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SUBJECT: NAVAL AIR STATION ALAMEDA (ALAMEDA POINT) DRAFT
SEAPLANE LAGOON FEASIBILITY STUDY
[SITE 201209-18 PCA 18040 H:48]

BACKGROUND

HERD reviewed the document titled *Draft Feasibility Study Report Seaplane Lagoon, Alameda Point, California*, dated November 29, 2004. This document was prepared by Batelle, Inc. of Duxbury, Massachusetts. HERD previously reviewed the Draft Remedial Investigation (RI) Report for the Seaplane Lagoon (SPL) at Naval Air Station (NAS) Alameda, dated January 28, 2003, in a HERD memorandum dated March 5, 2003. HERD received a Response to Comments (RTC) on the Draft RI Report in a document dated September 8, 2003. A Draft Final RI Report for the Seaplane Lagoon was issued on May 27, 2004. The cover letter to Ms. Anna Marie Cook, of the U.S. EPA from Thomas Macchiarella, the Navy BRAC Environmental Coordinator, dated May 27, 2004 contained a notation that 'the Draft Final document will become Final 20 days after issuance, unless a dispute is invoked.' HERD was unable to review the Draft Final RI Report for the Seaplane Lagoon within the 30 day time limit. A Final RI Report for the Seaplane Lagoon was released on June 2, 2004 citing no response from the regulatory agencies, departments or boards.

The SPL is located in the southeastern corner of Alameda Point with Piers 1, 2 and 3 located outside the SPL southern boundary. The 110 acres SPL was constructed in an

area originally occupied by a tidal flat and was dredged to a depth of approximately 20 feet. The current depth is approximately 10 feet to 20 feet. The lagoon is enclosed by land on the north, east and west sides and bounded by a breakwater on the south. From the 1940s to 1975 SPL was a point of discharge for some of NAS Alameda's storm-sewer outfalls. Industrial wastewater generated at NAS Alameda was discharged directly to the storm drains which subsequently discharged to the SPL and other offshore areas, including the Oakland Inner Harbor. The SPL received approximately 300 million gallons of wastewater from industrial and storm water outfalls over the 35 years of discharge. The SPL also received potentially hazardous materials from spills that were washed into the industrial waste or storm water collection system as well as discharges from docked ships at nearby pier areas. In 1975, the industrial discharge to the SPL ceased. The SPL now has a storm water pollution prevention program in place to ensure that only surface water is carried through the storm drain system and discharged to the SPL. Under the Community Reuse Plan for Alameda Point, the proposed future use of SPL includes development of a commercial marina including deep draft yacht facilities.

NAS Alameda was an active naval facility from 1940 to 1997. Operations included aircraft, engine, gun and avionics maintenance; fueling activities; and metal plating, stripping and painting. Linked storm water and industrial wastewater lines discharged to the Seaplane Lagoon in the Northwest and Northeast corners, as well as the Oakland Inner Harbor Channel side of NAS Alameda.

GENERAL COMMENTS

References to 'recent investigations' are made regarding radioisotopes (Section 1.0, page 1), rate of SPL sedimentation (Section 2.2.2, page 6) and presence of *Ampelisca abdita* worm tubes in the top six inches of sediment (Section 2.2.3, page 7). A complete reference should be supplied for these 'recent investigations'.

The proposed Remedial Action Objectives (RAOs), listed as Preliminary Remediation Goals (PRGs) (Executive Summary, Page xv), for polychlorinated biphenyls (PCBs) of 1.13 mg/kg exceed the San Francisco Regional Water Quality Control Board proposed Total Maximum Daily Loads (TMDLs) near shore sediments of 0.2 mg/kg PCB. The proposed PRG for cadmium of 24.4 mg/kg (Executive Summary, Page xv) exceeds the National Sediment Quality Survey (EPA, 2004) 2.49 mg/kg correlation of T50 logistic regression value for 50 percent of sediment samples causing adverse effects. Please see Specific Comments below.

