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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

April 27, 2004

Keith Forman
BRAC Environmental Coordinator for
Hunters Point Shipyard
1230 Columbia Street, Suite 1100
San Diego CA 92101-8571

RE: Draft Final Historical Radiological Assessment, Volume II, Hunter's Point Shipyard, San Francisco, California, February 2004

Dear Keith:

Thank you for the opportunity to review the Draft Final *"Historical Radiological Assessment, Hunter's Point Shipyard, San Francisco, California,"* dated February 2004.

Our comments follow in two attachments. One is a memorandum from Steve M. Dean, USEPA Region 9 Superfund Technical Support, dated April 21, 2004. The other is a work product of EPA's contractor, TechLaw, Inc., reviewed by the EPA project manager. To some degree events have eclipsed some of the attached comments. For example, on March 23, 2004, EPA notified the Navy of our question about the history of Bundling 322 and we are now aware of additional plans on the part of the US Navy to survey this building on an expedited schedule. Also, based on our knowledge of the shipyard, EPA is aware of explanations to some of our contractor's questions. However, for the sake of completeness, we have chosen to list the questions so that the Navy can address and explain in the revised document.

Please feel free to contact me at 415-972-3024 if you have any questions.

Sincerely,

Michael Work

Michael Work
Remedial Project Manager
Superfund Division (SFD-8-3)

cc: (see Distribution List)

Attachment

Distribution List HPS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

April 21, 2004

MEMORANDUM

SUBJECT: HPS HRA Volume II Comments

FROM: Steve M. Dean (SFD-8-B)
Superfund Technical Support

TO: Michael Work (SFD-8-3)
DOD and Pacific Islands Section

I have the following comments on the **Draft Final Historical Radiological Assessment Volume II**:

1. Section 1.6, Page 1-6: The statement "...shipyard tenants, the surrounding community, and the environment are not at risk from previous radiological activities at HPS" is still a bit premature and overly optimistic statement to make in this document at this time. It may be more appropriate to state that "no imminent or substantial risk from previous radiological activities exists at HPS." The Navy has done a very good job of reducing most of the radioactive contamination at HPS to CERCLA's point of departure, i.e. one in a million excess lifetime cancer risk. But new prospective contaminated sites have been discovered and radiation remedial activities are still underway HPS.

2. Table 3-3, Page 1 and 11: Building 322 is listed twice in Table 3-3. On page 1 it is designated as a Marine Guard and Pass Office in Parcel A. On page 11 its use in Parcel D is listed as "unknown." Were there two Building 322's at HPNS or is the entry on page 1 erroneous? Parcel A also has a Building 822 that was a Sentry House. Does the Building 322 entry on page 1 actually belong on page 11 of the table?

3. Section 6.4.12.3.6, Page 6-56: US EPA Region 9 Superfund Program has never endorsed NRC's NUREG-1500 radiation dose based standard for any CERCLA release at a National Priorities List (NPL) site when unrestricted reuse is the remedial goal. The NRC's three mrem per year level should not have been applied to the "peanut" spill but

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rather Superfund's Preliminary Remediation Goals (PRGs) for radionuclides was the appropriate standard.

4. Section 6.4.12.5, Page 6-58: The other five Radium 226 (Ra226) daughters that should also be included in a Radium 226 excess lifetime cancer risk assessment are Polonium 218 (Po218), Bismuth 214 (Bi214), Lead 214 (Pb214), Polonium 214 (Po214), Polonium 210 (Po210).

5. Section 6.4.12.5, Page 6-59: US EPA Superfund Program has developed a PRG/ risk calculator that can be found at http://epa-prgs.ornl.gov/radionuclides/ . This is the EPA approved method for radionuclide risk assessment. Since this section of the HRA includes a radium risk assessment using the RESRAD model, its should also include a ELCR assessment using EPA's risk calculator. Also, Radon 222 (Rn222) should be included in the Ra226 cancer risk. Cancer risk from Ra226 is dominated its gamma emitting daughters when applying the Superfund risk model but ALL daughters should be included in the assessment.

6. Table 6-2: I performed a Google search on all the Operation Crossroads ships which had a disposition "unknown" designation in this table. The results of the search are as follows:

Page 2 of 23: The ATA-124 was recommissioned the ATA-197 then later named the USS Sunnadin and was finally sold in February 1971.

Page 3 of 23: The USS Benevolence was sunk in a collision off San Francisco on 25 August 1950 not 1965.

