

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD



SAN FRANCISCO BAY REGION

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Commander  
Western Division  
Naval Facilities Engineering Command  
Attn: Stephen Chao, Code 1813SC  
900 Commodore Way, Building 1012  
San Bruno, CA 94066-072

Dear Mr. Chao:

We reviewed a December 20, 1991 draft report on Operable Unit 4 Technology Screening and have the following comments:

## Section 1.2.2.1 Location

This states that even though NASA is within the OU4 boundaries, cleanup of the groundwater within NASA is not the Navy's responsibility. We take the position that pollutants originating on Navy property are the responsibility of the Navy, even if they migrate onto NASA or any other property. Pollutants that migrate off of Navy property should be covered either under the appropriate OU for where the pollutants originated or under the Off-site OU.

## Section 1.2.2.3 Nature and Extent of Contamination, p. 12

This section does not address potential metals contamination, which we believe remains an unresolved issue at Moffett Field. The technologies reviewed further on in the report did include treatment of inorganics. Therefore, to be consistent, inorganic contaminants, especially metals, should be discussed in this portion of the report.

## Section 1.2.2.3 Inferred Source Areas 8 and 9, p. 15

We disagree with the characterization that VOC levels less than 1000 ppb are "minor" and that VOC concentrations less than 5000 ppb are "low to moderate". Given that the MCL for TCE is 5 ppb, calling concentrations 200 to a 1000 times greater "minor", "low" or "moderate" does not appear appropriate. We recommend that the adjectives be removed from the discussion.

## Section 1.2.2.4 Fate and Transport of Contaminants, p. 16

This states that chlorinated VOCs are water soluble and not strongly absorbed by aquifer material. For several of the VOCs, particularly TCE, PCE, and DCE, this statement is contradicted by other statements in this Section. Table 1 shows that the solubility for these VOCs is relatively much lower than others and on page 20 it states that PCE and TCE will tend to absorb to soil. The Section should be made consistent. Also, the statement on page 16 implies a much easier cleanup than our experience has been with other sites in the South Bay area. Chemicals acting as DNAPLs and being absorbed to soil appear to be greatly slowing up cleanup progress from original estimates. We recommend a recent report by Oak Ridge National Laboratory titled "The Effectiveness of

Groundwater Pumping as a Restoration Technology" (by C.B. Doty and C.C. Travis, May 1991) for a nationwide perspective on this issue.

#### Section 1.2.2.4, p. 20, third paragraph

This states that the most important transportation mechanism for VOCs in the groundwater is advection. We do not disagree with this statement as it regards movement of chemicals within groundwater. However, our experience at other sites with shallow, contaminated groundwater has been that from a risk perspective, the most important transport mechanism has been volatilization off the groundwater. This route can lead to an exposure to chemicals which has been modeled to be significant.

#### Table 4 Chemical Specific ARARS

The California Safe Drinking Water Act is administered by the Office of Drinking Water in the Department of Health Services, rather than by California EPA.

#### Table 6 Action Specific ARARS

The Porter-Cologne Water Quality Control Act, California Water Code, should be added to this table. This statute, plus regulations contained in 23 CCR, Division 3 are applicable to several of the actions listed. For any discharge of wastes to land, e.g. land disposal or landfarming, 23 CCR Chapter 15 contains specific requirements for waste identification, containment, monitoring, etc. For discharges of wastes to surface or groundwaters (including reinjection) the Water Code contains specific requirements for notification, permitting, etc. The Basin Plan, adopted pursuant to the Water Code, contains specific effluent criteria for any discharge.

#### Section 1.3.1 Chemical Specific ARARS, Safe Drinking Water Act

This states that this office has found the A1 and A2 aquifers to be potential sources of drinking water. This is only true where those aquifers have a TDS of less than 3000 mg/l and where the aquifer can be pumped at a rate greater than 200 gallons per day. Groundwater that does not meet these criteria may have other beneficial uses which require cleanup, but it is not considered a potential source of drinking water by this agency. US EPA drinking water source regulations may apply where California's do not.

#### Section 2.3 Volumes to be Remediated

Item 3 assumes that the extent of contamination can be approximated by the 1000 ppb TCE contour. Since cleanup levels will certainly be lower than 1000 ppb, most likely the MCL of 5 ppb for those waters meeting the definition of a potential source of drinking water, this underestimates the amount of water needing remediation.

Item 6 assumes five pore volumes will need to be removed to remediate the groundwater. The basis for this assumption should be described. If the cleanup level assumed was the 1000 ppb noted earlier, this also underestimates the amount of water to be treated. If the assumptions include that the contaminants are water soluble and not strongly absorbed to soil, as noted in Section 1.2.2.4, this would also underestimate the volume of water to be treated.

Section 2.5.1.8 Physical Treatment, p. 61

This section eliminates steam stripping from further consideration. Our experience is that certain chemicals are easier to treat using steam stripping rather than other methods. There is currently at least one such treatment plant in operation in the South Bay, being used primarily to treat petroleum naphthas. Until a complete list of chemicals (as opposed to just VOCs and fuels assumed by this report) to be treated is established, it is premature to eliminate this technology.

If you have any questions please call Wil Bruhns at 510-464-0838.

Sincerely,



Steve Morse, Chief  
South Bay Division

cc: Lewis Mitani, EPA  
Cyrus Shabahari, DTSC  
Tom Iwamura, SCVWD  
Lee Esquibel, SCCHD  
Russ Frazer, City of Mountain View