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EMAIL AND ATTACHED U S NAVY RESPONSE TO THE U S EPA REGION V COMMENTS  
ON THE DRAFT FINAL INTERIM MEASURES REPORT FOR UNEXPLODED ORDNANCE 7  
(UXO 7) NSA CRANE IN  
06/22/2015  
NAVFAC MID ATLANTIC

## Cohen, Deborah

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-----Original Message-----

From: Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane [mailto:thomas.brent@navy.mil]

Sent: Monday, June 22, 2015 9:25 AM

To: Ramanauskas, Peter <ramanauskas.peter@epa.gov>

Cc: Cole, Linda L CIV NAVFAC MIDLANT, IPTNE <linda.cole@navy.mil>; dgriffin@idem.in.gov; Cohen, Deborah <Deborah.Cohen@tetrattech.com>; Barringer, Rick <Richard.Barringer@tetrattech.com>; Basinski, Ralph <Ralph.Basinski@tetrattech.com>

Subject: RE: IMR\_UXO7\_Draft Final N62470-08-D-1008/F271

Pete,

The attached PDF provides containing responses to your May 11, 2015 comments. Please review and let us know if you have any questions. Please let me know if you need the native Word or Excel files.

Thanks,

Tom

-----Original Message-----

From: Ramanauskas, Peter [mailto:ramanauskas.peter@epa.gov]

Sent: Monday, May 11, 2015 9:52 AM

To: Cole, Linda L CIV NAVFAC MIDLANT, IPTNE; dgriffin@idem.in.gov

Cc: Brent, Thomas CIV NAVFAC MIDLANT, PWD Crane; Cohen, Deborah

Subject: RE: IMR\_UXO7\_Draft Final N62470-08-D-1008/F271

Tom/Linda,

Comments on UXO 7 IMR:

- 1) Please provide the post-removal UCL calculations in the report.
- 2) Add a section or discussion of data quality to the report and provide some explanation for the "M" data qualifier - manual integration.
- 3) It's not clear how the conclusion (page 4-3) of unacceptable ecological risks was derived. For lead, the report states (top of page 4-2) that the average soil lead concentration was 191 mg/kg. Please identify or provide information on the calculation of this value. The report does not provide an ecological screening value (MCG) for PAHs. I recommend the Navy use the PAH screening values (both low and high molecular weight) from the EPA Ecological Soil Screening Levels Report.

Let us know if you have questions.

Thanks,

Pete

**RESPONSES TO USEPA REGION 5 COMMENTS (05/11/15) ON  
DRAFT-FINAL UXO 7 INTERIM MEASURES REPORT (January 2015)  
NSA CRANE, CRANE, INDIANA**

**1) Please provide the post-removal UCL calculations in the report.**

Response: The post-removal UCL calculations have been to the report as new Tables in Appendix G. Section 4.2 has been revised to include the following sentence:

The ProUCL output data for the post-IM removal action soil PAH concentrations on the West Trap Range and the East Trap Range are presented in Appendix G.3.

**2) Add a section or discussion of data quality to the report and provide some explanation for the "M" data qualifier - manual integration.**

Response: The "M" designation stands for manual integration. The "M" designation is shown only in the data tables showing the raw confirmation data that was used in the field to determine whether step-out excavations were necessary. A footnote defining the data qualifier is provided in the table. The "M" qualifier is now also discussed in the text presented in Section 3.6. The "M" data qualifier does not appear in the validated data that was used in the risk evaluations.

New Section 3.6 titled "Data Quality" has been added to the IMR. The following discussion presents the information regarding data quality, as presented in Section 3.6:

**3.6 ANALYTICAL DATA QUALITY FOR UXO 7 IM CONFIRMATION SOIL SAMPLES**

*The composite soil samples collected from excavation area walls and floors were collected to verify that sufficient soil contamination has been removed from the former range areas and that the soil remaining on the excavation walls or floor had reduced concentrations of lead or PAHs in the soil with corresponding reduced exposure risks to human or ecological receptors. The laboratory analytical data for these excavation confirmation soil samples were validated using USEPA National Functional Guidelines for Organic Data Review (June, 2008) and USEPA National Functional Guidelines for Inorganic Data Review (January, 2010). The following quality control parameters were validated for compliance to analytical method and laboratory quality control criteria: holding time compliance, calibration compliance, laboratory blank contamination, interference check sample recovery, surrogate recoveries, internal standard recoveries, matrix spike recoveries, blank spike recoveries, serial dilution, analyte quantitation, and detection limits.*

*Overall, sample quality data was considered acceptable for use in decision making based on the outcome of the data validation process. The outcome of data validation yielded sample qualifications but were limited to matrix spike non-compliances, field duplicate imprecision (for PAHs only), and serial dilution percent difference exceedances. The data qualifications were considered minor in nature and the affected sample results were estimated. Also, as part of the validation process, sample results from each sample delivery group were checked and verified via recalculation of sample results. No errors were encountered. Several instances of manual area integration were flagged by the laboratory (M qualifier) but almost all, with the exception of three dibenz(a,h)anthracene results, were limited to attempting to improve the*

*integration of benzo(b)fluoranthene and benzo(k)fluoranthene. Benzo(b) and benzo(k) fluoranthene co-elute and are often characterized by peak to valley resolution separation difficulties. The validated laboratory analytical data for the soil confirmation samples at UXO 7 are considered acceptable for use in supporting site-specific decision-making and management decisions for the former small arms range areas at UXO 7.*

The reference list (Section 6) has been modified to include the two references to the USEPA functional guidelines for data review (organic and inorganic data).

