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MCB CAMP LEJUENE  
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RESPONSE TO COMMENTS ON THE DRAFT FEASIBILITY STUDY FOR OPERABLE UNIT  
10 ( OU 10) SITE 35 CAMP GEIGER AREA FUEL FARM MCB CAMP LEJEUNE NC  
02/05/2009  
CH2M HILL

**Response to Comments  
Draft Feasibility Study  
Operable Unit 10, Site 35  
Camp Geiger Area Fuel Farm  
MCB Camp Lejeune, North Carolina**

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DATE: February 5, 2009

### **Introduction**

The purpose of this document is to address comments on the Draft Feasibility Study for Site 35, Operable Unit No. 10. The United States Environmental Protection Agency (USEPA), the North Carolina Department of Environment and Natural Resources (NCDENR), and MCB Camp Lejeune IR Partnering Team provided the comments listed below. The responses to comments are provided in **bold text**.

#### **North Carolina Department of Environment and Natural Resources Comments on the Draft Feasibility Study Report for Site 35/OU 10 (Dated January 15, 2009)**

### **Specific Comments**

1. Next to the last paragraph on page 2-16 notes that MW-29IW is located inside the ERD NTCRA area. The next sentence seems to give the credit to MW-85IW rather than MW-29IW. Please clarify which well is being referenced in this paragraph.

**Elevated TOC was observed in monitoring well IR35-MW85IW. Reference to IR35-MW29IW indicated in comment above was revised to be IR35-85IW.**

2. The second paragraph on page 2-21 states that the model predicts that TCE will fall below the NCGWQS of 30ug/l . . . 30ug/l is the NCSWQS for TCE not the NCGWQS

**The NCGWQS for TCE was corrected to 2.8 ug/l**

3. We need to make sure that we have a downgradient monitoring well in the area of the disassociated plume area. It is not uncommon for solvent plume sources to relocate over a period of time. We should include a monitoring well at approximately 5 years time of travel downgradient of the present plume location. This will assure that the plume is attenuating and not just moving with groundwater flow. We need to be able to monitor the primary plume area in the same manner. second paragraph on page 2-21 states that the model predicts that TCE will fall below the NCGWQS of 30ug/l . . . 30ug/l is the NCSWQS for TCE not the NCGWQS.

There are a lot of wells already in the primary plume locations. We need monitoring systems that will confirm attenuation and that the plume is not shifting around over the next 10 years.

**The installation of eight monitoring wells is proposed as part of Alternatives 2, 3, 4, and 5 to more effectively monitor natural attenuation and migration of the chlorinated solvent plume. Proposed locations and depths of the new monitoring wells are provided in Figure 4-1. Actual locations will be determined during the design phase of the selected remedy.**

4. MW-86-IW is an example of a high concentration monitoring well that doesn't have a downgradient monitoring well to confirm that the plume attenuates and doesn't move. The nearest downgradient monitoring well to MW-86-IW is approximately 700 feet away. We may actually need another deep monitoring well downgradient of MW-86IW as well.

See comment above.

**EPA Region 4 Comments on the  
Draft Feasibility Study Report for Site 35/OU 10  
(Dated January 16, 2009)**

**Specific Comments**

1. **Section 2.8.4, 3<sup>rd</sup> bullet, page 2-10** – Text indicates that arsenic was detected in four of ten samples but does not provide reference to the analytical data or provide highest concentration detected. If the concentrations are unusually high (well above MCL), then might be a site related COC as opposed to naturally occurring. See Comment below.

