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Ser 1832.5EG/L6039  
28 Nov 1995

From: Commanding Officer, Engineering Field Activity, West  
To: Distribution

Subj: REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) FOR  
NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CA

Encl: (1) Response to Comments on Alternative Methods for PAH Analysis

1. Enclosure (1) is provided for your information. This is the response to comments received by the Navy from the regulatory agencies on the proposed alternatives for semivolatile organic compound (SVOC) analysis for the remedial investigation at Treasure Island. These comments were received in response to the Navy's letter of 14 June 1995, which proposed methods for the analysis of 18 SVOC's, including 16 polynuclear aromatic hydrocarbons (PAH).

2. The Navy received comments from the U.S. Environmental Protection Agency on 27 June 1995, and from the California Environmental Protection Agency Department of Toxic Substances Control on 23 August 1995. Enclosure (1) is the Navy's responses to both sets of comments. Comments from the regulatory agencies generally agreed with the proposed approach, and the Navy responses are primarily intended to answer questions and clarify the procedures proposed for the alternative methods.

3. Thank you for your guidance and involvement in this project. For further information, please call me at (415) 244-2560.

**Original signed by:**  
ERNESTO M. GALANG  
By direction of  
the Commanding Officer

Distribution:

California Department of Toxic Substances Control (Attn: Ms. Mary Rose Cassa)  
California Regional Water Quality Control Board (Attn: Ms Gina Kathuria)  
California Department of Fish and Game (Attn: Dr. Michael Martin)  
U.S. Environmental Protection Agency, Region IX (Attn: Ms. Rachel Simons)  
U.S. Fish & Wildlife Services (Attn: Mr. Steve Schwarzbach)  
Bay Area Air Quality Management District (Attn: Mr. Julian Elliot)  
Bay Conservation and Development Commission (Attn: Mr. Steve McAdam)  
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Copies to:

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Restoration Advisory Board Community Co-Chair (Attn: Mr. Brad Wong/Paul Hehn)  
PRC Environmental Management, Inc. (Attn: Ms. Sharon Tobias) (w/o encl)

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**Response to Comments on Alternative Methods for PAH Analysis  
Remedial Investigation/Feasibility Study, Naval Station Treasure Island**

Responses to comments received from the U.S. Environmental Protection Agency and the California Department of Toxic Substances Control are presented below.

**U.S. ENVIRONMENTAL PROTECTION AGENCY COMMENTS (June 27, 1995)**

1. Comment: The letter states that the modified contract laboratory program (CLP) semivolatile organic analysis (SVOA) method will be used to detect 16 polynuclear aromatic hydrocarbons (PAH). Please tell us if the 16 PAHs detected cover all of the Chemicals of Concern (COC) for Naval Station Treasure Island (NAVSTA TI). Do these 16 PAHs include the PAHs that were detected in the first phase of the ecological assessment? Are there any COCs at NAVSTA TI that are semivolatile organic compounds (SVOC) but not PAHs?

Response: The Navy proposes using the modified CLP SVOA method to analyze 18 SVOCs, which include all compounds listed in Table 1 of the June 14 Navy letter. The 18 SVOCs include 16 PAHs and 2 non-PAH SVOCs. By including the two non-PAH SVOCs, all semivolatile COCs will be analyzed. The semivolatile COCs include SVOCs and PAHs detected at terrestrial sites or during the first phase of the ecological assessment.

2. Comment: Table 1 lists 18 PAHs. Which 16 of the 18 listed in Table 1 are included in the modified CLP SVOA method?

Response: The modified CLP SVOA method will be used to analyze all 18 SVOCs listed in Table 1 of the June 14 Navy letter. The compounds listed in Table 1 include the 16 PAHs analyzed by the CLP SVOA method and two additional SVOCs, isophorone and 2-methylnaphthalene, which are both COCs at NAVSTA TI. The two non-PAH SVOCs are similar in chemical structure to the PAHs and are often detected in conjunction with PAHs. They are considered COCs at NAVSTA TI because they were detected at terrestrial sites during the Phase I Remedial Investigation (RI). These two particular compounds were not detected in the sediments in the first phase of the ecological assessment; however, because they were detected at terrestrial sites, they are considered COCs.

**DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC) COMMENTS (Aug. 23, 1995)**

Two sets of comments were received from DTSC. One set was prepared by the Human and Ecological Risk Section of the Office of Scientific Affairs, and the other set was prepared by the Hazardous Materials Laboratory. Responses to both sets of comments are provided below

**Office of Scientific Affairs, Human and Ecological Risk Section (HERS)**

Comment: We support the conclusion that the Navy utilize the modified Contract Laboratory Program (CLP) Semivolatile Organic Analysis (SVOA) for polynuclear aromatic hydrocarbons (PAH) quantitation in sediment and tissue analyses required in the ecological investigations at Treasure Island. This method achieves detection limits below

National Oceanic and Atmospheric Administration (NOAA) Exposure Range Low (ER-L) values for all but two PAHs. This method has been used at other sites under review by HERS, and the quantitation limits are acceptable for ecological risk assessment of sediments. In addition, it would be unusual to find the two PAHs with ER-Ls below the modified CLP SVOA quantitation limit (acenaphthene and fluorene) in sediment without finding co-occurring PAHs.

We support the use of the modified CLP SVOA for analysis of PAHs in sediments and tissues during the Treasure Island ecological investigations. The Department of Toxic Substances Control Hazardous Materials Laboratory should be consulted and asked to review this proposal to determine if they support the proposed method.

Response: The Navy acknowledges the support of DTSC in the use of the proposed methodology. The Hazardous Materials Laboratory has submitted separate comments, which are addressed below.

### **Hazardous Materials Laboratory**

1. Comment: The modified CLP SVOA method, which uses selective ion monitoring (SIM) gas chromatography/mass spectrometry (GC/MS), is acceptable as an alternative method for PAH to the CLP SVOA GC/MS method, provided the modified method is demonstrated to be valid. The demonstration should include, but not be limited to, accuracy, precision, detection limit, and possible interferences. The analyses of spiked samples provide accuracy information, and the analyses of replicate samples provide precision information. The detection limits can be established by procedures such as those given in 40 CFR Part 136, Appendix B.

Response: The accuracy, precision, detection limits, and possible interferences will be evaluated for the modified CLP SVOA method. The same quality control processes used for the normal CLP SVOA method will be used for the modified method. These QC processes include, but are not limited to, analysis of method blanks, matrix spike/matrix spike duplicate samples, laboratory control samples, instrument tuning samples, surrogates, and internal standards. The detection limits will be established by procedures similar to those given in 40 CFR Part 136, Appendix B.

2. Comment: Should high performance liquid chromatography (HPLC) be used for the PAH analysis, the results should be confirmed by another technique such as GC/MS because of the possible false positive and false negative results associated with the low concentration target analytes.

Response: If HPLC is considered for the analysis of sediment and tissue samples, the Navy will attempt to confirm the results by GC/MS. However, this confirmation may be difficult, because the HPLC and modified GC/MS methods are capable of achieving lower detection limits than the normal GC/MS method. As a result of the lower detection limits, if low concentrations of PAHs are detected by the HPLC analysis, they cannot be confirmed by the normal GC/MS method.

3. Comment: On page 1, the statement that "When the list is expanded, a normal GC/MS method is generally used and the lower detection limits are achieved by

eliminating the gel-permeation chromatography (GPC) cleanup" needs clarification. The statement is true only if there is no sample (matrix) interference. On the other hand, if there is sample interference, GPC cleanup would provide a lower detection limit.

**Response:** The Navy agrees with the clarification. Eliminating the GPC cleanup will theoretically achieve a lower detection limit, but only if no matrix interferences are present. If significant matrix interferences are present, then the actual detection limits would be higher if the GPC cleanup is not performed.