Comments on the Draft Final Status Survey Report for Select Areas within the Excavation Boundary Non-Time Critical Removal action for Solid Waste Disposal Areas Westside Drive, Bayside Drive and North Point Drive Installation Restoration Site 12, Naval Station Treasure Island, San Francisco, California December 2018, DCN: APTM-2005-0004-0120

Comments by: Richard Chang, NRC, comments dated March 7, 2019

| Comment | Response |
|--|--|
| <p>1. Clarification whether the remaining visible debris described in the sidewalls of excavations will be addressed by future remediation and, if additional remediation will occur, please provide discussion of radiological controls for isolation of the areas described in the subject report that may be impacted by future remediation.</p> | <p>The Navy is currently removing remaining debris in an area along the southern sidewall of SWDA North Point as part of a removal action under another contract [Remedial Action/NTCRA (Gilbane 2018)]. The Navy is also preparing a Feasibility Study Addendum for Installation Restoration Site 12 which addresses radiological and chemical contamination in the SWDAs. Any future additional actions to address debris beneath Perimeter Road or any other sidewalls at SWDAs Westside, Bayside, and North Point will be evaluated as part of the Feasibility Study Addendum.</p> <p>Sidewalls with visible debris adjacent to the survey units addressed by this Phase III NTCRA were surveyed and documented on figures. Prior to any backfill activities, sidewalls with visible debris at SWDA Bayside and North Point received a gamma walk-over surface scan to verify there were no known low-level radiological objects present on the surface. The sidewalls were then covered with poly-sheeting to create a physical barrier to mitigate the potential for cross contamination should radiological contamination be present in the sidewall areas. Clean backfill material (rock and soil) was subsequently placed on the clean side of the poly sheeting, effectively creating a second physical barrier and entombing the clean survey units. The poly-sheeting also functions as a demarcation of the boundary of clean backfill to guide the future excavation activities</p> <p>Future removal actions would proceed in the same manner as the NTCRA Phase III, whereby a buffer layer of the backfilled soil on the clean side of the poly sheeting would be excavated while remediating the sidewall contamination. This is an extra precaution to further eliminate the potential for cross contamination.</p> |
| <p>2. Additional details on the scan minimum detectable concentrations and the adequacy of the investigation level used relative to the release criteria. The NRC staff is requesting responses to these comments but recognize that the U.S. Navy does not necessarily need to modify the Final Status Survey Report to address these comments.</p> | <p>The investigation level was derived from the statistical evaluation of the Treasure Island site background (Shaw Environmental Inc, 2012). The <i>average</i> radium-226 (Ra-226) background concentration at the TI background area was 0.69 pCi/g. The instrument responses were set based on that concentration of radium plus all the other naturally occurring radionuclides present at the background site area.</p> |

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Follow-up investigations were conducted if the instrument-specific gamma scan investigation level was exceeded. Follow-up investigations consisted of one-minute gamma static counts. If the instrument -specific gamma static count (background +3 standard deviations) was exceeded, the soil was sampled for off-site laboratory analysis. The instrument response base-line to the reference background provided investigation levels that proved to be conservative when compared to follow-up static measurements and biased sample data.

Our investigation level compared to the release criterion was 0.69/1.69=0.408. I.e. the release criterion was significantly higher than the actual investigating level which further validated that the investigation level was sufficient, conservative, as well as appropriate.

Representative MDCs are listed as follows:

| <u>Representative MDCs</u> | | | |
|-----------------------------------|--------------------------------|------------------------------|----------------------------|
| <u>Instrument</u> | <u>Measurement Type</u> | <u>Radiation/ ROC</u> | <u>MDC</u> |
| Ludlum 2360 | Fixed | Alpha | 23 dpm/100cm ² |
| Ludlum 2360 | Fixed | Beta | 131 dpm/100cm ² |
| Ludlum 3030 | Removable | Alpha | 14 dpm/100cm ² |
| Ludlum 3030 | Removable | Beta | 92 dpm/100cm ² |
| 3 in x 3 in NaI | Gamma Walkover | Ra-226 | 1.32 pCi/g |
| RS-700 | Gamma Walkover | Ra-226 | 0.36 pCi/ |

The MDCs calculated for our instruments were below the acceptance criteria and Derived Concentration Guideline Levels (DCGL_{emc}) in all cases.

The Final Status Survey Report was not modified based on these comments.

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3. It appears as though Scenario B evaluations are being performed based upon the statistical analyses in the report. If so, additional information should be provided that demonstrate background variability requires the use of Scenario B as discussed within NUREG-1505 "A Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys." If the background variability is not significant relative to the release criteria concentrations, then Scenario B should not be utilized. Staff further note that, because the reported radium-226 (Ra-226) concentrations in the sampling data presented are all less than the Derived Concentration Guideline Levels (DCGLw), further statistical analysis is usually not necessary. Finally, NRC staff note that one could possibly utilize the Uranium-238 concentration as the naturally occurring background concentration for Ra-226, assuming the analysis provides sufficient sensitivity. Please note that NRC staff is not requesting a response to this comment.

It is noted that NRC staff is not requesting a response to this comment. MARSSIM is designed to identify distributed contamination using statistical evaluation. Per NUREG 1505, in Scenario B, the survey unit will be released unless it is shown to be contaminated above background. In Scenario A, the survey unit will not be released until proven clean. Rejecting the null hypothesis has different implications for survey unit release in the two scenarios. For this reason, a survey unit will be said to *pass* the final status survey if it is concluded that it may be released. Otherwise it will be said to *fail*. In Scenario A, the emphasis is on the dose limit. In Scenario B, the emphasis is on indistinguishability from background. In Scenario A, the survey unit is assumed to fail unless the data show it may be released. In Scenario B, the survey unit is assumed to pass unless the data show that further remediation is necessary.

