UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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May 25, 2019

Derek J. Robinson, BRAC Environmental Coordinator (via email)
Department of the Navy
Base Realignment and Closure Program Management Office West
33000 Nixie Way, Building 50
San Diego, CA 92147

Re: EPA Comments on the radiological portions of the Responses to Comments and revised text of the Draft Fourth Five-Year Review, Hunters Point Naval Shipyard, San Francisco, California, dated March 4, 2019

Dear Mr. Robinson:

Thank you for providing the Responses to Comments and revised text of the Draft Fourth Five-Year Review, Hunters Point Naval Shipyard, San Francisco, California, dated March 4, 2019. Attached are EPA's comments on the radiological portions of these documents. We understand that you have requested that we discuss any potential issues verbally first before giving final comments in writing. We appreciate the discussions we have had to resolve various matters and that you have considered the recommendations that Enrique Manzanilla provided in his April 11, 2019, letter describing an overall path forward to begin field work as soon as possible while working on remaining issues in a phased approach that provides transparency. We provide the attached comments consistent with this letter and related discussions.

If you have any questions about the attached comments, please call me at (415) 947-4187 or e-mail me at lee.lily@epa.gov.

Sincerely,

Lily Lee
Remedial Project Manager

cc: Paul Stoick, US Navy
Nina Bacey, DTSC
Shane Reese, CDPH
Tina Low, RWQCB
Amy Brownell, SFDPH

EPA Review of the radiological portions of the Responses to Comments and revised text *Five-Year Review* (provided March 4, 2019) for Hunters Point Naval Shipyard, San Francisco, California, EPA review dated May 25, 2019

1. The language in the **Executive Summary** does not discuss evaluation of the current ROD RG's. Please edit it to be consistent with language that EPA recommends for Section 7 Recommendations below.

2. The **Executive Summary** of the FYR states that "The radiological rework will successfully achieve the RAOs [Remedial Action Objectives] for radionuclides specified in the RODs [Record of Decisions];" however, achieving RAOs specified in the RODs does not necessarily equate to ensuring long-term protectiveness. The EPA *Memorandum Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews*, OSWER 9200.2-111 (the Protectiveness Memo), dated September 2012, states that "Protectiveness is generally defined in the National Contingency Plan (NCP) by the risk range for carcinogens and the hazard index (HI) for non-cancer effects." Therefore, protectiveness cannot be defined only by meeting RAOs. A similar issue is present in Section 5.1, which appears to equate protectiveness to completion of the corrective actions. For example, the added text on page 5-2 states that the most common concern raised during the public review is "how the radiological remedies could be considered 'protective' in light of the questions regarding the validity of the radiological data," and responds that "corrective actions are required to ensure that radiological remedies specified in the RODs are implemented as intended." Please revise the Executive Summary and Section 5.1 to clarify that in addition to achievement of the RAOs and completion of corrective actions, protectiveness requires that risk above the 1X10^-4 risk range or above the HI of 1 is mitigated.

3. **Evaluation of the Response to General Comment 7:** The response addresses the comment; however, the information provided in the response was not included in the FYR. The revised text still states in the **Executive Summary** that "Parcel A is not discussed in this report because the parcel required no action under CERCLA." The FYR should explain that Parcel A was transferred to the City and County of San Francisco and that activities are ongoing to address community concerns. Please revise the FYR to briefly discuss the Parcel A status or explain why the FYR does not need to acknowledge the community concerns and ongoing activities at former Parcel A.

4. Several of the parcel-specific subsections of **Section 3.3** include the statement that "All radiological work is currently being reviewed to determine if current site conditions are compliant with the RAOs," but this statement does not directly tie the need for review of radiological work to the discovery of falsification of radiological data. In addition, the protectiveness determinations requires an updated review of the remedial goals in the ROD to determine whether the remedy, upon completion, will be protective of human health. The section would be more clear and complete to the reader if it ties all these issues by stating that "Concerns related to the adequacy of historical radiological remediation based on the discovery of falsification of radiological data by a Navy

contractor have resulted in the Navy's plans to review of all radiological work, informed by an updated review of ROD RG's, to determine if current site conditions are protective of human health and the environment. Please expand the statement found in several of the parcel-specific subsections of Section 3.3 to clarify the relationship between data validity, review of radiological work, and protectiveness determinations.

5. **Section 3.3.3.1, RA Activities and Implementation of IC's, Pages 3-17, Evaluation of the Response to Specific Comment 11:** The response partially addresses the comment. While the response acknowledges that Buildings 211 and 253 are still in the planning stages with a revision to the text, the text should also outline the remediation that will be conducted. Please revise the text to include an outline of the remediation that will be conducted or explain why this information cannot be provided.

