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NSTC GREAT LAKES, IL
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U S NAVY RESPONSE TO COMMENTS RECIEVED FROM ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY ON THE ADDENDUM TO THE SITE INSPECTION REPORT FOR
MUNITIONS RESPONSE PROGRAM RANGES FEBRUARY 2010 NSTC GREAT LAKES IL

5/11/2012
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Navy Response to Comments Received from Illinois Environmental Protection Agency on the Addendum to the Site Inspection Report for Munitions Response Program Ranges (February 2012).

- 1 Comment:** Antimony was diluted by 3 - 5 times and as a result, nearly all NDs are above screening criteria. Request expansion of section 4.3.1

Response – An evaluation of the data validation packages was completed, and all data was found to be correctly validated and usable. A review of the laboratory reports indicated that antimony detection limits are elevated at 5 times the normal detection limit in many samples due to dilutions used to bring elevated concentrations of other analytes (arsenic and lead) into range of the calibration curve. In addition, based on the CSM, lead is the primary driver at this site, and antimony (related to the MRP history) should be collocated with lead.

All the antimony data has been used in the ecological food chain models such that any detection above the 0.27 mg/kg screening level for wildlife automatically made antimony a contaminant of potential concern. When risks to wildlife are evaluated, an average soil concentration is used across the site. The average concentration used in the risk model is the mean concentration of all samples, which is 1/2 the detection limit for any non-detect values, unless the value is greater than the maximum concentration. In that case, the average concentration is the mean of all concentrations above detection limits. Generally, the elevated detection limits will tend to increase the potential risks and result in a more conservative risk assessment.

The report text has been revised as follows (bold text indicates revision):

Section 4.3.1, Antimony, paragraph 1:

However, all sample concentrations and all reporting limits for non-detected samples (1.2 U to 1.84 U mg/kg) exceeded the ecological PAL of 0.27 mg/kg. **Antimony detection limits are elevated at 5 times the normal detection limit in many samples due to dilutions used to bring elevated concentrations of other analytes (arsenic and lead) into range of the calibration curve, resulting in antimony detection limits above the ecological PAL for the non-detect values.**

Section 5, Paragraph 8 (new paragraph):

"Average soil concentration is the mean concentration of all samples, assuming 1/2 the detection limit for non-detects values, unless the average concentration is greater than the maximum concentration. In that case, the average concentration is the mean of all concentrations above detection limits."

- 2 Comment:** Describe the rationale for the proposed excavated areas, why/where – horizontal/vertical.

Response: The extent of the prescriptive soil removal areas were primarily determined based on the location of soil samples with concentrations of lead and/or PAHs below screening values (i.e.

BPA EQ less than the TACO Background Criteria [2,100 µg/kg] and for lead less than the TACO Human Health Criteria [400 mg/kg]).

Section 7.2, paragraph 2:

"A prescriptive removal of soil with concentrations of lead exceeding human health screening criteria and PAHs exceeding TACO background screening criteria in the area east of the RV park is recommended at the TSA Ranges site. ***Laterally, the extent of the prescriptive excavation is generally determined to be a distance half way between an exceedance and a sample location with BAP EQ and lead concentrations less than the screening values. In areas where an exceedance is not bound by samples with concentrations less than the screening criteria, the limit of excavation will be approximately 10 feet beyond the exceedance. The only exception will be at the northern boundary where the excavation will end at the fence line where mature trees and unmaintained brush are currently in place for coastal erosion control.***

Vertically, the extent of the prescriptive excavation is determined by the sample interval for each exceedance. For example, if surface soil samples from 0 to 2 feet bgs exceeds the BAP EQ and lead screening values then that soil volume is included in the prescriptive removal. At that same sample location, if the sample from 2 to 4 feet bgs has BAP EQ and lead concentrations less than the screening values, the excavation will end at 2 feet bgs. Conversely, if soil sample concentrations from 2 to 4 feet bgs had BAP EQ and lead concentrations greater than the screening values, the prescribed excavation will extend to a depth of 4 feet bgs, or the depth at which large construction debris (concrete, etc.), which has been identified to underlie the area of excavation, is encountered; whichever occurs first.

- 3 **Comment:** The wrap up last sentence - Risk assessment did not like "remove" would be more accurate with "minimize risk" "minimize exposure" because a full risk assessment was not completed.

