



ston H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board

San Francisco Bay Region

Internet Address: <http://www.swrcb.ca.gov>
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 FAX (510) 622-2460

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TREASURE ISLAND
SSIC NO. 5090.3.A



Gray Davis
Governor

Date: September 21, 1999
File No. 2169.6013 (DFL)

Commanding Officer
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, CA 94066-2402
Attention: Mr. Ernesto Galang

Re: Regional Water Quality Control Board Comments on Draft Fate and Transport Modeling of Total Petroleum Hydrocarbons Technical Memorandum, Naval Station Treasure Island, San Francisco, California (dated June 25, 1999)

Dear Mr. Galang:

Thank you for the opportunity to review the subject document. San Francisco Bay Regional Water Quality Control Board (RWQCB) comments are included as an attachment to this letter.

If you have any questions regarding this letter, please call Chris Maxwell at 510-622-2300.

Sincerely,

David F. Leland, P.E.
Groundwater Protection and Waste
Containment Division

C:\Treasure Island\tmf&tl.se9

Attachment

cc: Mr. James A. Ricks, Jr. (SFD-8-2)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Mr. David Rist
Department of Toxic Substances Control
Northern California Region
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

California Environmental Protection Agency

Mr. Ernesto Galang
September 21, 1999
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Mr. James B. Sullivan
Caretaker Site Office
Treasure Island
410 Palm Avenue, Room 161
San Francisco, CA 94130-0410

Ms. Martha Walters
San Francisco Redevelopment Agency
770 Golden Gate Avenue
San Francisco, CA 94102

Jerry Wickham (TTEMI)
Carol Yamane (Geomatrix)
John Baur (IT Corp)
Paul Hehn
Nathan Brennan
Dale Smith
Pat Nelson
ARC Ecology
Admin Record File (3 copies)

Regional Water Quality Control Board Comments on Draft Fate and Transport Modeling of Total Petroleum Hydrocarbons Technical Memorandum, Naval Station Treasure Island, San Francisco, California (June 25, 1999)

GENERAL COMMENTS

1. A number of the assumptions or values used in the model require additional support or modification. See specific comments for details.
2. The modeling produces results that do not appear to reflect the empirical observations or expectations regarding the behavior of hydrocarbon plumes at the site. For example, the model predicts times to maximum concentrations at downgradient locations decades from now. This in turn predicts that concentrations at downgradient locations will continue to increase for decades, and that a program of long-term monitoring may be necessary at the site.

SPECIFIC COMMENTS

1. Section 4.1.1. This section cites a gradient of 0.002 as both the average and twice the net gradient estimated from the tidal-influence study. Please explain.
2. Section 4.1.2. While we are in agreement with several of the assumptions noted in the third paragraph, we disagree with the assumption that the source was only active from the 1940s to the mid-1960s. While new material may not have been added to the existing source after the mid-1960s (and given the absence of any historical information on the origin of the release, this may or may not be a reasonable assumption), the material in place would continue to release constituents to groundwater, and most likely continues to do so. Assuming that no discharge has occurred since the mid-1960s is not conservative.
3. Section 4.2.1. 1) Without data on fractions, it is difficult to concur with the statement that most of the TPH detected in groundwater consists of aliphatic hydrocarbons. Some support for this statement is necessary. 2) We could not find a comparison of values calculated in this memorandum with values calculated by the TPHCWG in Table 1 or elsewhere. Also, it would be useful to compare values to those reported in other Navy documents (in particular, Battelle, 1999).
4. Section 4.3.2, page 10. The text should provide references for the dispersivity values used, including the assumption that transverse and vertical values are 0.1 times the longitudinal values, a reference or rationale for the modifications to vertical dispersivity used, and the actual values used in the modeling.
5. Section 4.3.3. What wells were used in the calibration step?
6. Section 4.3.4. What are the dimensions of the sources used in the analysis? We could not find these in the report.
7. Section 5.0. The modeling calculates concentrations at an estimated point of exposure at the shoreline. First, additional explanation of what specific location

was used in developing these estimates should be provided. Second, the point of exposure is not, nor should it be, coincident with the point of compliance. This is not consistent with RWQCB policy, which is to establish an appropriate separation between the point of compliance and the point of exposure.

8. Section 5.1. The modeled times for peak TPH concentrations to reach the shoreline and the locations of existing wells seem extremely long. If we understand the results correctly, the model predicts that concentrations at 12-MW22 are expected to continue rising for the next 40 years. While this seems improbable, it implies the need for long-term monitoring to verify model results.
9. Table 1. 1) As noted previously, the duration of release from 1940 to 1965 does not appear to reflect the continued opportunity for release from waste in place after 1965, whether or not new material were added to the source area. 2) See comments on Appendix A regarding the Koc values. 3) The report should provide a reference for the organic carbon fraction value used.

Appendix A

10. Page A-1. The presumption that hydrocarbons detected in groundwater are predominantly aliphatics should be supported with analytical data. The text notes a comparison to TPHCWG values. We could not find the comparison in the appendix.
11. Page A-3, Step 2: Recent work reported by the Navy (Battelle, 1999) uses an alternative equation relating Kow to Koc, as cited in Lyman et al. (1990). Please explain why the Kenaga equation was selected for this analysis.
12. Page A-4. The DOD Petroleum Hydrocarbon Cleanup Demonstration Program Final Report: Risk-Informed Decision Making at Petroleum Contaminated Sites (Rice et al., October 1998) notes some difficulties in applying the Buscheck and Alcazar approach with respect to inappropriately accounting for dispersion as biodegradation. See Appendix E, Section E-3. Please explain how this difficulty was addressed in the modeling.