- 3) It's not clear how the conclusion (page 4-3) of unacceptable ecological risks was derived. For lead, the report states (top of page 4-2) that the average soil lead concentration was 191 mg/kg. Please identify or provide information on the calculation of this value. The report does not provide an ecological screening value (MCG) for PAHs. I recommend the Navy use the PAH screening values (both low and high molecular weight) from the EPA Ecological Soil Screening Levels Report.**

Response: The screening value for high and low molecular weight PAHs as described in the EPA document titled "Ecological Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) in OSWER Directive 9285.7-78 dated June 2007 have been used to provide PAH MCGs for screening purposes. Comparisons were made to the average low and high molecular weight PAH concentrations in surface soils for the East and West Trap Ranges. New tables in Appendix G (Tables G.4-1 and G.4-2) now present the surface soils data for each range, the average concentrations for each PAH compound, and the summed low and high molecular weight average PAH concentrations for each range. The results show that the average surface soil PAH concentrations in each range are well below PAH screening values for low and high molecular weight PAH compounds.

In addition to the two new tables in Appendix G, the following additional text has been added to the text presented in Section 4:

*EPA has also developed Ecological Soil Screening Levels (Eco-SSLs) for PAH compounds in soil and presented that information in USEPA, Office of Solid Waste and Emergency Response (OSWER) Directive 9285.7-78, Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs), Interim Final, June 2007. The division of the specific PAH compounds into the low and high molecular weight classes (shown below) is based on the approach presented in USEPA, OSWER Directive 9285.7-78, Interim Final, June, 2007.*

<b>Low Molecular Weight (LMW) PAH Compounds</b>	<b>High Molecular Weight (HMW) PAH Compounds</b>
1-METHYLNAPHTHALENE	BENZO(A)ANTHRACENE
2-METHYLNAPHTHALENE	BENZO(A)PYRENE
ACENAPHTHENE	BENZO(B)FLUORANTHENE
ACENAPHTHYLENE	BENZO(G,H,I)PERYLENE
FLUORANTHENE	BENZO(K)FLUORANTHENE
FLUORENE	CHRYSENE
NAPHTHALENE	DIBENZO(A,H)ANTHRACENE
PHENANTHRENE	INDENO(1,2,3-CD)PYRENE
	PYRENE

*The post-IM surface soil PAH sample data for surface soil samples (ground surface to two feet bgs) are summarized and averaged by constituent and summed based on their molecular weight grouping (LMW*

or HMW) in Appendix G.4 of this report. Table G.4-1 presents the post-IM removal action individual sample surface soil PAH compound concentrations for samples collected on the West Trap Range. Those analytical concentration data are averaged by constituent and those constituent averages are summed based on whether the specific PAH compound is categorized as an LMW or an HMW compound. In similar fashion, Table G.4-2 presents the post-IM removal action individual sample surface soil PAH compound concentrations for samples collected on the East Trap Range. Those analytical concentration data are averaged by constituent and those constituent averages are summed based on whether the specific PAH compound is categorized as an LMW or an HMW compound.

The summed averages of LMW and HMW PAH compounds detected in soil samples representing the biologically available surface to two feet deep soil on the West Trap Range and the East Trap Range are derived in Tables G.4-1 and G.4-2 of Appendix G, respectively. The summed averaged LMW and HMW PAH compound concentrations for the West Trap Range and the East Trap Range and permits comparison to the relevant EPA ECO-SSL values developed for LMW and HMW PAH compounds (USEPA, OSWER Directive 9285.7-78, Interim Final, June, 2007). As shown in the table below, the averaged summed residual concentrations of LMW PAH compounds and HMW PAH compounds present in surface soil on the West and East Trap Ranges at UXO 7 are significantly below the applicable ECO-SSLs for both soil invertebrate receptors and also for mammalian receptors.

	West Trap Range PAH Surface Soil Data (Surface to 2 ft. bgs) Summed Averages for Relevant PAH Constituents (mg/kg)	East Trap Range PAH Surface Soil Data (Surface to 2 ft. bgs) Summed Averages for Relevant PAH Constituents (mg/kg)	ECO-SSLs Soil Invertebrates (mg/kg)	ECO-SSLs Mammals (mg/kg)
<b>LMW PAHs</b>	<b>0.081</b>	<b>0.065</b>	<b>29</b>	<b>100</b>
<b>HMW PAHs</b>	<b>0.263</b>	<b>0.159</b>	<b>18</b>	<b>1.1</b>

Based on these averaged summed residual concentrations of LMW PAH compounds and HMW PAH compounds present in surface soil on the West and East Trap Ranges at UXO 7, the residual PAHs in the former range surface soils are significantly below the applicable ECO-SSLs (invertebrates and mammals). Consequently, based on the guidance presented in the EPA Ecological Soil Screening Levels Interim Final Directive (USEPA OSWER, June 2007), there are no ecological exposure risks posed by the concentrations of residual PAHs (when evaluated in terms of LMW/HMW PAH compounds) in surface soil (ground surface to two feet bgs) within the footprints of the former West Trap Range and the former East Trap Range at UXO 7.

The reference list has been modified to include a reference to the cited OSWER Directive.