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Mr. Stephen Chao
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900 Commodore Way, Bldg. 101
San Bruno, CA 94066-0720

June 11, 1993
File No. 2189.8009

Subject: Comments on Draft Remedial Investigation Report Operable Unit 5 East Side Aquifers

Dear Mr. Chao:

The following comments are based on the San Francisco Bay Regional Water Quality Control Board staff's review of the Draft Remedial Investigation Report Operable Unit 5 Remedial Investigation East Side Aquifers.

General Comments:

The OU5 Remedial Investigation (RI) report needs to more fully describe the relationship between the groundwater and the leachate at the two landfills. The OU1 RI stated that a more detailed description of the hydraulic flow and contaminant transport between the leachate and groundwater, and the leachate pathway through groundwater to the pumping station at building 191, would be addressed in the OU5 RI. This report actually has fewer technical details on the hydrology of the landfills than the OU1 report. The higher potentiometric surface within the landfill compared to the surrounding wells implies a difference in hydraulic pressure which affects the groundwater gradient. The mounding within the landfill can force the leachate to move away from the landfill into the surrounding groundwater. In fact, the text states that the pumping at building 191 affects the gradient at Site 2, the golf course landfill, and potentially at Site 1, yet there is no technical discussion of the potential impact from the leachate into surrounding wells. Please provide a comprehensive and technically derived interpretation to support the statement that the leachate does not impact the groundwater. There needs to be a more detailed comparison of the concentration of leachate constituents, both inorganic and organic, and similar contaminants found within the surrounding wells. This report states that the OU1 RI determined that there was no impact to groundwater, however OU1 states that the groundwater analysis and data will be evaluated in the OU5 RI. The leachate is considered a "source" and therefore it should be included in the risk assessment discussion evaluating pathways to humans and the environment.

There is no engineered barrier between the landfill material and leachate and the surrounding saturated zones. The geologic profile of the area shows an interfingering of sandy silts and gravels with

silty clays and sandy silty clays. The potential for leaching of contaminants into the saturated zones exists, and the proximity of the landfills to the wetland areas is a concern to this agency. Even though these landfills ceased accepting waste prior to November 27, 1984, they are still considered to be "closed, abandoned or inactive" landfills subject to section 2510(g) of California's Title 23, Article 5, chapter 15. This section states:

> "Persons responsible for discharges at waste management units which are closed, abandoned, or inactive on the effective date of these regulations may be required to develop and implement a monitoring program in accordance with Article 5 of this subchapter. If water quality impairment is found, such persons may be required to develop and implement a corrective action program based on the provisions of this subchapter."

Article 5, chapter 15 requires a specific monitoring program to determine whether a landfill has impacted water quality based on a comparison between background, as determined by monitoring, and the contaminant levels in the downgradient wells. Statistically significant differences in the wells determines whether impact has occurred. This report does not follow these guidelines, but at a minimum, must base interpretations of impact on a comprehensive presentation of the data from all monitoring events.

The total petroleum hydrocarbon (TPH) and jet fuel (JP-5) needs to be included in the risk assessment. Sites 5, 4 and 7 have significant fuel contamination and yet the risk assessment does not even address the hydrocarbon constituents such as benzene, toluene, ethylbenzene and xylenes (BTEX). Why weren't all the wells sampled at Site 5? If these wells had free phase liquid hydrocarbons, the data should be included in this report. If the wells historically had free phase liquid hydrocarbons then the dissolved fraction should be high in these wells, and that data is required to fully characterize the site.

Metals are found in many of the products used at military bases, and as contaminants released from various site activities. The base would not have to "discharge" metals on site to develop metals contamination in the groundwater. The dismissal of metals above background levels in the summary of the risk assessment with the statement that the Navy did not "discharge" metals is inappropriate. If the Navy can prove that they never conducted activities that may have created metals contamination as a by-product then this information needs to be included in the text. However, the presence of metals in the landfill leachate indicates that many materials were used on site that contained metals and Table 1.5-1 shows metals as a waste at Site 11.

The risk assessment summary does not recommend any sites for a feasibility study. The text states that remediation may be necessary at certain sites <u>if</u> groundwater from these sites will be used for domestic purposes in the future. The State Water Resources Control Board has adopted several resolutions which

require responsible parties to clean up contamination in groundwater. Resolution 68-16 prohibits degradation of groundwater resources and resolution 92-49 requires clean up of discharged wastes using best available technology to background levels. Use of the residential scenario has been accepted at the other operable units and for the regional plume, formerly OU4, groundwater. The suggested caveat that these sites only be remediated at some point in the future if groundwater is to be utilized is unacceptable. The Navy is responsible for the contamination at these sites and should remediate now before the site is turned over to NASA.

In addition, groundwater contamination at a specific site can not be averaged across the entire operable unit to determine the significance of the contamination.

Please include the location of the well(s) which are used for agricultural purposes, as well as a full description of the uses of the water on and off site.