**The text in Section 2.8.4 was revised as follows: “During the 1996 SGI, arsenic was not detected about NC2LGW standard of 50 µg/L in any well sampled during the investigation. Arsenic was detected above two times the base background level of 5.77 µg/L in only four of ten samples collected from the shallow aquifer zone, ranging from 8.7 µg/L to a maximum of 13.3 µg/L. Arsenic was not detected in any intermediate or deep aquifer zone monitoring wells.” Based on the sporadic detections and concentrations below state standards, the arsenic does not appear to be a site related COC.**

2. **Section 2.9.1, 2<sup>nd</sup> bullet, page 2-13** – Text suggests that arsenic is not going to be addressed in this action because detections limited to the shallow aquifer. The rationale for whether the arsenic is addressed depends on whether it is a site-related COC and exceeds a cleanup goal such as the SDWA MCL. Please indicate whether the arsenic is naturally occurring or site-related. Also, if site-related then the remedial action needs to have a component to address the arsenic contamination. Note treatment options for metals will differ then those typically used for VOCs and MNA for metals should follow latest EPA guidance.

*“There is a potential risk to future residential receptors driven by the presence of CVOCs and arsenic in groundwater. As discussed in Section 2.8.4 the risk attributable to arsenic is only slightly elevated as it is limited to only four shallow monitoring wells at Site 35. Based on the absence of arsenic detections in the intermediate aquifer, sporadic occurrence of the arsenic detections in the shallow aquifer, and the improbability of the shallow aquifer ever being used for drinking water, arsenic will not be addressed further in this FS.”*

**[Add the arsenic concentrations to this section to support the statement “slightly elevated”.]**

**References to arsenic were removed from Section 2.9.2 as arsenic was established not to be a site related COC or exceed the applicable groundwater standard in Section 2.8.4. (EPA comment #1).**

- 3. Section 3.1 ARARs, Page 3-1** – Please consider replacing and using the following language. “CERCLA Section 121(d), specifies in part, that remedial actions for cleanup of hazardous substances must comply with requirements and standards under federal or more stringent state environmental laws and regulations that are applicable or relevant and appropriate (i.e., ARARs) to the hazardous substances or particular circumstances at a site or obtain a waiver [see also 40 Code of Federal Regulations (CFR) 300.430(f)(1)(ii)(B)]. Applicable or relevant and appropriate requirement (ARARs) include only federal and state environmental or facility siting laws/regulations and do not include occupational safety or worker protection requirements. In addition, per 40 CFR 300.405(g)(3), other advisories, criteria, or guidance may be considered in determining remedies (so-called To-Be-Considered [TBC] guidance category). Under CERCLA 121(e)(1), permits are not required for response actions conducted entirely on-site. In addition, response actions must comply with the ‘substantive’, as opposed to ‘administrative’, requirements of any of the identified ARARs.”

**Language in Section 3.1 was replaced with language provided above.**

- 4. Section 3.1.1 Chemical-specific ARARs, Page 3-1** – Please consider replacing and using the following language. “Chemical-specific ARARs provide health- or risk-based concentration limits or discharge limitations in various environmental media (i.e., surface water, groundwater, soil, air) for specific hazardous substances, pollutants, or contaminants and are listed in Table 3-1. Remediation levels for most of the COCs in groundwater will be based upon relevant and appropriate drinking water standards including the SDWA MCLs or NCGWQS.”

**Language in Section 3.1.1 was replaced with language provided above.**

- 5. Section 3.2 Remedial Action Objectives, Page 3-2** – Since one of the goals of response action is cleanup the VOC contaminated groundwater to meet primary drinking water standards, please add an RAO to “Restore groundwater quality at Site 35 to meet NCDENR and federal primary drinking water standards based on the classification of the aquifer as a potential source of drinking water [Class GA or Class GSA] under 15A NAC 02L.0201.”

**Additional RAO provided above was added to Section 3.2.**

6. **Section 3.2 Remedial Action Objectives, Page 3-2** – It is unclear how any of the remedial alternatives could meet the RAO related to “Protection of surface water quality of Brinson Creek.”? If groundwater is recharging into this nearby surface water but does not contain COCs at levels that are detrimental to the water quality, what actions could be taken other than monitoring? If monitoring is to be performed, will it be in-stream using ambient water quality criteria, or alternatively will monitoring of down-gradient wells against MCLs be performed?

