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U S NAVY RESPONSE TO AGENCY COMMENTS TO DRAFT PRELIMINARY
ASSESSMENT/SITE INSPECTION REPORT MMRP SITE UXO-14 FORMER INDOOR PISTOL
RANGE AND GAS CHAMBER RIFLE RANGE AREA MCB CAMP LEJEUNE NC
04/13/2011
CH2M HILL

Response to Comments
Draft Preliminary Assessment/Site Inspection Report for Site UXO-14, Former
Indoor Pistol Range and Gas Chamber (Rifle Range Area) ASR #2.199 and #2.200
Marine Corps Base Camp Lejeune, North Carolina

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The purpose of this document is to address comments to the Draft Preliminary Assessment/Site Inspection Report for UXO-14 Former Indoor Pistol Range and Gas Chamber, Marine Corps Base Camp Lejeune (MCB CamLej), North Carolina. The North Carolina Department of Environment and Natural Resources (NCDENR) and the United States Environmental Protection Agency (USEPA) provided the comments listed below. Responses to comments are provided in bold type.

North Carolina Department of Environment and Natural Resources
(dated February 2, 2011)
Specific Comments

1. On page 4-2, the table which summarizes the surface soil sample results show the screening criteria to be in $\mu\text{g}/\text{kg}$ however the values listed in that column are in mg/kg . Are the minimum and maximum soil concentrations correctly reported on the tables as $\mu\text{g}/\text{kg}$ or should these also be mg/kg ? Also there is no base background criteria for chromium or iron? Residential screening criteria for iron and mercury should be added to the table as well. Also the screening criteria listed for chromium is for Chrome VI. It is possible that the chromium detected is chromium III which has much higher screening criteria. Please revise this table as necessary and determine if the exceedances are still as stated.

The table on page 4-2 has been revised to reflect the correct units (mg/kg). The minimum and maximum soil concentrations for metals analysis are reported on the tables in mg/kg.

The purpose of the tables on page 4-2 is to summarize soil sample (surface and subsurface) results that exceeded screening criteria. Therefore only screening criteria that has been exceeded for a particular analyte is presented within these tables. A summary of the soil screening criteria and concentrations of the target analytes detected in the surface and subsurface soil samples has been added to Section 4 (Tables 4-1 and 4-2).

It is possible that chromium detected in the Site UXO-14 samples could occur predominantly in the trivalent state. However, no speciation analysis of trivalent chromium and hexavalent chromium was performed on any of the Site UXO-14 samples and the USEPA RSL table no longer includes residential or industrial soil RSLs for total chromium (based on a 1:6 ratio of hexavalent chromium to trivalent chromium). Therefore, Site UXO-14 analytical results were compared to the more conservative hexavalent chromium RSL.

2. On page 4-2, the table which summarizes the subsurface soil sample results does not list a base background screening criteria for chromium or iron. Is there no base background screening criteria for these metals? As stated previously the screening criteria listed for chromium is that for Chromium VI. Very conservative screening criteria. Residential screening criteria should be added for iron, lead, antimony and zinc. With these additions to the table, please determine if the exceedances are still as stated.

See response to Comment 1. The screening criteria are provided in Tables 4-1 and 4-2.

3. On pages 4-3 and 4-4 there are tables which summarize the results of the groundwater sampling. In the first table, the NC GWQS for Indeno (1,2,3-cd) pyrene is listed as 0.005 µg/L however should be listed as 0.05 µg/L. On the second and third tables which list the results for metals, please include the NC GWQ standards for arsenic, chromium and copper. Note that there are also federal MCL's for arsenic, iron, and copper which should also be listed. Typically the adjusted tap water RSL's are used as screening criteria only in absence of promulgated standards. Please revise these tables as necessary and determine if the exceedances are still as stated when compared to these standards.

The table on page 4-3 has been revised to reflect the correct NC GWQS for Indeno (1,2,3-cd) pyrene.

The purpose of the tables on pages 4-3 and 4-4 is to summarize groundwater sample results that exceeded screening criteria. A summary of the concentrations of analytes detected in the groundwater samples and associated screening criteria has been added to Section 4 (Table 4-3). The federal MCLs are listed on Table 4-3 rather than the NC GWQS in instances where the MCL is the more conservative value.

4. NCDENR concurs with the recommendation stated in Section 8.2 that an intrusive investigation be performed to assess the nature of the geophysical anomalies representing potential subsurface MEC at the former gas chamber area. Additional investigation at the former indoor pistol range of the extent of metals exceedances for antimony, lead, and mercury in surface soil and antimony and lead in the subsurface soil should also be conducted as recommended.

Comment noted.

North Carolina Department of Environment and Natural Resources on Human Health and Ecological Risks Assessments

(dated February 3, 2011)

Human Health Risk Assessment Specific Comments

1. Table G-1: Please submit all the analytical results for review.

Appendix G has been revised to present all analytical results.

2. Table H.1, footnote 4. The latest RSL table is date November, 2010. Appendix H should be revised using this updated information.

Appendix H has been updated using the most current RSL values from November 2010.

Ecological Risk Assessment Specific Comments

1. Appendix I: Table I-3 is missing. Please submit for review.

Table I-3 has been added to Appendix I of the report.

2. Table I-1: The screening values of 1,100 µg/kg and 29, 000 µg/kg for low molecular weight and high molecular weight PAH's, respectively, are for totals not individual PAH's.

The following paragraph has been added to the Ecological Risk Section (Section 6.4.1):

To evaluate polycyclic aromatic hydrocarbons (PAHs) in surface soil, the detected concentrations of the low molecular weight PAHs were summed and compared to the EcoSSL screening value of 29,000 ug/kg. The detected concentrations for the high molecular weight PAHs were also summed and compared to the EcoSSL screening value of 1,100 ug/kg. Non-detected concentrations were not included in the totals. The totals for both low and high molecular weight PAHs were below their respective screening values, and therefore, PAHs are not expected to pose a significant risk to ecological receptors.

United States Environmental Protection Agency

(dated February 1, 2011)

Specific Comments

EPA agrees with the documented recommendations which are: to perform an intrusive investigation and assess the geophysical anomalies at the Former Gas Chamber Area and delineate the extent of surface and subsurface soil impacts in the Former Indoor Pistol Range Area. This document can be prepared as final.

Comments noted.