Background displayed the variability expected from a man-made island that had many sources of rock and soil and thereby generated some variability. That said, background within each survey unit was found to be rather consistent. The low end of background was in the range of 0.3 pCi/g while the upper limit was in the range of 1.3 pCi/g. Sampling for as-left status was used to document background levels of radionuclides.

As presented in the Technical Memorandum, *Request for Unrestricted Radiological Release of Select Open Spaces, Installation Restoration Site 12, Former Naval Station Treasure Island, San Francisco, California*, (Navy 2019), characterization efforts support the conceptual site model that radioactive material in open spaces of Site 12 was in the form of discarded objects, not distributed concentrations of Ra-226. Generally, this was also the finding for the SWDAs Bayside and North Point. When objects were recovered along with surrounding soils (about 1 cubic foot) no non-conforming contamination remained. Although statistical test did not result in any additional decision data (once discrete objects were removed, the location and/or survey unit generated background-level data), statistical tests are part of Scenario B and were consistent with the endpoint requirements provided by the California Department of Public Health. Statistical tests were therefore conducted for reporting purposes.

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Finally, the Navy team agrees that the uranium-238 concentration could be used as the naturally occurring background concentration for Ra-226; however, notes that there is a significant amount of Ra-226 background sample data available which reduces the need to use a substitute radionuclide.

4. Section 3.1 Planned Activities and Objectives and Section 4.6.2 Excavation Sidewall Surfaces

The report describes that final radiological characterization was not completed because extensive solid waste/debris was identified beyond the lateral boundaries of both SWDAs Bayside and North Point, and that complete lateral debris removal was not possible under the action that the Final Status Survey (FSS) report covers. Currently the report only states that plastic sheeting was used as a delineator to protect clean fill from sidewall surfaces that displayed visible debris. The report did not discuss if the remaining solid waste/debris contains, or may potentially contain, radionuclides of concern (ROCs). If ROCs are expected in the remaining debris, the report should describe measures established that would confidently prevent cross-contamination during future remediation or migration from behind the plastic sheeting or other scenarios that could affect the final radiological status of adjacent survey unit excavation bottom or sidewall surfaces for which an FSS has been completed and included in the request for unrestricted release.

Please provide clarification whether the remaining visible debris described in the sidewalls of excavations will be addressed by future remediation. If additional remediation will occur, please provide discussion of isolation radiological controls for the areas that are adjacent to or otherwise may be impacted by the remediation.

This phase of the CERCLA Non-Time Critical Removal Action did not include scope for characterization of areas of additional debris beyond the boundaries outlined in the Work Plan. Furthermore, additional removal of additional debris/solid waste was considered to be impracticable under this contract due the presence of an elevated road constructed on a berm/sea wall. Further excavation may affect the berm/sea wall requiring additional plans to ensure structural integrity. Sidewalls with visible debris adjacent to the survey units addressed by this Phase III NTCRA were surveyed and documented on figures. Prior to any backfill activities, sidewalls with visible debris at SWDA Bayside and North Point received a gamma walk-over surface scan to verify there were no known low-level radiological objects present on the surface. The sidewalls were then covered with poly-sheeting to create a physical barrier to mitigate the potential for cross contamination should radiological contamination be present in the sidewall areas. Clean backfill material (rock and soil) was subsequently placed on the clean side of the poly sheeting, effectively creating a second physical barrier and entombing the clean survey units. The poly-sheeting also functions as a demarcation of the boundary of clean backfill to guide the future excavation activities

Please also consider referring to the Project Summary Completion Report for the NTCRA Phase III Section 7.5 for recommendations for future actions for each area that could not be deemed debris-free.

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5. Section 3.2.4.1 3-Inch by 3-Inch Sodium Iodide and Section 4.4 Screening Level

The report does not provide a gamma radiation scan minimum detectable concentration (MDC). Please provide scan MDCs and justify the adequacy of the IL used relative to the release criteria, i.e., 1 pCi/g for Ra-226 above background. If the scan MDC exceeded the Derived Concentration Guideline Levels (DCGL_{emc}), there is a possibility that contamination exceeding the 25 millirem per year dose criterion could exist.

Please see the above response to Comment #2 above for all the MDCs as well as the explanation and justification for the adequacy of the IL used relative to the release criteria.

California does not have a dose or risk-based residual material standard for remedial sites and the acceptance of radiological end-points is the responsibility of California Department of Health Services (CDPH) Radiologic Health Branch (RHB) or the Environmental Management Branch (EMB). At the start of the Treasure Island projects, the action limit (or preliminary remediation guideline) was set at 1 picocurie per gram (pCi/g) Ra-226 plus average background, which was determined to be 0.69 pCi/g Ra-226, for any project where soil samples were evaluated for radioisotopes. When objects were located and remediated, the remaining soil concentration was confirmed to be at the background levels of naturally occurring radioactive materials. Soils from the vicinity of discovered objects were collected, analyzed, and discarded as low-level radioactive waste as appropriate.

The action limit of 1.69 pCi/g Ra-226 resulted in a dose-based remediation goal of approximately 12.5 millirem per year (mrem/yr) using worst-case year methodology. With background essentially being the release criterion, there is no residual contamination or additional dose that would have added to the 12.5 mrem/year, which ensures that the U.S. Nuclear Regulatory Commission's 25 mrem/yr dose criterion shown in Code of Federal Regulations, Title 10, Section 20.1402 was met.

The Final Status Survey Report was not modified based on these comments.