



Department of Toxic Substances Control

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Arnold Schwarzenegger
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Linda S. Adams
Secretary for
Environmental Protection

November 7, 2007

Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
Attention: Keith Forman

**RISK ASSESSMENT: DRAFT RADIOLOGICAL ADDENDUM TO THE PARCEL E2
REMEDIAL INVESTIGATION/FEASIBILITY STUDY, HUNTERS POINT SHIPYARD,
SAN FRANCISCO, CALIFORNIA, DATED SEPTEMBER 14, 2007**

Dear Mr. Forman,

Our October 30, 2007 comment letter on the draft Radiological Addendum to the Parcel E2 RI/FS stated that DTSC would soon supply detailed comments on the risk assessment. Dr. James Polisini Staff Toxicologist of the Human and Ecological Risk Division of DTSC has completed his review of the draft Radiological Addendum. His comments are attached to this letter.

If you have any questions regarding these comments please call me at 510-540-3776.

Sincerely,

Thomas P. Lanphar
Senior Hazardous Substance Scientist
Office Military Facilities
Department of Toxic Substances Control

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Mr. Keith Forman
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MEMORANDUM

TO: Tom Lanphar
Office of Military Facilities
700 Heinz Avenue
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FROM: James M. Polisini, Ph.D.
Staff Toxicologist
Human & Ecological Risk Division (HERD)

DATE: November 7, 2007

SUBJECT: DRAFT RADIOLOGICAL ADDENDUM FOR PARCEL E-2 REMEDIAL
INVESTIGATION/FEASIBILITY STUDY, HUNTERS POINT SHIPYARD
[PCA: 18040 SITE: 200050-18 H:34]

BACKGROUND

HERD reviewed the document titled *Draft Radiological Addendum to the Parcel E-2 Remedial Investigation/Feasibility Study*, dated September 14, 2007. This Addendum for Hunters Point Shipyard, San Francisco, California was prepared by Tetra Tech, EM, Inc. of San Diego, California. This document was transmitted as an e-mail attachment in a Groupwise message from the DTSC Project Manager on October 25, 2007.

Hunters Point Shipyard (HPSY) was divided into seven parcels, Parcel A through F and E-2, for environmental investigation and cleanup activities. Parcel A through E and E-2 are terrestrial parcels, while Parcel F encompasses the adjacent offshore areas. Parcel A was transferred to the San Francisco Redevelopment Agency in December, 2004 and is no longer considered Navy property. Parcel E, E-2 and F consist of the HPSY property associated with the South Basin of HPS. Parcel E was established in 1992. In September 2004, Parcel E was divided into two parcels (Parcels E and E-2) to facilitate closure of the landfill and adjacent areas. Parcel E occupies approximately 138 acres of shoreline and lowland coast along the southwestern portion of HPS. Parcel E consists of numerous Installation Restoration (IR) sites, of which, only IR-02 and IR-03 border the shoreline.

Parcel E-2 consists of approximately 48 acres, including the industrial landfill and IR-1/21 and the Panhandle Area, a small portion of IR-02 Northwest, and the area east of IR-01/21 that does not have an IR site designation.

HPSY is situated on a promontory in the southwestern portion of San Francisco Bay. HPSY is bounded on the north and east by San Francisco Bay and on the south and west by the Bayview Hunters Point district of San Francisco. The area within the property boundaries is approximately 955 acres of which approximately 400 acres are offshore sediments. These offshore sediments are designated Parcel F.

Parcel E-2 is included in a single redevelopment block based on planned use as open space. The redevelopment blocks in other parcels, with multiple uses, are subdivided into industrial use size grids (one half acre) and/or residential use size grids (2500 ft²).

GENERAL COMMENTS

The presentation of incremental cancer risk from exposure to both chemicals and radioisotopes relies on estimates of radioisotope cancer risk based on the Remedial Objective rather than sample results. As this analysis is a Radiological Addendum to the Remedial Investigation/Feasibility Study (RI/FS) for Parcel E-2, the estimates of radioisotope cancer risk should be based on sampling results rather than a yet-to-be-attained Remedial Objective.

SPECIFIC COMMENTS

1. It is difficult to believe that the total cost of Alternative 2 (Excavate and Off-site Disposal) and Alternative 3 (Excavate and On-site Containment) are exactly equal to \$7,400,000 (Executive Summary, page ES-5) given that transportation costs and third-party disposal fees for off-site disposal options are typically a major component of off-site disposal alternatives. HERD recommends that the relative cost estimates for Alternative 2 and Alternative 3 be carefully evaluated prior to risk management review of remedial alternatives.
2. HERD conferred with, Dr. Dan Stralka, the U.S. EPA Region 9 Toxicologist assigned to HPSY and obtained confirmation on the indicated agreement between the Navy and EPA that the remediation goal for Radium-226 (²²⁶Ra) is 1 picoCurie per gram (1 pCi/g) above background (Section 3.6, page 3-3). This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.
3. Please provide the basis for the hypothesis that 'consistent low levels of ²²⁶Ra (3 to 4 pCi/g)' in the IR-01/21 survey 'may be attributable' to a certain type of fill or soil (Section 3.6, page 3-5). Mixing of Parcel E-2 materials during construction of the Parcel E-2 landfill cap would appear a viable alternate hypothesis for widespread elevated ²²⁶Ra in the area of the industrial landfill.

