

**DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

REGION 2  
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BERKELEY, CA 94710-2737

N00217.002721  
HUNTERS POINT  
SSIC NO. 5090.3



August 5, 1993

Mr. Ray Ramos  
Western Division  
Naval Facilities Engineering Command  
900 Commodore Way, Building 101  
San Bruno, California 94066-0720

Dear Mr. Ramos:

**HUNTERS POINT ANNEX (HPA) DRAFT IR-3 TREATABILITY STUDY WORKPLAN**

The Department of Toxic Substances Control has reviewed the above report and believes a major revision is required before going further. Although the above report is in some cases specific, it misses important information. In addition, comments from the Regional Water Quality Control Board (enclosed) are forwarded to you for your consideration. This report discusses the lab, bench, and pilots studies.

The report identifies the existence of LNAPLs above and below the water table, but it only focuses on the above water stratum. The Navy should discuss the extent of LNAPLs below water table and why it is not being addressed.

Reinjecting water or surfactant into the soil to reduce the viscosity could have adverse effects. The Navy needs to explain if the injection of water or surfactant would result in contaminating a bigger area. This possibility must be identified and assessed for any unfavorable effect. In addition, the less viscose LNAPLs migrate much faster thereby moving vertically as well as horizontally in all direction. The Navy must explain what measures are taken to prevent this from happening. In summary the Navy needs to:

1. Explain why the free product below the water table is not addressed.
2. Explain how to study the free product below water table.
3. Demonstrate how to extract the free product.
4. Determine the extent of the contamination as well as the extraction radius.
5. Explain what form of injection it is. Is it steam injection? At what PSI? In high pressure injection there is going to be soil displacement that will exacerbate the situations. What measures are taken to assess the geological changes? In fact, the Navy must show that by injecting, the area of contamination will not expand or no further contamination



Mr. Ray Ramos  
August 5, 1993  
Page Two

will occur. In addition, the Navy must show that geological conditions do not alter the status of surfactant into toxins.

When reinjecting the oil free water/surfactant, the Navy needs to analyze it for all VOCs, PAH, TPH, SVOCs to ascertain the chemistry of the liquid in the tanks after removing the free product. It is not safe to assume that the remaining liquid in the tank is uncontaminated water and thus is clean. This information is necessary to design the bench scale and the pilot studies.

The Navy must demonstrate how the information from the pilot study could be used for full scale implementation. The steps that are necessary to take the leap from laboratory study to a much bigger scale must be addressed. These variables could potentially affect the full scale system if not addressed. Assumptions are not adequate. In summary the Navy:

1. Needs to explain in detail how to go to full scale in addition to the parameters that will affect the full scale design.
2. Needs to explain in detail how the bench scale will work. Also, the Navy needs to describe the leap from the bench to pilot study. What are the variables that will change. How do you look for them?
3. Needs to identify the chemicals in the liquid.

SPECIFIC COMMENTS:

1. Page 9,
  - a. Paragraph 1, please explain what you mean by reinjecting water and surfactant into the aquifer. The report discusses injection into saturated soil to decrease the viscosity for extraction. Please clarify. And when do you know if its water or surfactant.
  - b. Paragraph 2, a time-response graph needs to be included in addition to Plate 2-4. How much water are you injecting? How do you know the temperature will remain high after the injection. How much water and surfactant is enough to create a less viscose LNAPLs? When extracting less viscose LNAPLs, how do you know all the injected water/surfactant is coming up?

Mr. Ray Ramos  
August 5, 1993  
Page Three

2. Page 11, why use air rotary in oil reclamation area? Air rotary highly disturbs the soil and also it is also difficult to log the boring. The Department recommends hollow stem auger unless circumstances will not permit. In that case the Navy should explain the circumstances, and how accurate sampling and logging will be performed.
  - a. last paragraph, what is the purpose of taken groundwater samples of a well that has no floating product. Please explain the purpose of one casing volume to develop the well. To develop a well, three casing volume is recommended.

Page 12,

- a. Paragraph 1, where do you get the oil samples from? How many samples do you need? what is the next step.
- b. Paragraph 2, please explain why soil samples below the water table are not going to be taken.

Page 22,

- a. Paragraph 1, please provide a list of MWs with floating product.
- b. paragraph 2, is this a full scale scheme?
- c. Paragraph 3, it is not clear how well development would not disturb the floating product using air rotary. The Navy needs to explain further. Moreover explain why it is important not to disturb the floating oil product during the development.
- d. Paragraph 4, What is MODT? What happens if there are other constituents than oil in the water?
- e. Paragraph 5, With recent rainfall, the recharge could take place faster. How would you know the recharge flow at this time?

§ 3.5.3.2,

- a. Plate 3-2 indicates a full scale operation. Please provide information on pumping rate, what to do with the oil, and what to do with the water. Please provide flow arrow direction on the chart.
- b. Reinjection of water (plate 3-2) is not acceptable until we know; 1) the chemistry of the remaining water;

Mr. Ray Ramos  
August 5, 1993  
Page Four

2) what happens when surfactant is injected into the soil, and 3) what the possibilities of further contaminating the site are. How deep are the re-injection wells? what is the volume of reinjection? How do you measure for the surfactant injected?

Please provide Table 5-1 and a schedule or a gant chart explaining the different activities with starting date.

Should you have any questions regarding this letter, please call me at (510) 540-3821.

Sincerely,



Cyrus Shabahari  
Project Manager

Enclosure

cc: US EPA  
Region IX  
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