Page 5 of 23: The USS Cebu was stored at the mothball fleet in Suisun Bay, California but final disposition from there is unknown.

Page 7 of 23: The Creon was decommissioned in 8 June 1949.

Page 12 of 23: The LCI(L)-1091 was sold in 1961 and converted to a fishing vessel.

Page 17 of 23: PGM-25 was transferred to the Republic of China in 1946.

PGM-29 was decommissioned and sold to Greece on 11 December 1947.

PGM-31 was transferred to the Republic of China in March 1954.

Page 18 of 23: The USS Quartz was sold to the Powell River Company on 23 Oct 1947. It is now a breakwater in Powell River, British Columbia, Canada.

Page 22 of 23: The USS Wildcat was scrapped in the mid-1970s.

Page 23 of 23: The YMS-354 and YMS-358 were sold to South Korea.

The YMS-413 is listed twice in the table.

The YMS-385 was sunk by a mine on 1 Oct 1944 off Ulithi, Caroline Islands which predates Operation Crossroads.

7. Section 8.3.4.5, Page 8-96: The Former Uses description of Building 322 in Parcel D does not match the notations made in Table 3-3 for B322 in Parcel D but rather compares to the notation for B322 in Parcel A. As stated in Comment 1, Building 322 's location and use require further clarification.

8. Section 8.3.5.12, Page 8-163: While surveying Building 521 I discovered Radium 226 (Ra226) paint on several dials and gauges on instruments inside the building. Ra226 should also be listed as a radionuclide of concern in B521.

9. Section 8.3.513, Page 8-165: Do records indicate that the underground storage vault was sufficiently decontaminated to acceptable levels before it was filled with compacted sand and capped with concrete?

10. Section 8.3.4.17, Page 8-177: My recollection is that Building 707 was never leased as an animal clinic although the Navy had proposed doing so. I recall EPA objecting to allowing this facility being leased until it was properly cleared for radioactive contaminants.

11. Section 9.3, Page 9-3: The last sentence states " To date, no evidence has been identified that would indicate that shipyard tenants, the surrounding community, and the environment are at risk from previous radiological activities at HPS." I think this statement is an overly optimistic for this document to make. Low levels of some radionuclides that still remain in isolated areas at HPNS are probably due to previous radiological activities and contribute some, however small, incremental risk. However, the evidence does strongly suggest that there is no eminent or substantial risk to human health and the environment from these previous activities at HPNS.

EPA Comments on the
Draft Final Historical Radiological Assessment, Volume II,
Hunters Point Shipyard, San Francisco, California,
February 2004

SPECIFIC COMMENTS

1. **Table 3-3, Current and Former Facilities at HPS by Building Number and Section 8.3.4.5, Building 322 Site, Page 8-96:** In Table 3-3 Building 322 is listed as a building in Parcel A that was used as an "NRDL Instrumentation Laboratory" but there is also a Building 322 in Parcel D with unknown use. There are references to Building 322 on pages 6-27 and 6-36. It is unclear to which Building 322 these discussions refer. Further, there is no discussion of the Parcel A Building 322 in Section 8, but the Parcel D Building 322 site is included on pages 8-96 through 8-97. This reference includes a reference to the "North Gate Pass office," which is appropriate for the Parcel A Building 322 because it is located near the North Gate, but is inappropriate for the Parcel D Building 322. Please resolve the uses of each Building 322 and correct Table 3-3. If it is determined that Building 322 on Parcel A was used by the Naval Radiological Defense Laboratory (NRDL), please include it in Section 8 and indicate that a survey should be done of this building as soon as possible to facilitate the transfer of Parcel A to the City of San Francisco.

2. **Table 3-3, Current and Former Facilities at HPS by Building Number and Table 6-1, Sites Impacted by G-RAM Use by the Shipyard:** In Parcel E, Site IR-12 includes both the Salvage Yard and the Disposal Trench Area, but there are separate entries in Table 3-3. There also is a separate "Salvage Yard" line item in Table 6-1 that is not associated with any IR Site. Please resolve these discrepancies If there is evidence to indicate that there is another salvage yard other than IR-12, please discuss this evidence in the text. Also, it is not clear where the disposal trenches are or why they were associated with IR-12.

3. **Table 3-3, Current and Former Facilities at HPS by Building Number and Table 6-5A, Sites Impacted by NRDL Use of G-RAM Through 1955:** Table 3-3 identifies Building 710 as a demolished latrine, but Table 6-5A identifies the Building 710 Site as NRDL "Sample Storage." In addition, Table 3-3 includes line items for 710 (latrine, demolished) and S-710 (Open Storage Area [Plate Rack]), so it is not clear if these refer to the same site. Please resolve these discrepancies.

