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MCB CAMP LEJEUNE
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U S NAVY RESPONSE TO NORTH CAROLINA DEPARTMENT OF ENVIRNMENTAL AND NATURAL RESOURCES AND U S EPA COMMENTS TO REMEDIAL INVESTIGATION SAMPLING AND ANALYSIS PLAN UNEXPLODED ORDNANCE SITE 6 (UXO6) MCB CAMP LEJEUNE NC

6/18/2012

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Response to Comments
Remedial Investigation UFP-SAP
Munitions Response Program Site UXO-06
Marine Corps Installations East – Marine Corps Base Camp Lejeune, North Carolina

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Introduction

The purpose of this document is to address comments on the Draft Remedial Investigation (RI) UFP-SAP for Munitions Response Program (MRP) Site UXO-06 located at Marine Corps Installations East-Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ). The North Carolina Department of Environment and Natural Resources (NCDENR) and the United States Environmental Protection Agency (USEPA) provided the comments listed below. The responses to comments are provided in bolded text.

North Carolina Department of Environment and Natural Resources (dated May 17, 2012)

1. Were all RSLs Tapwater Standards, in SAP Worksheets #15-x, more stringent than the NC SSL's? Please confirm.
   Where RSLs are listed in Worksheet #15, the RSLs are more stringent than NC SSLs. A statement will be added for clarification.

2. This discussion is in reference to the SOP for Low-Flow Groundwater Sampling from Monitoring Wells in the subject document. The following discussion of low-flow/micro purge sampling is the NC Superfund Sections justification for requiring a minimal low flow sampling purge rate that is designed for the specific well being purged. Every well is unique and should have a unique low-flow purge rate that fits the aquifer conditions (especially the permeability) of the well.

   Based on the following SOP low flow purging should not be done without properly defining the hydrogeology of the well screen interval. As you know the hydraulic conductivity of a well screen interval may vary significantly from one depth to another.

   Regarding the Standard Operation Procedures for Low-Flow Groundwater Sampling from Monitoring wells, below is a section from the Region IV, US EPA, Science and Ecosystem Support Division, Athens GA. Operating Procedures for Groundwater Sampling, Effective date, October 28, 2011.

4.5 Micro-Purge or No Purge Sampling Procedures

The Micro-Purge or No Purge sampling procedures are usually employed when it is necessary to keep purge volumes to an absolute minimum. Among the Micro-Purge or No Purge procedures that might be employed are:

• Low pump rate sampling with peristaltic or submersible pumps (typical Micro-Purge sampling),
• HydraSleeveTM or
• Passive diffusion bag (PDB) sampling

The use of these procedures is acceptable **only** when the site hydrogeology is well understood, with respect to the hydraulic conductivity of geologic materials within the well screen interval. The underlying assumption, when employing these procedures, is that the formation in which the well is screened has a high hydraulic conductivity (K>10-5 cm/sec, for example), resulting in a state of equilibrium existing between the water standing in the screened interval and the formation water in which the well is screened. In this situation, the well is considered to be in a perpetually "purged" state and purging is not required.

These procedures are generally impractical for SESD to implement because of the general lack of hydrogeologic information for the sampled wells and the real necessity, in some cases, that the pumps be pre-deployed to overcome issues related to turbidity resulting from pump placement prior to sampling.

[There are other EPA Letters or procedures that note this limitation on low-flow or micro-purge sampling.]

As discussed at the June 2012 partnering session, majority of monitoring wells in which groundwater is sampled at MCIEAST-MCB CAMLEJ have a high hydraulic conductivity (K>10-5 cm/s) allowing conditions to be conducive to meet the requirements of low flow sampling techniques. The small percentage of wells with K<10-5 (and even some 10-4) cm/s exhibiting excessive drawdown cannot meet the requirements for low-flow; therefore, are not purged using low-flow sampling techniques. A preliminary evaluation of historical purge logs or site K in addition to the well response to pumping will dictate one of two monitoring well purging approaches: low-flow or well volume. For the low-flow purging approach (K>10-5 cm/s), the well is purged at a flow rate less than 1 L/min with a target drawdown of <0.33 ft (a maximum of 5% of the static water column) until water quality parameters stabilize. In the well volume approach (K<10-5), the well is purged a minimum of 3 well volumes (maximum of 5) at a reduced flow rate to avoid exposing a submerged well screen until water quality parameters stabilize.

United States Environmental Protection Agency (dated May 31, 2012)

1. The Environmental Protection Agency (EPA) has completed its review of the above subject document, dated April 2012 and agrees with the sampling and analysis approach. However, there is one minor comment; the screening intervals listed on worksheet #18 should be verified. For example, the screening intervals for the SW samples are documented as approx. 5' bgs. Once the information presented in this worksheet is verified and corrected as appropriate the document can be prepared for signature.

   The screening intervals for SW samples on worksheet #18 have been corrected. No screening interval is currently listed, as is appropriate for the grab surface water samples.