Complete analysis of the sediment samples obtained to assess the distribution of radium (^{226}Ra), during the development of the draft FS, was not available (Executive Summary, Page xv) for comparison to the proposed remedial outline based on cadmium, polychlorinated biphenyls (PCBs) and total DDT (DDx). This is a data gap which must be addressed in the Draft Final Seaplane Lagoon FS.

SPECIFIC COMMENTS

1. Please identify the additional studies necessary to confirm the isolation of the Seaplane Lagoon (SPL) for all potential sources of input (Executive Summary, Page xvi) and the timeframe for completion of these studies.
2. Please specify the 'information that has become available since completion of the RI' indicating that ^{226}Ra may be present in SPL sediments at concentrations higher than previously believed (Section 1.0, page 1).
3. It is difficult to determine how the potential presence of radionuclides (i.e., ^{226}Ra) were considered during the compilation of remedial alternatives (Section 1.0, page 1) when all the maps outlining the extent of any remedial action (Figure 3-2, page 57 through Figure 3-12, page 67) address only cadmium, PCB and DDX sediment concentrations. Please indicate the overlap of any potential ^{226}Ra remedial areas with those proposed based on cadmium PCB and DDX (Figure 3-2, page 57 and Figure 3-8, page 63).
4. Given the projected use of a portion of the SPL for 'deep draft yacht facilities' (Section 2.1, page 5) natural attenuation by sediment burial (Section 2.2.2, page 6) or sequestration at deeper depths should not enter into the consideration of remedial alternatives.
5. Please indicate, in a figure, the location of the samples in the 'recent investigation' conducted by U.C. Berkeley (Section 2.2.2, page 6) to determine SPL sedimentation rates based on cesium (^{137}Cs).
6. While it appears to be true that 'ship use is currently heavily restricted in SPL' (Section 2.2.2, page 7), there were U.S. Navy/Marine landing exercises on March 15, 1999 (San Francisco Chronicle at <http://www.sfgate.com/cgi-bin/article.cgi?file=/chronicle/archive/1999/03/16/MN104233.DTL> which included the transition from water to land of large Marine hovercraft using the ramps in the SPL:



Near shore sediment chemical profiles, particularly along the northern wall of the SPL, may have been disturbed by these and similar activities. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.

7. The values for the 'void ratio' of sediment characteristics determined in the Berkeley (BERC, 1999) study appear to be incorrectly formatted and cannot be reading in the table presented (Table 2-3, page 10).
8. No citation for the Berkeley 2002 study (Section 2.3.3, page 16) appears with the References (Section 7.0). Please include the complete citation for this study.
9. Please identify, in the figures outlining the potential remedial area for PCBs, any sample locations where total sediment PCB concentration is based the sum of Aroclors as opposed to two times the sum 20 congeners (Section 2.4.2, page 20).
10. Cadmium, chromium, copper, lead, mercury, silver, selenium and zinc had at least one sample with detected sediment concentrations exceeding the National Oceanic and Atmospheric Administration (NOAA) Effects Range-Median (ER-M) (Section 2.4.2.1, page 20). Organic compounds have a pattern of distribution similar to that for inorganic elements (Section 2.4.2.1, page 20). The proposed ecological remedial alternatives are directed solely at cadmium, PCBs and DDX. While HERD does not agree that these three Contaminants of Potential Ecological Concern (COPECs) are the only contaminants to pose a risk or hazard, the proposed area of remedial action based on cadmium, PCB and DDX appear to incorporate the majority of areas with elevated concentrations of other

COPECs. This conclusion will be revisited once the ^{226}Ra results from the recent BERC study are submitted.

