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LETTER REGARDING MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION COMMENTS ON U S NAVY RESPONSES TO COMMENTS ON THE RE-EVALUATION OF THE FACILITY BACKGROUND REPORT NSY PORTSMOUTH ME
1/8/2014
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF MAINE
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January 8, 2014

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re: April 29, 2013 Navy Responses to July 30, 2012 MEDEP Comments, Re-Evaluation of Facility Background Report, Portsmouth Naval Shipyard, Kittery, Maine

Dear Liz,

The Maine Department of Environmental Protection has reviewed the Navy's responses referenced above. We have the following comments.

1. As we have discussed previously, the high PAH detection limits make comparison to site PAH concentrations difficult at best. Although resampling background soil locations for PAHs would be the most accurate way to address this problem another, though less preferable, approach is to compare the Navy's proposed values to MEDEP's PAH background evaluation. Based on this evaluation, the values being proposed are reasonable for an area with a long history of industrial and other activity.

2. Response to Comment 1. MEDEP is satisfied with the identification of non-detects in the graphs and the use of ProUCL and the identification of non-detects and their detection levels. This should provide the most appropriate UCLs for each dataset. There are still some issues where there are too many non-detects to calculate a UCL or any other statistics. These should be clearly stated in the results and tables.

3. RTC 2. "The referenced documents do not discuss how to handle non-detect concentrations when calculating 2,3,7,8-TCDD toxicity equivalent quotients (TEQs) and benzo(a)pyrene equivalent concentrations or any other calculated chemical parameter."

Helsel discusses methods for calculating quantitative statistics, such as maximum likelihood estimation (MLE) and robust ROS. Although he does not specifically mention calculating TEQs, these methods provide ways of estimating missing data that are an improvement over arbitrary data substitution. Unfortunately, these methods require a substantial amount of data above the reporting limit in order to be used.

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"It is common practice to use one-half the detection limit for 2,3,7,8-TCDD TEQ and benzo(a)pyrene equivalent concentrations and this procedure has been used for site data at PNS."

While we agree that the practice is common we do not believe it is a statistically appropriate practice. Likewise, continuing an inappropriate practice because it is standard practice is not prudent. Indeed, the Navy revised the background evaluation report in order to update statistical methods used in the evaluation. However, as discussed above, based on MEDEP's PAH background evaluation, the PAH background values the Navy has proposed are reasonable for an area with a long history of industrial activity.

4. RTC 6. "BGS-26 is not listed in the data base as a duplicate sample and therefore, was not treated as a duplicate. The data and the sample type for each location are presented in Table A.1 of Attachment A. Therefore, no changes are required to the number of samples listed in Table 2."

Based on the field sheets and figures from the time the data were collected, the database is incorrect. The field log clearly states BGS-26 is a field duplicate of BGS-10. MEDEP can forward a copy of this information if needed. Sample location maps from the era of the original study show there is no unique location for BGS-26. Following the convention used at PNSY the data for BGS-10 and BGS-26 need to be combined, and the database needs to be corrected for the final report.

5. RTC 9. MEDEP appreciates the effort the Navy has made to make the non-detect data more obvious, such as plotting them with a different symbol. These changes will help clarify the limitations of a given comparison between site and background concentrations. However, these limitations are great in that creating a probability plot of mostly non-detect values will give you a good assessment of the distribution of the detection limits, but not the parameter of interest. A note should be added to such datasets that we do not have enough data to make valid statistical assessments and, hence, cannot provide an estimate of background concentrations for those parameters.

6. RTC 12.

a) There are several references to background studies of a national or regional scale. Based on the direct impact of bedrock and soil types on metals in particular, and the effects of sample collection methods, statewide studies such as the recent USGS work cited in Maine's 2013 RAGs (p. 17, footnote: http://www.maine.gov/dep/ftp/RAGS-Background-Documents/Metals-and-PAH-Background-Study-2012/) are more appropriate, and rely on current sample and analytical methods. MEDEP will consider those studies as more relevant than older, less focused work, especially Shacklett and Boerngen (1984) which covers too broad an area to be relevant, especially as it concerns arsenic. We note that the study referenced in the Maine 2013 RAGs indicated the 90^{th} percentile of arsenic in Maine ranged from approximately 13-16 ppm.

b) The urban fill background values listed with MEDEP's draft RAGs are not applicable to the background data, as the sample locations do not meet the criteria for urban fill listed in the document. Please remove them from the table.

c) MEDEP continues to object to inclusion of the outliers in the database. However, it appears that this is a situation in which MEDEP and the Navy will have to agree to disagree. In the future, we will endeavor to ensure that background comparisons are completed without allowing single outlier data points to drive the conclusions.

Please feel free to contact me at (207) 287-8010 if you have any questions.

Sincerely,

Iver McLeod
Project Manager
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