6. **Evaluation of the Response to General Comment 2 (a through d):** The responses partially addresses the comments. The statement provided in **Section 6.1.6** addresses the comment for Parcels B-1, B-2, C, D-2, E, G, UC-1, UC-2, and UC-3; however, it does not address the comment for IR-07/18 and Parcel D-1. Section 6.1.6 indicates that the radiological surveys and remediation remedies implemented in IR-07/18 and Parcel D-1 are deemed reliable. As a result, the evaluation guidelines outlined in General Comments 2a through 2d should apply to IR-07/18 and Parcel D-1. Also, the revision made to Section 6.1.6 should indicate that it is applicable to only Parcels B-1, B-2, C, D-2, E, G, UC-1, UC-2, and UC-3. Please revise the FYR to evaluate the existing remediation goals (RGs) for IR-07/18 and Parcel D-1 using the current versions of the EPA's Preliminary Remediation Goal (PRG) calculators.

7. **Section 6.1.6, Radiological Surveys and Remediation, Page 6-7:** The bullet points under Section 6.1.6 indicate that the radiological remedies have been successfully completed and are functioning as intended at IR-07/18 and Parcel D-1; however, it is unclear whether these remedies were determined to be functioning as intended because the Navy found no evidence of compromised radiological data for these areas or if this work was done by a different entity. The text should state why these radiological remedies are functioning as intended. Please revise Section 6.1.6 to clearly indicate whether the radiological remedies for IR-07/18 and Parcel D-1 were determined to be free of compromised radiological data.

8. **Section 6.1.6, Radiological Surveys and Remediation, Pages 6-7 and 6-8:** The System O&M [Operations and Maintenance] discussion states that "O&M is not applicable to the completed radiological remedies in Parcel D-1, because this parcel has been radiologically released;" however, this is not consistent with the second to last paragraph of Section 6.1.6, which states that "ICs [institutional controls] for radionuclides are applicable to a portion of Parcel D-1, as this area was not released by the Phase 1 and Phase 2 TCRAs [time-critical removal actions]." Please revise Section 6.1.6 to resolve this discrepancy.

9. **Section 6.2, Expected Progress Toward Meeting RAO's**: Please see Comment #2 above that explains that meeting the RAOs may not necessarily be equivalent to showing protectiveness. Please insert language recommended above to provide similar clarification in this section.

10. **Section 6.2.2 (Changes in Toxicity and Other Contaminant Characteristics) and Section 6.2.3 (Changes in Risk Assessment Methods)** need to include a discussion of the updates made to the PRG calculator assessments and a new recommendation needs to be included that states that the Navy commits to reassessing the current RGs for radionuclides using the latest PRG calculators to evaluate whether they are still protective. Please use language recommended below for Section 7 (Recommendations) in this section as well.

11. **Sections 6.2.2 Changes in Toxicity and Other Contaminant Characteristics and 6.2.3 Changes in Risk Assessment Methods.** The selected remedies for radiologically impacted media includes a requirement to survey and obtain unrestricted release of buildings, former building sites, and radiologically impacted areas. EPA guidance for radiological cleanup states that generally 1 X10^-4 excess cancer risk is an upper bound for risk management decisions. When performing an updated evaluation of long-term protectiveness related to cleanup levels, that evaluation may find for some radionuclides that to achieve this level of risk with the current remedial goal (RG), restrictions may be necessary, such as prohibiting growing produce in native soil or a clean cover. We recommend that the technical memorandum assess and show the concentrations that would be associated with 1 X 10^-4 excess cancer risk in an unrestricted scenario.

    At this time, no reliable evidence is available to establish whether or not the site contains radiological materials that exceed an estimated cancer risk of 1X10^-4, above background, for an unrestricted use scenario, beyond a *de minimis* amount. Retesting will give new, reliable data to allow that determination. If radionuclide concentrations at the Site remain above those that would allow unrestricted release, then a formal post-ROD change process will be needed to change the remedy. Remedy changes can include applying institutional controls or changes in cleanup thresholds. Per the EPA's *Comprehensive Five-Year Review Guidance*,[1] if no soil or building material is found that exceeds this value, then no post-ROD change formal process will be needed.

    If radionuclide concentrations remain at the Site, above background, that would allow for unrestricted release, but the levels would be protective if restrictions are applied, then EPA will work with the Navy and other regulators to evaluate whether this change in remedy would result in a minor, significant, or fundamental change in scope, cost, or performance of the cleanup. This evaluation will follow EPA Guidance. [2] Then for all relevant parcels, the ROD remedies will need to be changed through an appropriate corresponding post-ROD change process, which could be a Memo to the File, an Explanation of Significant Differences (ESD), or a ROD Amendment, along with the associated public involvement process. In this scenario, EPA can explore ways to facilitate the rework to move forward using the new PRGs while completing the necessary post-ROD change process moves forward in parallel.

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[1] EPA, OSWER 9355.7-03B-P, *Comprehensive Five-Year Review Guidance*, Appendix G, 2001.

[2] EPA, *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, EPA 540-R-98-031, OSWER 9200.1-23P, PB98-963241, July 1999.