11. HERD does not agree that bioturbation is limited to tens of centimeters below the sediment-water interface (Section 2.4.2.2, page 22) at all sites. HERD has discussed a possible maximum bioturbation depth for California approximating 4 feet in a HERD memorandum dated September 24, 2003. Support for this maximum depth can be found on the web at <http://www.museum.vic.gov.au/crust/thalbiol.html>. Species related to the Thalassinidea, ghost shrimp, observation transmitted to the Navy, such as *Axius serratus* have been reported to burrow to depths greater than 10 feet (>3 meters) (Pemberton, et al., 1976). HERD does not believe that this maximum depth applies to SPL, but bioturbation must be taken into account for any remedial alternative which proposes exposure of deeper sediments, thereby making them newly-exposed surface sediments. The referenced sentence should be amended to indicate that given the sediment characteristics and associated biological community of the SPL, bioturbation is most likely limited to tens of centimeters below the sediment-water interface.
12. The text indicates that 'a majority of chemical concentrations are below' federal Ambient Water Quality Criteria (AWQC) (Section 2.5.1, page 23). HERD's evaluation of the Clean Water Act (CWA) and AWQC is that exceedance of the AWQC by a significant number of water samples requires consideration of water exposure in an Ecological Risk Assessment. Please clearly state the number and proportion of SPL water samples exceeding the AWQC. HERD defers to the U.S. EPA Region IX regarding the legal interpretation of water concentrations exceeding the federal Ambient Water Quality Criteria (AWQC) (Section 2.5.1, page 23).
13. The word 'addition' is presented as 'additiona' (Section 2.5.2, page 23). Please correct this typographic error.
14. Please explain how it is possible to determine that ^{226}Ra is not a human health risk driver when ^{226}Ra concentrations at sample station BERC13 exceed background (Section 2.5.2, page 24) yet the 'remaining 19 cores from the BERC 2002 program should be analyzed by the end of 2004' (Section 2.4.2.1, page 21). HERD takes the lack of complete BERC 2002 radioisotope data to mean that the radioisotope issue for the SPL Human Health Risk Assessment (HHRA) has yet to be resolved.
15. HERD disagrees with the statement that Applicable or Relevant and Appropriate (ARARs) and To Be Considered (TBC) criteria restrict the consideration of radiological issues (Section 3.2, page 31). U.S. EPA guidance for estimating risk at sites contaminated with radioisotopes as the sum of the incremental risk

associated with both chemical exposure and radiological exposure is clear (OSWER, 1997).

16. HERD checked the surface water criteria listed (Table 3-1, page 31) and found them numerically correct. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.
17. The Navy's own investigations of SPL indicate that there is a net cadmium efflux from the sediments into the overlying water at some locations in the SPL. The Navy contention that chemical properties of contaminants of concern at IR Site 17 indicate that these contaminants preferentially bind to sediment particles rather than dissolve into the water column (Section 3.2.1.1, page 32) is, therefore, not accurate. Please amend this statement.
18. HERD does not agree that 'the current trend is away from using them even as screening tools' (Section 3.2.2.2.1, page 34) regarding National Oceanic and Atmospheric Administration (NOAA) Exposure Range-Low (ER-L) and Exposure Range-Median (ER-M) values. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.
19. The SFRWQCB TMDL for PCBs of 200 µg/kg, based on the 40 San Francisco Estuary Institute (SFEI) PCB congeners, as a TBC (Section 3.2.2.2.2, page 36). Batelle developed the range of 230 µg/kg to 240 µg/kg PCBs based on 18 National Status and Trends (NS&T) PCB congeners for IR Site 17. Please develop and use some notation which identifies the sediment PCB concentrations discussed in the text.
20. HERD checked the Draft Final Remedial Investigation Report for the SPL, as part of this review, and found the ecological Remedial Action Objectives (RAOs) presented (Section 3.5.1, page 51) reflected in the Draft Final RI Report. HERD does not agree that cadmium, PCBs and DDx are the sole COECs. The outline of the area proposed for remediation (Figure 3-2 and Figure 3-8), however, encompass the sampling locations of other constituents which HERD considers elevated and of potential ecological concern in SPL. This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractors.
21. The cadmium PRG (Table 3-2, page 52) of 24.4 mg/kg is significantly above the 2.49 mg/kg sediment cadmium concentration (T50 regression value) that is the effect concentration that would give a response of 50 percent according to the logistic regression model applied to a national database of sediment effect concentrations (EPA, 2004, Table C-1, page C-9). Cadmium efflux from sediments into overlying water was demonstrated during SPL investigations. Cadmium in fish tissue is a risk driver in the SPL Baseline Ecological Risk

Assessment (Section 2.5.1, page 23). Monitoring of SPL cadmium water concentrations at the sediment-water interface should be considered as part of any post-remediation conditions.