4. Unless plutonium is a Radioisotope of Concern (ROC), discussion of plutonium biological mobility in the environment (Section 4.0, page 4-2) serves no purpose and should be removed from the document.
5. The tabular presentation of exposure pathways (Section 6.0, page 6-1; Table 4-2) does not appear to indicate that inhalation of particulates from soil is a potential exposure pathway. However, later discussion of potential exposure pathways (Section 7.1, page 7-1; Section 9.3, page 9-1) clearly list inhalation of fugitive dust as a complete pathway. Please amend Table 4-2 to agree with the later clear identification of inhalation of fugitive dusts as a complete exposure pathway.
6. HERD interprets EPA guidance (OSWER, 1997) to indicate that incremental cancer risk from exposure to chemicals and radioisotopes must be summed as part of the evaluation of CERCLA sites. Please amend the word 'may' (Section 7.2, page 7-1) to clearly indicate this requirement.
7. The ROC-associated risk presented in this document (Table 7-1) is based on the Remediation Goal (RG) for each ROC (Section 7.3, page 7-2). The document indicates that "Actual calculated dose and risk will be based on field measurements from the final status survey results associated with each radiologically-impacted site." (Section 7.3, page 7-2). HERD considers this presentation incomplete as ROC-associated risk is not based on Parcel E-2 sample results and does not address differences among the various component sites in Parcel E-2.
8. All CERCLA-program risk management decisions should be risk-based rather than dose-based. HERD has repeatedly commented that the Nuclear Regulatory Commission (NRC) 25 millirem per year (mrem/y) dose limit is not applicable at HPSY. EPA guidance states (OSWER, 1997) that 25 millirem and even 15 millirem would not typically meet CERCLA requirements for cleanup:

"The NRC rule set an allowable cleanup level of 25 millirem per year (equivalent to approximately 5×10^{-4} increased lifetime risk) as the primary standard with exemptions allowing dose limits of up to 100 millirem per year (equivalent to approximately 2×10^{-3} increased lifetime risk). Accordingly, while the NRC rule standard must be met (or waived) at sites where it is applicable or relevant and appropriate, cleanups at these sites will typically have to be more stringent than required by the NRC dose limits in order to meet the CERCLA and NCP requirement to be protective. Guidance that provides for cleanups outside the risk range (in general, cleanup levels exceeding 15 millirem per year which equates to approximately 3×10^{-4} increased lifetime risk) is similarly not protective under CERCLA and generally should not be used to establish cleanup levels."

The 25 millirem NRC guideline should not be used to assess human health risk (Section 7.3, page 7-2; Section 9.4, page 9-2) in areas planned for open use such as Parcel E-2. While results can be presented in both risk and dose (e.g., Table A.5-1),

the discussions of cancer risk and comparisons to dose criteria should be presented in separate sections to address the individual requirements of the CERCLA program (i.e., risk estimates) as well as the California and Federal regulators assessing health impacts associated with point sources and incremental dose.

9. Please provide, as an addendum, the chemical analysis results for the Bay Area Rapid Transit (BART) stockpiled soil used as backfill in the Parcel E-2 PCB Hot Spot Removal (Section 8.1, page 8-2).
10. CERCLA-program risk management decisions should be risk-based, not dose-based. As such, it is difficult to determine the usefulness of a dose limit for members of the public accessing licensed nuclear facilities (Section 10.1.3, page 1-2, first bulleted item) or Inactive Uranium Processing Sites (Section 10.1.3, page 1-2, fourth bulleted item). HERD recommends these dose limit comparisons be placed in a separate section determining compliance with applicable dose limits.
11. HERD supports groundwater monitoring as part of Alternative 2 (Section 12.2, page 12-1) and Alternative 3 (Section 12.3, page 12-2). This comment is meant for the DTSC Project Manager and no response is required from the Navy or Navy contractor.

CONCLUSIONS

The discussion of risk associated with exposure to radioisotopes should be separated from the comparison to applicable dose criteria to fulfill the individual requirements of the CERCLA program and the radiological health programs.

Presentation of the summed risk associated with exposure to chemicals plus exposure to radioisotopes is incomplete. Risk associated with exposure to radioisotopes should be based on sample results, not Remedial Goals for radioisotopes.

HERD Internal Reviewer: Michael Wade, Ph.D.
Senior Toxicologist, HERD

REFERENCES

OSWER, 1997. Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination. OSWER No. 9200.4-18.

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