

Response to Comments  
Engineering Evaluation/Cost Analysis for Site 35, OU 10  
MCB Camp Lejeune, North Carolina  
January 2007

### Introduction

The purpose of this document is to address comments associated with the Engineering Evaluation/Cost Analysis (EE/CA) for Site 35, Operable Unit 10 at Marine Corps Base Camp Lejeune, North Carolina. The North Carolina Department of Environment and Natural Resources (NCDENR) provided the comments. Responses to comments are provided in bold type. U.S. Environmental Protection Agency (EPA) had no comments.

**North Carolina Department of Environment and Natural Resources  
Comments on the EE/CA for  
Site 35, Operable Unit No. 10  
Marine Corps Base  
Camp Lejeune, North Carolina**

### Specific Comments

1. Section 3.0 discusses the Remedial Action Objectives (RAOs) for the EE/CA Remediation Work. There are no specific objectives given for the RAOs. It is recommended that we include some specific and realistic minimum concentrations or percent reduction objectives of the existing concentrations in groundwater. Otherwise this EE/CA could be confusing and misunderstood. We achieved 80% reduction of all VOCs during the Pilot Study for Site 35. This would certainly be reasonable and achievable RAO for this area of the site as well.

**A RAO with a specific reduction goal will be included in the Non-Time Critical Removal Action (NTCRA) Work Plan for Site 35.**

2. It appears that the Radius of Influence (ROI) for the screened injection wells and the DPT injection process are reversed. The ROI for the DPT process would seem to be greater than the injection ROI for the screened wells since greater pressure can be applied in the DPT injections. This comment also applies to the ISCO injection process as described on Page 4-9.

**The ROIs assumed for both the injection wells and DPT injections were conservative assumptions based on literature and experience. The ROIs for the two delivery approaches were not reversed.**

3. The last paragraph on page 4-7 states that 10 feet Radius of Influence (ROI) was used for spacing the injection points for the DPT process. As you may know the ROI for the ERD injections using DPT technology at Site 89 achieved a ROI of 20 feet as observed by the daylighting at several of the injection points. If we increase the spacing of the ERD injection points we would realize a greater cost savings. Site 35 had a smaller radius of influence for Fenton's injection. However, a conservative ROI is desirable. This could be determined in the field.

**The initial data obtained from the Site 89 ERD injections suggests that a ROI of 20 to 25 feet may have been achieved, but additional data (e.g. groundwater analytical results) should be evaluated before this can be confirmed. Daylighting observed at the Site 89 ERD injection area may have been due to channeling. The ROI assumed for the DPT injections will be increased to 20 feet for the Site 35 NTCRA. Using DPT will allow flexibility in the field.**

4. Table 4-1 is unclear as to whether the oil and lactate blend for alternative 3a and 3b are a 50% to 50% Blend by weight. Alternative 3c states that the oil to lactate blend has "equal parts" if this is the case for 3a and 3b please state it in the components column of Table 4-1.

**The substrate blend for alternatives 3a and 3b is a blend of equal concentration oil (50%) and lactate (50%). The components column of Table 4-1 will be revised to reflect this.**

5. Figure 4-1 identifies the Site as Site 10 rather than Site 35. Please correct this typographical error.

**Figure 4-1 will be corrected to "Site 35."**