Specific Comments:

pg. xxv, paragraph 2 What is the other evidence that indicates that mixing occurs between the A-1 and A-2 aquifer on the east side of the site?

pg. 1-11, section 1.6.8 Please include the third tank, tank 14, in the description of Site 10.

pg. 2-8, par. 2 This logic seems faulty as stated. If there is metals contamination in the A-1 aquifer and in the leachate, then why is the groundwater contamination attributed to other unknown upgradient sources?

pg. 2-14, par. 5, pg. 2-15, par. 2 Aren't the soil results for the landfills found in OU1 RI, not OU2?

pg.2-19, sec. 2.3.2.11 Throughout the RI the text states that Site 15 had no specific wells installed and that groundwater was not sampled. Please clarify how the data was collected to evaluate the risk at Site 15. The risk assessment does not address Site 15 at all. Though these sumps and separators are scattered across the site, the constituents found at wells in their proximity must be included in the narrative and risk assessment.
Do these wells adequately address the groundwater at the areas within Site 15?

pg. 3-2, sec. 3.3 This paragraph should include the Navy Channel on the northern perimeter of the site as a surface water body.

pg. 3-4, par. 4 Is the canal which receives the discharged water from building 191 (Navy Channel) really off-site?

pg. 3-14, par. 2 Please include the location of this agricultural well and the uses of the water.

pg. 3-20, par. 2 What remedial system has been installed to remove VOC contamination from the storm sewers?

pg. 4-10, par. 4 Technical data should be included to back up the statement that the solvents present in the soils at Site 4 have not leached into the groundwater, even though there is solvent contamination present in the groundwater at this site. On the following page Site 4, the former waste holding pond, is cited as a source for the 1,2-DCE contamination in the groundwater.

pg. 4-12, par. 5 In which wells was the free product found? How thick was the free product? Please include the free product data in the text or on a figure. When was the last time the wells were checked for free product? Why were some of the wells at Site 5 exempt from being sampled? The data from those wells should be included in this RI.

pg. 4-14, par. 1 The levels for antimony at sites 1 and 2 can not be averaged in with other sites within OU5. It is unclear whether this is being done in the comparison with background concentrations. In general, concentrations of metals may be site specific due to the nature of the activities at that site. Levels of potential contaminants must not be averaged across different sites to derive mean concentrations.

pg. 4-14, par. 1 Please add the sites at which these levels of lead were found to be consistent with the other sections. This comment applies to the selenium section also.

pg. 4-19, sec. 4.2.3.3 Specify which metals were found and at which sites. Sec. 4.2.4 Why were there no samples collected from the B-3 aquifer?

pg. 4-20, sec 4.2.5.1 Were there any detections of contaminants below the CRQL's in the C aquifer? Sec. 4.3 The fuel related contaminants at Sites 3 through 7 should be included in the summary. Groundwater contamination in the range of 2,280 ppb JP-5 is significant.

pg. 4-21 Metals are substantially above background levels at Sites 1,2 and 11. Once again, it seems as though the whole OU5 aquifer is being evaluated as the sum of several very different sites instead of on a site specific basis.

pg. 5-9 Please include the five organic constituents found in the leachate and groundwater to substantiate the comparison made in the text. Only one groundwater well, W02-09 A1 is completed below the fill material. All other wells are outside of the fill areas which aids in evaluating the horizontal movement of the leachate, but not necessarily the impact to groundwater below the landfill. Mounding occurs for a variety of reasons, especially when the fill material is saturated as it is in these landfills. Mounding is not an indicator of a barrier between the leachate and the groundwater.

The configuration of the water table for both landfill sites within the fill and the A-1 aquifer show very similar potentiometric surfaces. It is suggested that there is a direct connection between the two units. This statement would imply that the A-1 aquifer is highly susceptible to impact from the leachate. The pumping at Building 191 does affect the leachate, but contrary to this action protecting the groundwater, it means that the leachate is moving outside of the landfill, and mixing with surrounding groundwater which is also within the influence of the lift station. In addition, discharge of leachate into the Navy channel is a potential threat to surface water quality and is not an appropriate means of leachate removal. Sediment samples at the Building 191 outfall have shown PCB contamination which may have originated at Site 2.

This report must also include a comparison of inorganic constituents in the leachate and groundwater wells at the landfills.

pg. 6-15, 6-16, sections 6.2.3.1 & 6.2.3.2 OU1 did not address whether or not the leachate was impacting the groundwater. It indicated that the groundwater at the landfills would be addressed in the OU5 document. A more detailed technical review of fate and transport of both inorganic and organic contaminants as well as a technical evaluation and presentation of the hydrology of the landfills needs to be included in this report.

pg. 6-19, sec 6.2.3.4 The text states that the components of JP-5 will be evaluated separately. Why is this, and where are these contaminants evaluated?

pg. 6-31, sec 6.2.4 Antimony levels at Sites 1 and 2 are above background levels, so why are these levels considered naturally occurring?

pg. 6-35, par 4 The Navy channel should be included in the description of surface water features.

pg. 6-45, sec 6.3.2 Include the pathway of groundwater and leachate into the storm drain system which is discharged into the Navy channel.

pg. 6-63, sec 6.6 Specify that risks to environmental receptors are not evaluated in this risk assessment. Sites 3 through 7 have TDS levels below the State requirement of 3,000 mg/L and EPA's drinking water standard of 500 mg/L as stated on page 6-47, therefore it seems inappropriate to assume the groundwater would not be used for drinking water.

pg. 6-65 As stated in the general comments, metals within the 10^{-6} and 10^{-4} range are of concern at the site. There are potential sources for metals contamination at the site. Conclusions regarding the sites which have fuel related contamination are not acceptable since the risk assessment did not include these

constituents.

pg. 6-66, par. 2 please specify which chemicals at sites 7 and 19 exceed 10^{-6}.

pg. 6-68, sec. 6.7 There is a potential for groundwater to discharge into marriage road ditch when groundwater levels are high. Please address this potential for groundwater to contact environmental receptors.

pg. 6-72 The San Francisco forktail damselfly should be added to the list of rare and endangered species.

pg. 7-3 The highest contaminant concentrations were for JP-5, yet this contaminant was not included in the risk assessment. Even though JP-5 is not detected throughout the entire operable unit does not discount it as a significant contaminant.

If you have any questions or concerns, please call me at the San Francisco Bay Regional Water Quality Control Board at (510) 286-3980.

Sincerely,

Elizabeth J. Adams

Elizabeth J. Adams
Project Manager

cc: Michael Gill, US EPA
Mail Stop H-9-2

Cyrus Shabahari, DTSC