Department of Toxic Substances Control

Edwin F. Lowry, Director
700 Heinz Avenue, Suite 200
Berkeley, California 94710-2721

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

N00236.000379
ALAMEDA POINT
SSIC NO. 5090.3

May 6, 2002

Richard Weissenborn
Department of Navy
Southwest Division
Naval Facilities Engineering Command
1230 Columbia Street, Suite 1100
San Diego, CA 92101

DRAFT WORKPLAN FOR PAH BACKGROUND DETERMINATION AND PAH-SPECIFIC SITE INSPECTIONS, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Dear Mr. Weissenborn:

The Department of Toxic Substances Control (DTSC) has reviewed the above referenced document prepared by Bechtel Environmental, Inc. and submitted by the Navy on April 2, 2002. Attached are our review comments. If you have any questions, please contact me at 510-540-3767.

Sincerely,

Marcia Y. Liao

Marcia Y. Liao, Ph.D., CHMM
Hazardous Substances Engineer
Office of Military Facilities

Enclosures (2)

cc: see next page

cc: Michael McClelland, SWDiv
Andrew Dick, SWDiv
Steve Edde, Alameda Point
Anna-Marie Cook, EPA
Laurent Meillier, RWQCB
Elizabeth Johnson, City of Alameda
Peter Russell, Northgate Environmental Mgt
Michael John Torrey, RAB Co-Chair
Lea Loizos, Arc Ecology

DTSC COMMENTS
DRAFT WORKPLAN FOR PAH BACKGROUND DETERMINATION AND PAH-SPECIFIC SITE INSPECTIONS
ALAMEDA POINT, ALAMEDA, CALIFORNIA

GENERAL COMMENTS

1. The draft workplan states, "... the DON policy states that sites will not be cleaned up to levels that are below background" (see Page 1-2, paragraph 6). As typically understood, there are two types of backgrounds: natural (e.g. forest fires) and ambient (e.g. car exhaust, fill materials). While the natural PAH background is likely to be low at Alameda Point, the ambient background level could be quite high and the associated human health risk could be significant.

   Please clarify for the average readers that the Navy follows the risk-based, rather than concentration-based approach in conducting site cleanup. The remediation of PAHs at Alameda Point will be based on the human health risk associated with the PAHs. The above-referenced DON policy is applicable only after the Navy successfully proves that PAHs present at the background level does not pose a threat to human health.

2. One purpose of this proposed study, according to Section 1.1.1 of the draft document, is to accesses the "baseline" risk attributable to the historical fill materials and differentiate it from the "incremental" risk posed by the Navy activities. It is unclear why the Navy wants to make such a differentiation. DTSC, in concert with EPA, has unequivocally stated that the decisions about remediating a site depend on the total risk (i.e. "baseline" risk plus "incremental" risk) and the associated threat to human health and the environment. To determine the PAH background level and the associated risk attributable to the historical fill material is, therefore, irrelevant to the decisions about remediation of PAHs at Alameda Point.

   Please clearly state the intended use of the PAH background to be established in this study. Please reassure the average readers that the PAH cleanup at Alameda Point will be risk-based and the Navy does not intend to eliminate the background PAH from risk assessment or to subtract "baseline" risk from the total risk.

3. Another purpose of this proposed study, according to Section 1.1.1 of the draft document, is to use the background PAH established by this study and compare it with the levels of PAH present at the eight transfer parcels. The Navy's rationale is that if the PAHs at the transfer parcels are within the background range, the parcels will be recommended for no further actions under CERCLA.

Please clarify that this rationale is applicable only if the background PAH is determined to be sufficiently low and poses no threat to human health and the environment.

4. Background samples should be collected at or near the site but not in areas likely to be influenced by the contamination and/or facility operations. However, at least five of the eight transfer parcels were involved with industrial uses in the past. Please explain why they are considered suitable for background sample collection.

5. The proposed study does not discuss the anticipated variability in the data and specify the desired power and certainty of the statistics.

6. Random sampling is known to have certain advantages over grid sampling especially in estimating the average concentration for an area. Please explain why this study proposes systematic grid sampling rather than random sampling. Also, please explain the rationale for designating a 2-acre grid for residential use and 5-acre grid for recreational use and how such a designation will meet the risk assessment needs.

SPECIFIC COMMENTS

1. Please revise the data quality objectives, specifically Section 3.1 and Table 3-1, to reflect General Comments #1, 2, and 3.

