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IN REPLY REFER TO:

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BEMD
05 MAR 1996

From: Commanding General, Marine Corps Base, Camp Lejeune
To: Commander, Atlantic Division, Naval Facilities Engineering Command, (Code 1823)
Attn: Ms. Kate Landman, 1510 Gilbert Street, Norfolk, Virginia 23511-2699

Subj: DRAFT TREATABILITY STUDY WORK PLAN, PILOT-SCALE EVALUATION OF IN-SITU AIR SPARGING, OPERABLE UNIT NO. 10 (SITE 35), MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

Encl: (1) Comments concerning the Draft Treatability Study Work Plan, Pilot-Scale Evaluation of In-Situ Air Sparging, Operable Unit No. 10 (Site 35), Marine Corps Base, Camp Lejeune, North Carolina

1. The subject document has been reviewed, and our comments are contained in the enclosure. It is requested that the Installation Restoration Division, be notified of the actions taken to accommodate the comments provided in the enclosure.

2. If you have any questions or comments, please contact Mr. Neal Paul, Director, Installation Restoration Division, Environmental Management Department, at telephone (910) 451-5068.

ROBERT L. WARREN
By direction

Copy to:
ROICC

Comments concerning the Draft Treatability Study Work Plan, Pilot-Scale Evaluation of In-Situ Air Sparging, Operable Unit No. 10 (Site 35), Marine Corps Base, Camp Lejeune, North Carolina

GENERAL COMMENTS

1.) The pilot study proposed results are being compared to the effectiveness of a pilot study done in Utah which is claimed to have similar site characteristics.

a.) The site in Utah was much deeper (105-135 ft bgs) to groundwater and most of the contaminant reduction was achieved in the medium well range. This site is 35 ft and has almost no vadose zone (1-2 ft bgs).

b.) The site in Utah used Air Sparging in conjunction with soil vapor extraction. Site 35 has no vadose zone and therefore no vapor extraction is feasible. This will lead to the contaminants being trapped in the soil or being released to the atmosphere. A test with less forced air flow (<5scfm) might lead to increased bioremediation which might be another possible solution for this area.

2.) The plan calculates a maximum surficial emission rate of .02 lb/day based on a contaminant concentration of 1000ug. In their equation for the upper bound emission rate W= the width of the IAS barrier. Is W =200 the width of the pilot study impact area or of the total area for the future sparging curtain boundary.

3.) According to the information provided in the Utah pilot study write-up:

a.) Hydropunch samples are viewed as critical for quantifying the contaminant reduction as monitoring well data is viewed as suspect. The site 35 plan calls for no hydropunch samples to be taken.

b.) An indicator of the distribution of air is the change of pH due to the CO_2 being stripped out of the groundwater into the air. The site 35 plan calls for no pH tests to be performed.

4.) The plan for the Remedial Action Alternative (RAA) 4 as shown in figure 2-1 calls for air injection wells and air extraction wells, it also calls for an air treatment plant. If the vadose zone does not lend itself to vapor extraction how is this accomplished ?

SPECIFIC COMMENTS

1. Page 1-1, para 1 - The third sentence states: "This document has been prepared in accordance with the requirements of the National Oil and Hazardous substances Contingency Plan (NCP). . ." This should be changed to: "This document has been prepared in accordance with the requirements of the National Oil and Hazardous Substances **Pollution** Contingency Plan (NCP). . ."

2. Page 2-1, para 3, and Page 2-1, para 6 - The second sentence in both paragraphs refer to the groundwater surface. In paragraph 3 it is stated as being "generally situated within three feet of the ground surface throughout the year", while in paragraph 6 it is stated as being "generally within a foot or two of the ground surface throughout the year". Please correct this inconsistency.

3. Page 2-2, para 1 - The second sentence states: "However, based on discussions with individuals experienced in the application of IAS, vapor emissions are anticipated to be low and should not pose an excess risk to human health or the environment." Can the "individuals experienced in the application of IAS" be further identified as subject matter experts or risk assessment specialists? Also, what is defined as "low" vapor emissions and "excess risk"?

4. Page 2-2, para 5 - It appears that something has been left out of the ninth sentence which reads: "A fourth potential area of solvent contamination (not shown), plume D, is located plume C near wells 35MW-34B, 35MW-35B, and 35MW-36B (see Figures 1-3 and 1-4)."

5. Page 2-3, para 4 - The first sentence indicates that the pilot-scale test is described in "Section 4.4". This should be changed to "Section 4.**3.2**.". Additionally, the first sentence indicates a "(6-day) pilot-scale test", however Section 4.3.2 indicates "two, 2-day phases" which computes to "four days". Please correct this inconsistency.

6. Page 3-1, para 1 - The first sentence states: "At Site 35 IAS is proposed as part of a time critical removal action." and again in the third sentence it is stated: ". . . this time-critical removal action . . ." My understanding of the NCP is that the IAS will not qualify as a TCRA due to the time frame for its implementability (exceeding 6 months from the identification of contamination to implementation of the Interim Remedial Action).

7. Page 3-1, bullet 3 - This point is that the IAS will assess the impact of air emissions, however it is not known how the data obtained from a short term pilot test would provide this (long term) information. Additionally, the equation on page 2-2, para 3 has already determined the level of emissions. Is the pilot test data just going to be used to back up the existing information?

8. Page 4-1 para 4 - There are three typographical corrections to be made. Correct the second sentence to read: "However, the treatability study area is in a low-lying portion of the site, which is subject to occasional flooding and is generally soft." Correct the fourth sentence to read: "**A** small staging area (approximately 15'x15') will be prepared **by** placing a 1-foot thick compacted gravel layer over a geofabric."

9. Page 4-1, para 5 - Change the last sentence to read: "Therefore, temporary power must be supplied using a gas or diesel-powered generator or by installing a temporary power line from Building **TC-563 (the sewage treatment plant), along the proposed gravel access road,** approximately **1100 feet to** the treatment area." Building TC-474 will be demolished during the highway by-pass construction.

10. Page 4-1, para 6 - Change the wording in the first and second sentences from "at Site 41" to "**near** Site 41".

11. Page 4-7, para 5 - If the Emissions equation is valid, then why do we have to prove it with helium injection and measurement?