4. **Section 7.7, Impacted Site Example, Page 7-8:** The text indicates that this example building has a high potential for contamination in the drains and sanitary drainage system, but under migration pathways, the text indicates that there are limited means of contaminating subsurface soil and that an exposure to the public is unlikely. This

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assessment does not take into account the fact that many of the sanitary sewers at Hunters Point are cracked or have joints that are separated. The evidence for this is the numerous lines where groundwater has been entering the sanitary sewer and has been pumped by Lift Station A. Radioactive contaminants have also been found in manholes. Recently, the Navy has been blocking selected sanitary sewer lines to minimize the volume of groundwater being pumped. If the sewer lines are cracked, then the potential for radioactive contamination to be released to subsurface soils exists. Please consider the fact that many sanitary sewer lines are cracked and revise the text as necessary. Also, please consider that groundwater maps often indicate sinks and highs that are likely associated with cracked sewer and water supply lines. This information should be used to reassess the potential for release of contamination to subsurface soils for buildings where the drains and pipes are believed to contain radioactive contaminants. Please reassess the potential for contaminant release in the vicinity of any known or suspected sewer line damage.

5. **Section 8.3.2.6, Building 140 and Discharge Channel, Pages 8-30 and 8-31:** It is unclear why sediment is not included as a potential contaminated media. The most likely potential for contamination appears to be sediment in the discharge channel and possibly in the pumps. The discharge channel was not investigated during the Remedial Investigation. Please include sediment in the potentially contaminated media list or explain why it should not be included. Also, please clarify if the discharge channel and pumps will be a focus during the scoping survey.

6. **Section 8.3.2.8, Building 146, Page 8-35 and 8-36:** It is unclear why the contamination potential on page 8-35 is "likely," but the potential on page 8-36 does not exceed "low," when other buildings with an overall potential of "unlikely" also have a "low" potential for contamination in media and potential migration pathways. Please explain or resolve this inconsistency.

7. **Section 8.3.2.10, Drydock 5, Section 8.3.2.11, Drydock 6, Section 8.3.2.12, Drydock 7, Pages 8-42 through 8-48 and Section 8.3.3.10, Drydock 2, Section 8.3.3.11, Drydock 3, Pages 8-78 through 8-82:** It is unclear why sediment is not included in the list of contaminated media. These drydocks and drydock drainage systems and tunnels most likely contain sediment, given the fact that the tunnels beneath Dry Dock 4 were found to be full of sediment. Also, the interview with William Gravatt indicates that it was impossible to catch and containerize all of the Operation Crossroads Sandblast grit and that some of it went into the water at the ends of the drydocks. It is not clear that sediment in the drydock drainage systems and tunnels or off the ends of the drydocks has been investigated. Please include sediment in the list of potentially contaminated media or explain why it should be excluded. Also, please provide a more complete description of the investigations that have been performed at these dry docks, including whether the sediment that is in the dry docks and in the tunnels and drainage systems has been evaluated.

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8. **Section 8.3.2.13, IR-07, Page 8-49 and Section 8.3.2.14, IR-18, Page 8-52:** The progressive fill history of IR-07 and IR-18 should be incorporated into these sections so that the potential for waste disposal from Operation Crossroads can be assessed. This fill history may also indicate where such disposal most likely occurred. Please obtain the Technical Memorandum, Interpretation of Fill Conditions at Installation Restoration Sites 07 and 18, Parcel B, include this information, and evaluate the figures and historical aerial photographs in this document to locate likely areas where Operation Crossroads material could have been disposed.

9. **Figure 8.3.3.1, Bldg. 203 Site Plan and Figure 8.3.3.1 FP, Building 203-Floor Plan:** The Site Plan indicates that the shape of the building is very different than the floor plan. As a result, it is unclear whether the floor plan is actually for Building 203. Please resolve this discrepancy.

10. **Section 8.3.3.2, Building 205 and Discharge Channel, Page 8-59:** It is unclear whether the potential for contaminated sediment in the discharge channel and pumps was considered. As discussed in Specific Comment 7, the drainage tunnels beneath Dry Dock 4 were full of sediment and the Operation Crossroads sandblast grit was not fully contained. Please include sediment as a potentially contaminated media and discuss whether the scoping survey will cover these areas.