22. Please shade one additional cadmium cell for the results of sample S03 (Figure 3-3, page 58). The cadmium concentration of 28.25 mg/kg exceeds the proposed cadmium PRG of 24.4 mg/kg (Table 3-2, page 52).
23. Please describe the method used to draw the lines demarcating areas of potential remediation (Section 3.5.3, page 54 and Figures 3-1, Figure 3-2 and Figure 3-8). Contour intervals are mentioned in the discussion of area-averaged concentrations (Section 3.5.3, page 55), but the demarcation lines of the potential remediation area are made up of rather sharp 90 degree corners, which are not common of most contouring methods. The method used must be transparent and repeatable. Any computer software package used must be readily available to the public to facilitate review.
24. HERD defers to the SFRWQCB regarding the implementation of the proposed 200 µg/kg PCB TMDL criterion, as to whether this criterion is meant to be a not-to-exceed concentration or an area-averaged criterion (e.g., Table 3-3, page 55).
25. In the event that radioisotopes are determined to be elevated in SPL, radioisotope concentrations must be determined in any and all water samples collected as part of construction quality control (e.g., Section 5.3.2, page 153) for any remedial alternative involving disruption of sediments.
26. Please provide a more complete description of the process used in the area-averaging analysis (Section 6.0, page 191) for cadmium, PCB and DDx sediment concentration. It would appear, from the minimal description that the lowest concentrations of cadmium, PCB and DDx are all 0.1 µg/kg. This concentration is below the SFRWQCB sediment 'ambient' concentrations and below the average sediment concentration of SPL samples which might be identified as relatively unimpacted. Use of concentrations below San Francisco Bay 'ambient' or SPL unimpacted concentrations lowers the sediment concentration presented as area-averaged before and after remediation.

CONCLUSIONS

The conclusions of the Baseline Ecological Risk Assessment for SPL contained in the Draft Final Remedial Investigation Report appear to be correctly presented in the Draft Feasibility Study.

A more complete description of the method used and sediment concentrations employed to develop the proposed SPL remedial boundaries and the area-weighted sediment concentrations is required for completion of a final review the methodology.

HERD accepts the cadmium PRG of 24.4 mg/kg for the SPL, as a site-specific value, based on the calculation of mass reduction due to remedial action, which is still to be verified, the low incidence of benthic bioassay adverse effects and consideration of post-remedial action monitoring of SPL surface water cadmium concentrations at the sediment-water interface. This sediment cadmium concentration should not be used without site-specific verification and discussion with HERD at any other Navy site.

HERD defers to the SFRWQCB regarding the application of the proposed PCB TMDL as a not-to-exceed or area-weighted criterion. HERD defers to the U.S. EPA Region 9 regarding the Clean Water Act implications of a portion of the SPL surface water samples exceeding the AWQC.

REFERENCES

United States Environmental Protection Agency. 2004. The Incidence and Severity of Sediment Contamination in Surface Waters of the United States. National Sediment Quality Survey (2ND Edition). EPA-823-R-04-007. Office of Science and Technology Standards and Health Protection Division, 1200 Pennsylvania Avenue, NW, Washington, DC 20460. November.

Berkeley Environmental Restoration Center (BERC). 1999. Preliminary Draft Final Report: Treatability Study Report: Intrinsic Sediments Processes Study at West Beach Landfill Wetlands (Site 2) and Seaplane Lagoon (Site 17), Alameda Point, Alameda, California. Prepared for Engineering Field Activity West, Naval Facilities Engineering Command. February.

Office of Solid Waste and Emergency Response (OSWER). 1997. Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination. OSWER No. 9200.4-18. August 22, 1997.

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Page 9

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