DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

5090
Ser 06CA.EC\0748
September 18, 2000

Ms. Sarah Raker
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Dear Ms. Raker:

Subj: RESPONSE TO RWQCB'S LETTER REGARDING PROTECTION OF THE SALTWATER BENEFICIAL USES OF SAN FRANCISCO BAY AT NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA OF NOVEMBER 3, 1999

Following an October 27th meeting to discuss issues related to groundwater quality at Treasure Island, the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) issued correspondence of November 3, 1999 that presents numerical values for protection of saltwater beneficial uses. The November 3, 1999 correspondence (copy attached) also identified sites at former Naval Station Treasure Island (NAVSTA TI) where the RWQCB believes that discharges to the Bay are currently exceeding those numerical values. This letter presents the Navy's comments on the November 3, 1999 RWQCB correspondence. Furthermore, the Navy will address additional letters from the RWQCB regarding other NAVSTA TI groundwater issues in subsequent correspondence.

Development of Cleanup Goals

The Navy has always believed that remedial decisions for groundwater at NAVSTA TI must be protective of saltwater beneficial uses. The process for development of cleanup goals and consideration of other beneficial uses was discussed in previous RWQCB correspondence of October 29, 1999. Since the Navy has previously addressed the development of cleanup goals (Navy letter of March 22, 2000), this correspondence will not repeat discussion of the issue.

Point of Compliance for Protection of the Saltwater Aquatic Environment

The RWQCB correspondence provides a discussion of their rationale for establishment of "ecological protection zones" and a point of compliance some distance from the shoreline. As stated by the RWQCB, the focus of the ecological protection zone is to provide a zone extending inland some distance from the shoreline whereby monitoring can be conducted to fully demonstrate protection of the saltwater beneficial use. The Navy agrees that the influence of tides on the local hydrology should be a factor in developing the point of compliance. Furthermore, the Navy plans to evaluate the physical mixing of groundwater and surface water within the tidal zone.

Based on an understanding of the extent of physical mixing, a shoreline protection zone can be established.

The point of compliance for applying numerical standards that are protective of saltwater beneficial uses will be the inland margin of the shoreline protection zone. The distance from the point of compliance to the point of discharge into the Bay will be sufficient to allow for implementation of corrective measures that will prevent impacts to the saltwater beneficial use. However, the degree of dilution and attenuation that occurs between the point of compliance and the point at which groundwater discharges to the Bay must be considered when applying numerical standards. Numerical values for protection of saltwater beneficial uses should be adjusted by a factor that will account for the attenuation and dilution that occurs between the point of compliance and the Bay.

Numerical Values for Protection of the Saltwater Aquatic Environment

The Navy will consider the numerical values presented in Table One of the RWQCB November 3, 1999 correspondence with the exception of values from the California Ocean Plan, when defining acceptable water quality criteria for the protection of saltwater beneficial uses in the receiving water body. These values include acute and chronic toxicity for aquatic organisms and human health for consumption of aquatic organisms. However, the acceptable water quality criteria must be criteria that are being applied uniformly in the San Francisco Bay Basin. As described in the San Francisco Bay Basin Water Quality Control Plan, the California Ocean Plan does not apply to enclosed bays such as San Francisco Bay.

The Navy wishes to stress that the numerical values identified by the RWQCB for protection of the saltwater beneficial use were not intended nor is it appropriate to directly compare these values to concentrations in groundwater to determine whether remedial action is necessary. These values represent the water quality that should be maintained within the receiving surface water body in order to preserve the saltwater beneficial uses. The concentration of a contaminant in groundwater is not the concentration that an organism will be exposed to in an adjacent surface water body. Groundwater fate and transport factors such as adsorption, dispersion, degradation, physical mixing of the surface water and groundwater within a tidally-influenced zone, length of travel, and time of travel will affect the concentration of a contaminant that is actually discharged to the surface water. In addition, cleanup goals for groundwater discharges to surface water should take into account the effects of surface water mixing within the zone of discharge to determine the actual concentration that an organism in the surface water will be exposed to. In order to apply the numerical criteria listed by the RWQCB in Table One, it will be necessary to apply factors to these values to account for these fate and transport and surface water mixing effects.
The Navy proposes the following steps to establish a point of compliance for NAVSTA TI and the numerical values to protect the saltwater aquatic environment:

- The Navy will collect data within the shoreline zone to evaluate the physical mixing of groundwater and surface water during tidal cycles. The evaluation will include installation of temporary piezometers to measure water level and conductivity changes over a series of tidal cycles. The evaluation is expected to provide information on the degree of physical mixing and distance from the shoreline over which physical mixing occurs.
- Based on the distance from the shoreline over which physical mixing occurs, the Navy will propose a shoreline protection zone that provides a sufficient buffer for taking corrective actions. The point of compliance will be the inland edge of the shoreline protection zone.
- The degree of physical mixing that occurs within the shoreline protection zone will be used to determine concentrations for individual chemicals to be applied at the point of compliance. As an example, if the physical mixing within the shoreline protection zone was a five-fold dilution, the lowest numerical value for protection of the saltwater beneficial use would be multiplied by a factor of five to account for physical mixing that occurs within the shoreline protection zone. Other factors would also be applied, as appropriate, to account for natural attenuation within the aquifer.
- The numerical value will also be adjusted to account for surface water mixing at the point of discharge to the Bay. A site-specific factor for surface water mixing similar to that applied in determining effluent limitations under the National Pollutant Discharge Elimination System (NPDES) should be applied to help establish the cleanup goal for groundwater. The degree of surface water mixing would be based on whether the numerical value for protection of saltwater beneficial uses was an acute or chronic criterion.

