RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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23 October 2003

Mr. Fred Evans, P.E., Remedial Project Manager
US Department of the Navy
Engineering Field Activity Northeast
Naval Facilities Engineering Command
10 Industrial Highway
Lester, PA 19113-2090

RE: Quality Assurance Project Plan – HRC Injection Pilot Study
IR Program Site 16 (Former Creosote Dip Tank and Fire Fighter Training Area)
Naval Construction Battalion Center
Davisville, Rhode Island
Submitted 18 September 2003, Dated September 2003

Dear Mr. Evans;

The Rhode Island Department of Environmental Management, Office of Waste Management (RIDEM) has reviewed the above referenced and comments are provided below:

1. Page 6-1, Section 6.1, Project Overview, Bullet 2; This bullet notes that the two soil samples will be collected from the soil samples with the highest headspace vapor reading. Visual and olfactory signs should also be considered when selecting the samples for laboratory analysis. In many instances high headspace readings do not necessarily translate into high analytical results.

2. Page 6-1, Section 6.1, Project Overview, Bullet 5, Paragraph 2; This paragraph states that monitoring of the HRC pilot test will occur over a period of four months. This time period seems inadequate. Hydraulic conductivity values, in general, from Table 3-5 of Site 16 Phase II RI seem to be in the range of 10^0 to 10^1. Hydraulic gradient values in general, from Table 3-4 of Site 16 Phase II RI, seem to be in the range of 10^{-3} to 10^{-2}. This would give a groundwater velocity of less that one foot per day as noted in paragraph 4 of this section.

   Even if one were to assume that all the contamination at Site 16 came from the NIKE PR58 site, which is about one mile away, then at a groundwater flow velocity of one foot per day and initial contamination occurring approximately 50 years ago Site 16 should have been flushed through twice with this contamination. Since high concentrations of CVOC exist at both sites it is clear that CVOC does not move

nearly as fast as the groundwater or there is a continuing source. In addition, the reactions must take place at a fairly slow rate since concentrations of vinyl chloride, a breakdown product, are not that high. Therefore, monitoring for four months may not be a sufficient amount of time to determine the effectiveness of this pilot study.

3. Section 6, Project Description and Schedule, General Comment; Please explain how it was determined that twelve injection wells are needed for the pilot study and how the number of monitoring wells were determined. Also state what area is expected to be treated and what the radius of influence of the pilot test will be.

4. Section 6, Project Description and Schedule, General Comment; It is noted that vinyl chloride will be produced as a by-product of the HRC injection. Since the purpose of the HRC is to enhance the degradation of CVOC please state if calculations have been prepared to determine how much vinyl chloride (degradation product) will be produced as a result of this pilot study. RIDEM considers vinyl chloride to be more toxic than TCE and therefore would be concerned about its impact on human health and the environment. In addition, please state if any contingency plans have been developed to deal with a significant increase in vinyl chloride.

5. Page 6-3, Section 6.1.1, Use of HRC...., Paragraph 2; This paragraph makes two points about the use of HRC 1) that HRC is used in tandem with other technologies, and 2) that more than one round of HRC injection could be needed. Please state what other types of technology would be used in conjunction with HRC and would this be necessary at this site and since there are five source areas would a continuing influx of new contaminated water eventually require a new application of HRC.

6. Page 6-4, Section 6.1.1, Use of HRC...., Paragraph 1; This paragraph states that VC gas would not be expected to enter the vadose zone for many years (if not decades). The rate at which gas will travel through the soil will in part be dependant on the type of soil at the site. Soil gas surveys are routinely used at sites where chlorinated solvents have been released to the environment to map out plume locations. At one such superfund site in Rhode Island, chlorinated solvents were dumped during the late 1970's. In 1985 soil gas measurements were successfully used to map out the plume (a period of less than 10 years). In order to determine the approximate amount of gas to be produced a mass balance calculation would need to be prepared in conjunction with the calculations requested in comment #4.

7. Table 7-1; Project action, detection, laboratory and quantitation limits are expressed in mg/l. please state if this is an error and they should be expressed as ug/l.

8. Page 8-1, Section 8.2, Ground-Water Sampling from Monitoring Wells, Paragraph 1, Sentence 1; This sentence states that 63 wells will be installed for the pilot study while Section 2.1, Bullet 1 implies that 52 wells will be installed. Please clarify.

9. Page 9-1, Section 9.4, Field Equipment Maintenance, Testing, Calibration, and Inspection; It is stated that each piece of equipment will be checked to determine that it is within 10% of its calibration standard. If, at then end of the day, it is found that the piece of equipment exceeds its calibration standard please state if those samples will be retaken.

10. Page 15-1, Section 15.1, Project Documentation and Records; This paragraph states that project documentation will be retained and maintained by the contractor. Should the Navy change contractors please state if the Navy, its new contractor, and interested stakeholders will still have access to the information generated in this pilot study.

11. Page 16-1, Section 16, Paragraph 2; Please note that under its authority RIDEM can issue a cease and desist order if it is found that work being performed is inconsistent with RIDEM Rules and Regulations or is adversely affecting the environment.

12. Attachment 1, Sections 1.8, 1.8.1, 1.8.2, 1.8.3 Investigative Derived Waste (IDW) Management; Each one of these sections notes that there will be temporary storage pending its disposition for proper disposal. Please define what proper disposal means in each of these sections.

RIDEM looks forward to working with the Navy and USEPA on this pilot study. If you have any questions or require additional information please call me at (401) 222-2797 ext. 7138 or e-mail me at rgottlie@dem.state.ri.us.

Sincerely,

Richard Gottlieb, P.E.
Principal Engineer

Cc: M. DeStefano, DEM OWM
C. Williams, EPA Region 1
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