*“RAOs consist of medium-specific goals for protecting human health and the environment. The RAOs for the remediation of groundwater at Site 35 are based upon the potential of future residential receptors and the potential that groundwater at the Site may be used for potable purposes in the future.”*

**[Add to the text above: based on the potential of future residential receptors.... and discharge of contaminated groundwater to surface water.]**

**Additional text provided above was added to Section 3.2.**

7. **Tables 3-1, 3-2, and 3-3 ARARs** – It appears that these ARARs Tables are a comprehensive listing on any potential requirement that could be used for a number remedial alternatives. These Tables should only list the ARARs that would be used for any on the enumerated remedial alternatives. Also, there are numerous entries on the tables that probably should not be included considering the limited scope of the remedial action alternatives and how they will likely be conducted on-site. The only chemical-specific ARARs are the SDWA MCLs and NCGWQS. Requirements related to emissions and discharges should be listed in the Action-specific ARARs. Since most if not all of the alternatives are in-situ treatment of groundwater, there likely will be very little secondary waste streams generated (groundwater well purge water, soil cores from new wells, etc.) Consequently, many of the requirements on the Table 3-2 are not needed. In addition, based upon the site description for Site 35, there should not be any Location-specific ARARs. The EPA attorney is willing to discuss all these regulations with the Navy and its contractors to ensure that the proper requirements are listed on the ARARs Table. Consider using the ARARs used for the Site 89 Action Memorandum as initial listing that can be modified since that was an in-situ groundwater treatment action.

**The Site 89 Action Memorandum ARARs were used as a reference for revising ARAR Tables 3-1 and 3-2. Table 3-3 was removed and Tables 3-1 and 3-2 were resubmitted for approval.**

8. **Section 3.3 Target Location Contaminants of Interest** – The objective of the FS in not to reduce elevated contaminant concentrations. However, the objective is “to identify remediation technologies that will reduce elevated contaminant concentrations that will restore groundwater to its beneficial use and protect Brinson Creek.” Please correct this paragraph.

**Text was revised to clarify the objective of the FS.**

- 9. Section 4.1 Development of Alternatives** – Since LUCs will be required for any of the remedial alternatives to prevent unauthorized use or exposure to contaminated groundwater, please include a paragraph that generally identifies what type of LUCs would be utilized for each of the Alternatives. It is also important to factor in the cost of implementing LUCs as part of each remedial alternative in this FS, although EPA suspects it would be roughly the same cost for each alternative.

**[e.g. The Navy will implement the following LUCs as part of the selected remedy for Site 35: 1) incorporating LUCs into the Base Master Plan; 2) a Notice of Inactive Hazardous Substance or Waste Disposal; and 3) Deed and/or Lease Restrictions.]**

**The text in Section 4.1 will be revised to include the suggested language above: “Due to the contaminant concentrations present at Site 35, Land Use Controls (LUCs) prohibiting the installation of water supply wells and preventing the unauthorized use or exposure to contaminated groundwater will be considered a part of Alternatives 2, 3, 4, and 5. The DoN will implement the following measures as part of the LUCs: 1) file a Notice of Inactive Hazardous Substance or Waste Disposal; and 2) file a Deed and/or Lease Restrictions; and 3) incorporate the LUCs into the Base Master Plan.”**

**The costs associated with implementing and maintaining the LUCs have been incorporated in the cost estimate for Alternatives 2, 3, 4 and 5.**

**Partnering Team Comments on the  
Draft Feasibility Study Report for Site 35/OU 10  
(Dated January 22, 2009)**

- 1. Horizontal Air Sparging**– Partnering Team agreed to Air Sparging utilizing a horizontal directionally drilled well as the Preferred Remedial Alternative. Alternative 5 initially included only air sparging using vertically installed sparge points.

**Air Sparging using horizontal well has been added to the FS as Alternative 5b.**