IMPACTS TO THE SALTWATER BENEFICIAL USE

The RWQCB identified nine sites in their November 3, 1999 correspondence where the RWQCB believes that contaminants in groundwater near the shoreline exceed saltwater beneficial use standards. Each of these sites is discussed below and on Table A-1. The Navy again wishes to emphasize that the application of standards for beneficial uses of surface water should not be directly applied to groundwater. Exceedance of these standards in groundwater near the shoreline is not evidence that the saltwater beneficial use is impaired.

Based on current data indicating the presence of free product, interim action is needed at Pipeline Sites D1-Area 3 (near intersection of N and 5th Street) and Area 4 (near intersection of N and 3rd Street). The Navy is in the process of developing work plans for the free product removal at these pipeline sites and will provide a schedule for the removal actions with the draft work plan in mid-October, 2000.
Prior to implementing an interim action at Site 25, further evaluation is required to attempt to locate the source of contamination and any free product that may be present. The need for interim action at this site will be reviewed following evaluation of data from the investigation of corrective action plan (CAP) sites, scheduled to be completed in October.

Further investigation is also necessary for underground storage tank (UST) 227 prior to the implementation of an interim action. Further evaluation of UST 227 is being conducted as part of the NAVSTA TI UST program. The need for interim action will be reviewed following completion of the evaluation.

The Navy does not agree that interim groundwater actions are needed at Sites 11, 12, 21, 14/22, and 15. Groundwater contamination at these sites will be addressed as part of the remedial investigation (RI) for Sites 11, 12, and 21 and by the CAP for petroleum hydrocarbons at sites 14/22 and 15. Based on the hydrogeology of the site, it is unlikely that groundwater discharges are impairing the surface water beneficial uses even though constituent concentrations in groundwater may exceed the criteria that are protective of saltwater beneficial uses. Natural attenuation, physical mixing within the tidal zone, and mixing with surface water decrease the concentrations of chemical constituents in groundwater to which aquatic organisms are actually exposed. As a result, the exposure concentrations are unlikely to exceed the numerical values identified on Table One of the RWQCB correspondence for the protection of saltwater beneficial uses.

There are no analyte concentrations within 100 feet of the shoreline at Site 24 that exceed the criteria for protection of saltwater beneficial uses. However, downgradient analyte concentrations are expected to increase over time. Therefore, interim action within the source area may be necessary to prevent potential future impairment of the surface water beneficial use. The Navy is currently reviewing options for the collection of additional data to evaluate potential interim actions.

Polynuclear Aromatic Hydrocarbons (PAHs) and Pesticides

The Navy has reviewed available groundwater monitoring data for PAHs and pesticides. PAHs and pesticides have been detected in groundwater at Treasure Island and will be evaluated as part of the RI and groundwater monitoring program. No sites were identified where PAHs or pesticides are likely being discharged to San Francisco Bay at levels that would require an interim action to prevent impairment of surface water beneficial uses.

Summary

The Navy agrees that the numerical values for protection of saltwater beneficial uses should be considered when establishing cleanup levels for groundwater. These numerical values include promulgated acute and chronic values for marine life and human health by fish consumption. These values represent concentrations that should not be exceeded within the surface water body in order to protect the surface water beneficial use, and therefore, should not be applied directly to groundwater. In order to consider the effects of chemical constituents on surface water beneficial uses, natural attenuation processes, physical mixing within the tidal zone, and surface water mixing must be considered. These factors will significantly affect analyte concentrations discharged to San Francisco Bay that an organism will be exposed to.

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Please contact Ms. Ellen Casados at (619) 532-0968, if you have any questions regarding this correspondence.

Sincerely,

MICHAEL S. BLOOM
Lead Remedial Project Manager
By direction of the Commander

Encl: (1) Table A-1
(2) RWQCB ltr of November 3, 1999

Copy to:
California Department of Toxic Substances Control (Attn: Mr. David Rist)
U.S. Environmental Protection Agency, Region IX (Attn: Mr. Phillip Ramsey.)
San Francisco Redevelopment Agency (Attn: Ms. Martha Walters)
Geomatrix Consultants (Attn: Mr. Gary Foote)
Tetra Tech EM Inc. (Attn: Mr. Jerry Wickham)
International Technology Corporation (Attn: Mr. John Baur)

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Blind copy to:
06CA.EC
06CA.AK
06CA.JS

Writer: E. Casados, Code 06CA, 2-0968
Typist: B. Foser, Code 06BU.BF, 2-0914, A:\RESPONSE TO WB LTR OF 110399\14 SEP 00

ENCLOSURE 1 – TABLE A-1

THIS ENCLOSURE IS NOT AVAILABLE.

EXTENSIVE RESEARCH WAS PERFORMED BY NAVFAC SOUTHWEST RECORDS OFFICE TO LOCATE THE MISSING ENCLOSURE. THIS PAGE HAS BEEN INSERTED AS A PLACEHOLDER AND WILL BE REPLACED SHOULD THE MISSING ITEM BE LOCATED.

FOR ADDITIONAL INFORMATION, CONTACT:

DIANE C. SILVA, COMMAND RECORDS MANAGER, CODE EV33
NAVAL FACILITIES ENGINEERING COMMAND, SOUTHWEST
1220 PACIFIC HIGHWAY (NBSD BLDG. 3519)
SAN DIEGO, CA 92132

TELEPHONE: (619) 556-1280
E-MAIL: diane.silva@navy.mil

ENCLOSURE 2

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LETTER REGARDING NUMERICAL VALUES FOR PROTECTION OF THE SALTWATER BENEFICIAL USES OF SAN FRANCISCO BAY

DATED 03 NOVEMBER 1999

IS RECORD NO. N60028_000031