12. **Section 6.2.4, Changes in Exposure Pathways, Page 6-14:** According to Section 6.2.4, "The feasibility assessment concluded that current site conditions are appropriate for residential use in most of Parcel G" and "An ESD [Explanation of Significant Differences] to the Final ROD was prepared to document the reduction in the areas requiring residential land use restrictions, based on the recommendations of the feasibility assessment;" however, it is unclear whether the reduction in the areas requiring residential land use restrictions is impacted the by issues related to potential contractor manipulation and/or falsification of radiological data at Hunters Point. If the feasibility assessment was based in part on impacted radiological data, then this should be stated in Section 6.2.4. Please revise Section 6.2.4 to clarify whether the feasibility assessment for residential use conducted at Parcel G used any impacted radiological data.

13. **Section 6.2.5 Expected Progress Toward Meeting RAOs:** Please add language in this section consistent with the EPA recommended language below for Section 7 (Recommendations) to explain that the Navy will be performing updated PRG Calculator assessments in forthcoming addenda.

14. Consistent with this guidance, the draft Five-Year Review report should include recommendations to create addenda that address the long-term protectiveness evaluation within a specific schedule for completion. The long-term protectiveness evaluation should be completed consistent with EPA Superfund guidance, such as the 2012 OSWER directive "Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews." Protectiveness includes an evaluation of human health, ecological risks, and the performance of the selected remedy. Moreover, protectiveness for carcinogens (including radionuclides) is determined by meeting the risk range in the National Contingency Plan (NCP). To be consistent with our April 11, 2019, recommendations, EPA proposes the edits on the next page to the "Issue and Recommendations" language in Section 7 of the March 4, 2018, version of revised text.

Issue: The Navy has determined that a significant portion of the radiological survey and remediation work completed to date was not reliable because of manipulation and/or falsification of data by one of its radiological contractors. In addition, a long-term protectiveness evaluation of the radiological remedies has not yet been completed for this fourth Five-Year Review. Therefore, a long-term protectiveness evaluation cannot be completed for this fourth Five-Year Review. In addition, ~~I~~it is ~~therefore~~ currently not known if the RAOs for radionuclides have been achieved in Parcels B-1, B-2, C, D-2, G, E, UC-1, UC-2, and UC-3.

Recommendation: The Navy is currently in the process of implementing corrective actions to ensure that the radiological remedies specified in the decision documents are implemented as intended. ~~The radiological rework will successfully achieve the RAOs for radionuclides specified in the RODs. Following the field work for each parcel, it is recommended that the Navy evaluate the additional data collected using current guidance to ensure the radiological remedies are protective of human health.~~ In addition, the Navy is currently in the process of conducting a long-term protectiveness evaluation of the ROD radiological RGs. In June 2019, the Navy will issue a draft addendum that will evaluate the long-term protectiveness of the remedies for soil, using EPA's Preliminary Remediation Goal (PRG) Calculator to evaluate radiation risk to human health. In August 2019, the Navy will issue another draft addendum to evaluate the long-term protectiveness of the remedies for buildings (both residential and commercial/industrial/demolition scenarios). These draft addenda will include explanations of proposed site-specific inputs and will be issued to the public and regulatory agencies for a 30-day public comment period. ~~F~~Within 30 days of receiving comments from the regulatory agencies, the Navy will draft responses to comments from regulatory agencies and a responsiveness summary to comments from the public. The results of the~~se long-term protectiveness evaluations~~final addenda will inform the testing sensitivity and the cleanup thresholds for the radiological rework. In addition, the results will inform future risk management decisions and the potential for a formal post-ROD change process, if appropriate. It is anticipated that the radiological rework will be completed prior to the next five-year review.

Milestone Dates: [Revise to add dates for both addenda.]

15. The **Protectiveness Determinations** for several parcels (Section 8.6, Parcel D-2, Page 8-6; Section 8.9, Parcel G, Page 8-8; Section 8.10, Parcel UC-1, Page 8-9; Section 8.11, Parcel UC-2, Page 8-10; and Section 8.12, Parcel UC-3, Page 8-10) state that for the remedies to be protective in the long-term, "corrective actions are required to ensure the previous radiological remediation was implemented as intended;" however, the Protectiveness Determinations should also state that the corrective actions will ensure that the previous radiological remediation is protective of human health and the environment, as determined by Superfund guidance. Please revise the Protectiveness Determinations in the FYR for Parcels D-2, G, UC-1, UC-2, and UC-3 to add "and is protective of human health and the environment, as determined by Superfund guidance" after "…implemented as intended."

16. **Appendix - Responsiveness summary -** The Navy has an appendix on response to comments from regulatory agencies. Due to high public interest in the *Five Year Review*, EPA recommended in its April 11, 2019, letter that the Navy draft a responsiveness summary to public comments received about the *Five-Year Review*.