2. If feasible, please overlay parcels on Figures 2-1, 2-8, and 2-9 to show the historical fills at each parcel and indicate the depth of the fill materials.

3. Page 1-1, first paragraph states, "…. the potential presence of elevated concentrations of PAHs in soil is the only outstanding environmental issue at the eight transfer parcels". Please reference pertinent documents to help the average readers reach the same level of comfort.

4. Page 2-45, second paragraph, it states "With low water solubility and strong sorption to particles, PAHs become relatively immobile, and the relative importance of leaching through soil as a transport process is insignificant". On the same page, fifth paragraph, "PAHs in soil can also enter groundwater". These two sentences are confusing. Please clarify.

Department of Toxic Substances Control

Edwin F. Lowry, Director
1001 "I" Street, 25th Floor
P.O. Box 806
Sacramento, California 95812-0806

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

MEMORANDUM

TO: Marcia Liao
Office of Military Facilities - Berkeley
700 Heinz, Building F, 2nd Floor
Berkeley, CA 94710

FROM: James M. Polisini, Ph.D.
Staff Toxicologist
Human and Ecological Risk Division (HERD)

DATE: April 25, 2002

SUBJECT: DRAFT PAH BACKGROUND WORK PLAN FOR NAVAL AIR STATION (NAS) ALAMEDA)
[PCA 18040 SITE 201209-00 H:32]

Background

We have reviewed the document titled Draft Work Plan for PAH Background Determination and PAH-Specific Site Inspection for Alameda Point, Alameda, California, dated March 2002. This work plan was prepared by Batelle, Inc. of San Diego, California. This work plan outlines the proposed further investigation of polycyclic aromatic hydrocarbons (PAHs) in the material used to construct Naval Air Station (NAS) Alameda. This review is in response to your written work request dated February 20, 2002.

This work plan outlines the details for two separate investigations: 1) a PAH background determination and 2) three PAH-specific Site inspection of eight parcels. The Navy proposes to collect over 1000 soil samples in a grid array.

NAS Alameda occupies the western third of Alameda Island and has been a military installation since 1930. NAS Alameda occupies 2842 acres of land, water and airspace easement, which includes 1734 acres of land. The majority of the land at NAS Alameda was created by filling existing tidelands with dredged material from San Francisco Bay and the Oakland Inner Harbor.

General Comments

On the whole, this work plan, particularly the figures, presents the most comprehensive history of the fill activities at NAS Alameda that HERD has seen in 12 years of working on this site. HERD appreciates the effort that went into the historical review. No response is required for this comment.

Specific Comments

1. HERD disagrees that 'background' PAH concentrations are required to assess baseline risk levels (Section 1.1.1, page 1-2). The Navy may require 'background' PAH concentrations to differentiate site-specific contributions of risk from 'ambient' incremental cancer risk. HERD suggests the text be modified to reflect the difference between total risk and site related risk for the benefit of the risk manager.

2. HERD should be included in the reference to the statement that U.S. EPA has indicated that the decision on remediation of PAHs will not be assessed solely on the background PAH population (Section 1.1.2, page 1-2) developed by the Department of the Navy (DON).

3. The first figure of the draft work plan (Figure 1-1, page 1-5) raises several questions. First, why do the red outlines of the EDC-12 and EDC-17 parcels not conform to the shoreline east of the Seaplane Lagoon? Second, why does the red outline of the BDC parcel, adjacent to Todd Shipyard, extend into the Oakland Inner Harbor? If these are typographic errors please correct them. Otherwise, please provide some explanation in the text for the apparent discrepancies among the geographic features and the parcel boundaries.

4. Statements that the PAH concentration in EDC-17 and EDC-21 are not above the U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) (Section 2.7.7, Page 2-38) do not convey the incremental cancer risk from all PAHs. Please provide an estimate of incremental cancer risk from all carcinogenic PAHs, as benzo(a)pyrene equivalents, as outlined in the U.S. EPA Region 9 guidance for use of PRGs.

5. Please provide a reference for 'gaseous-phase' PAHs (Section 2.8, page 2-45) and identify the PAHs present in the atmosphere. PAHs with a high molecular weight have low vapor pressure.

6. HERD agrees that it is probable that some of the fill material used to construct NAS Alameda was dredge spoil contaminated with PAHs . Please provide some chronological outline of the depth of dredge material placement. This information is needed to support the proposal that the most highly PAH contaminated sediments were placed at NAS Alameda first (Section 2.8, page 2-46 and Figure 2-15).