Response: Last sentence has been revised as follows:

"The removal of lead and PAH contaminated soil across the site from 0 to 2 feet bgs will ***reduce*** ~~remove~~ the potential risk ***and exposure*** to human receptors to acceptable risk levels between 10^{-4} ~~and to~~ 10^{-6} in those areas, which supports a no further action determination for the site."

- 4 **Comment:** We usually look for a field survey/inventory to determine what ecological receptors are actually present. Sometime this includes contacting IDNR who keep databases on the occurrence of endanger, threatened, and otherwise protected species.

Response: A site visit by the ecological risk assessor was not necessary because the terrestrial portion of the site is similar to that at other sites at NS Great Lakes, which have been visited. Also, for the food chain model, only generic groups of receptors are typically identified, such as herbivorous mammals and invertivorous birds because surrogate receptors are used to evaluate risks to these receptors anyway. Regarding the endangered species, Section 2.3.1 of the Site Inspection Report for Munitions Response Program Ranges at NSGL discussed the endangered species at the installation. Because this was just an addendum, the information was not repeated.

No changes were made to the revised report based on this comment.

- 5 **Comment:** Selection bases for the NOAEL and LOAEL TRVs.

Response: Table E.5 in Appendix E presents the sources of the NOAEL and LOAEL TRVs. The following rationale for why the TRVs were selected has been added to the revised report as follows:

Section 5.0, New paragraph 10 (new paragraph):

"The TRVs were developed from NOAELs and LOAELs obtained from wildlife studies. The majority of the TRVs were obtained from the USEPA Eco SSL documents and were supplemented with other toxicity information when necessary. For example, the lead LOAEL TRVs for mammals and birds was used based on a recommendation from the USEPA Region 5 ecological risk assessor (Mr. Dan Mazur). Appendix E.5 presents the TRVs, and the sources of the NOAELs and LOAELs used in this ERA. If a subchronic study was used to develop the TRV, the final value was multiplied by a factor of 0.1 to account for uncertainty between subchronic and chronic effects. Also, the LOAEL was multiplied by a factor of 0.1 to estimate a NOAEL TRV if only a LOAEL study was available. The chemical-specific Eco SSL documents provide both NOAELs and LOAELs for various studies, but overall TRVs are calculated only for NOAELs. The geometric mean of the chemical-specific growth and reproduction LOAELs from the chemical-specific Eco SSL documents were used as the LOAEL TRVs."

- 6 **Comment:** These target species are not likely to contact soil below the surface (0-2 or 6"). If they have sufficient analytical data, I would eliminate the deeper results.

Response: Agree. However, there is not sufficient data for the 0 to 6 inch bgs interval. A combination of the 2010 (0 to 6 inch bgs data) and 2011 (0 to 1 foot bgs data) provides sufficient data to complete a risk screening for both the current conditions and proposed post remedial activities. The evaluation was completed for terrestrial mammals and birds and soil invertebrates (per comment 7).

- 7 **Comment:** They should also include soil invertebrate risk information.

Response: Agree. An evaluation of risks to soil invertebrates was added to the ecological risk screening. Section 5 and Appendix E have been revised accordingly.

Some additional verbal comments received from Ben Simes.

- 8 **Comment:** Add a paragraph about PAHs as MC similar to the discussion on metals to Section 2.1.2.

Response: The following paragraph has been added to Section 2.1.2 Munitions Constituents.

"Skeet and trap ranges may contain polycyclic aromatic hydrocarbons (PAHs) that may leach from the binding agents (asphalt/coal tar pitch) within clay targets, thereby contaminating soils and possibly surface and groundwater (NFESC, 1997). Concentration of PAHs in clay targets vary from one manufacturer to the next but may be as high as 1000

mg/kg. PAHS are primarily found 100 feet to 300 feet from the firing line where the clay pigeons are impacted by the lead shot and released to soil through fragmentation and weathering processes. PAHs are not naturally occurring and may be found in areas where asphalt materials are deposited or where burning operations have occurred. The USEPA has established toxicity values for PAHs."

9 Comment: Add a PAL backup table to the appendix from original SAP.

Response: Agreed. The PAL Backup table has been added to Appendix B (Appendix B.2).

3 – additional minor edits.

Section 4.3.1, Paragraph 3:

Additional screening of the arsenic concentrations against the TACO construction worker ingestion criteria of 61 mg/kg yielded no exceedances. ~~However, all detected concentrations exceed the USEPA industrial screening level of 1.6 mg/kg.~~

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