11. **Section 8.3.3.3, Building 211:** The floor plan for Building 211 appears to be missing. This building was included in the Phase V investigation, so a floor plan was probably used during the investigation. Please provide the missing floor plan and indicate where the thorium-232 (Th-232) contamination is located on the floor plan.

12. **Section 8.3.3.5, Building 224, Pages 8-65 and 8-66:** It is unclear why the recommendation is only to review the Final Status Survey Report when the contamination potential is likely and Cesium-137 (Cs-137) was found to slightly exceed release criteria in one sample. Please explain why the recommended action is appropriate.

13. **Section 8.3.4.14, Gun Mole Pier, Pages 8-122 and 8-123:** It is unclear why the recommendation is, "Review Characterization Report," when additional surveys are pending. Please revise the recommended action to include the additional surveys.

14. **Section 8.3.5.14, Former Building 701 Site, Page 8-169 and Table 3-3, Current and Former Facilities at HPS by Building Number:** The text on page 8-169 indicates that the NRDL used Building 701 from 1947 through at least 1954, but Table 3-3 indicates that the building was only used for 120 days. Apparently NRDL requested use of the building for 120 days but did not return it to the shipyard. Please revise Table 3-3 to be consistent with Section 8.3.5.14.

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15. **Section 8.3.5.16, Building 704 Area Animal Pens, Section 8.3.5.17 Building 707 and Kennels, Pages 8-175 through 8-179, and Section 8.3.5.20 Building 707 Triangle Area, Pages 8-184 through 8-186:** The interview with Frank Taforo indicates that dog waste was washed down the drains at Building 815, so it is likely that this practice was also followed at these sites, but there is no discussion of whether there were septic systems or if this waste was discharged into the sanitary sewer system. Also, there was a significant amount of contaminated gravel in the Dog Pen Areas at the Laboratory for Energy Related Health Research Site, where research in irradiating beagles and other animals was conducted, so it is possible that any gravel in these areas may also be contaminated. Please clarify whether the investigations that have been completed included gravel, drain lines, septic systems and the sanitary sewer or indicate that these areas will be investigated in follow-on surveys.

16. **Section 8.3.5.28, IR-01/21, Industrial Landfill Area, Pages 8-203 and 8-204:** The text indicates that there are areas with elevated levels of radiation, but much of the landfill has been capped. It is unclear if the fact that part of the landfill has been capped was taken into account in the recommendation to excavate hot spots or if it is intended that remediation will be conducted in areas that are already capped. Please provide a brief description of the areas where elevated radiation levels were found and compare these locations with the location of the landfill cap. If elevated radiation levels were detected in the capped area, please clarify if these areas will be remediated, and if so, indicate whether the cap will be repaired and by whom. If the cap will be breeched, it may make sense to coordinate this effort with the Navy Remedial Project Managers (RPMs), so that installation of a landfill gas vent system can be considered. Finally, it is unclear whether radon may be an issue in landfill gas and whether landfill gas has been tested for radon. Please discuss whether landfill gas has been tested for radon, and if not, indicate how this data gap will be addressed.

17. **Section 8.3.5.31, IR-04, Former Scrap Yard, Pages 8-211 and 8-212:** The text indicates that elevated levels of Cs-137 and radium-226 (Ra-226) were found, but the recommendation is only for further characterization surveys. It is unclear why remediation was not recommended. Please clarify why remediation was not recommended and consider revising the recommendation.

18. **Section 8.3.5.32, Former Salvage Yard, Page 8-213:** The Former Salvage Yard is also part of IR-12. Please include IR-12 in the designation of this site.

19. **Section 8.3.7.1, Underwater Areas, Page 8-225 and Section 8.3.7.2, All Ship's Berths, Page 8-226:** It is unclear why sediment is not included as a potentially contaminated media, given the interview with William Gravatt indicates that it was impossible to catch and containerize all of the Operation Crossroads Sandblast grit. Please include sediment in the list of potentially contaminated media.

20. **Section 8.3.9.1, Building 815, Pages 8-232 through 8-234:** The interview with Frank Taforo indicates that contaminated dog waste was washed down the drains at Building 815. The liquid effluent tanks and drainage systems need to be evaluated. Please include the investigation of the liquid effluent tanks and drainage systems in the recommended actions.

21. **Table 8-2, Building/Area Assessment and Classification:** Sediment is missing from the list of potentially contaminated media. See specific comment 7 for a discussion of issues. Please add sediment as a potentially contaminated media and indicate select sites with dry docks, ship berths, storm sewers, and below-ground drain line issues as locations with potentially contaminated sediment.