7. The DTSC Legal Office should be consulted to determine who is responsible for the current PAH soil concentrations of the material placed on NAS Alameda by the Navy (Section 3.1, page 3-3, first paragraph of Step 1). This comment is intended for the DTSC Project Manager. No reply from the Navy is required for this comment.

8. Alpha error levels (α) (i.e., Type I error levels) are characteristically set at 0.05. HERD does not usually accept statistical tests which set the α level at 0.10 (Section 3.1, page 3-3, Step 6).

9. Unbiased sampling for PAHs is proposed (Section 3.3, page 3-5). While there are statistical benefits to unbiased sampling, there are also risk assessment and risk management benefits to stratified or judgmental sampling. The grid outline of the sampling grids (Figures 4-1 through 4-3) does not conform to the 'period of fill' (Figure 2-8, page 2-12) summary. If the Navy's contention is that more contaminated fill material was placed at NAS Alameda (Section 2.8, page 2-46 and Figure 2-15) earlier in the development of NAS Alameda, then the PAH soil samples should be collected in a stratified random sampling pattern which coincides with the boundaries of the fill events.

10. A subset of the samples should be analyzed as individual, discrete PAH samples. Composite samples on one per 2 acres for residential use and one per 5 acres for recreational use (Section 3.7, page 3-7) might not provide data sufficient to evaluate the variance across all the parcels and be useful for a risk assessment. The residential lot size used at the Hunters Point Shipyard was the median San Francisco residential lot size of 2500 ft2. The sample density proposed relies on uniform deposition and source. The outcome of the PAH concentrations at depth which demonstrate a uniformity of deposition and source will determine whether the proposed sample density was sufficient for risk assessment purposes.

11. Please consult with HERD prior to removing 'potential outliers' (Section 4.4.1, page 4-10) from the PAH data set.

12. HERD does not agree with the Navy's contention that naval facilities at the Alameda Annex, the Fleet Industrial Supply Center Oakland (FISCO) and NAS Alameda operated for more than 45 years without evidence of release of fuel materials and PAHs by the Department of the Navy (DON). (Section 2.1.2.2, Page 2-5). Large military vessels and airplanes cannot be operated without releases of PAHs. Please rephrase the statement.

13. The sampling rationale indicates that PAH data from the eight transfer parcels will be compared with the PAH background population (Section 3.3, page A3-5). Please identify how many samples in the current study will be considered as 'background' samples and how many will be categorized as 'site specific' for statistical testing, or how the results of the PAH analyses will be grouped into these two populations and forward an electronic copy of the samples which will be designated as 'site specific' prior to statistical analysis.

14. The standard operating procedures (SOPs) for sample collection (Section 4.1.1. Page A4-1) should be forwarded to the DTSC Geological Services Unit, or a DTSC registered Geologist, for review.

15. GPS coordinates for latitude and longitude should be provided for every sample location in addition to photographic records (Section 4.2.2, page A4-5). NAS Alameda has a GIS system to track sample location.

Conclusions

HERD does not agree that random sampling across the boundaries of the discrete fill events outlined by the Navy is the correct method of assessing any PAH contamination associated with individual fill activities and discrete fill materials.

Some number of discrete samples should be analyzed for PAHs to evaluate the variance in the PAH concentration and aid the evaluation of the planned composite samples. Stratification of samples should conform to historical fill events.

Reviewed by: John P. Christopher, Ph.D.
Staff Toxicologist, HERD

cc: Michael J. Wade, Ph.D., DABT, Senior Toxicologist, OMF Liaison, HERD

Ned Black, Ph.D., BTAG Member
U.S. EPA Region IX, Superfund Technical Assistance
75 Hawthorne (SFD-8-B)

San Francisco, CA 94105

Regina Donahoe, BTAG Member
California Department of Fish and Game
OSPR Headquarters
P.O. Box 944209
Sacramento, CA 94244-2090

Laurie Sullivan, BTAG Member
Coastal Resources Coordinator (H-1-2)
c/o U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

James Haas, BTAG Member
U.S. Fish and Wildlife
Environmental Contaminants Section
3310 El Camino Avenue, Suite 130
Sacramento, CA 95821

(818) 551-2853 Voice
(818) 551-2841 Facsimile
c:\jimp\risk\NASA\PAH workplan Draft.doc