MEMORANDUM

TO: LISA Humphreys, USACE PBOW Coordinator, and others

FROM: Julie Weatherington-Rice, Ph.D., RAB TAPP Coordinator

RE: Draft Baseline Human Health Risk Assessment and Ecological Risk Assessment Work Plans, Reservoir No. 2 Burning Ground, Former Plum Brook Ordnance Works, Sandusky, Ohio – JE Jacobs

DATE: July 11, 2008

Per our current contractual arrangement with US ACE which require both a technical memorandum for each report and an educational explanation to the RAB, this memorandum constitutes the technical review of the J E Jacobs May 2008 "Draft Baseline Human Health Risk Assessment and Ecological Risk Assessment Work Plans, Reservoir No. 2 Burning Ground, Former Plum Brook Ordnance Works, Sandusky, Ohio" documents. Please forward to those who need to read this technical review.

General Comments

Please develop a section that discusses the date of the latest thorough literature review of "risk assessment" documents that Jacobs has undertaken. The newest general reference report is dated 2005 but it is not clear from the reports if that is the most recent reference document or if that is the date of the last time that Jacobs updated their general risk assessment templates. Clarification on this issue would be helpful.

Specific Comments - Baseline Human Health Risk Assessment Work Plan, Reservoir No. 2 Burning Ground

1.3.2 Groundwater Use

1. This section is based on outdated information. Please update this section to reflect the more recently gathered information reflecting the behavior of the carbonate aquifer at the site in light of pumping activities at the PBOW and at local offsite locations. It is expected that if wells at the Reservoir No. 2 Burning Grounds were deepened and/or correctly installed/developed, sufficient ground water would be available for future potable use at this site.

2.1.1 Available Data – bottom page 2-1

2. This section about the behavior of the three bedrock wells does not reflect the more recent understanding of ground water behavior at the site. Please update.

3.1 Conceptual Site Exposure Model – 3rd paragraph page 3-2 "Although natural hydrocarbons are known to be present within the bedrock limestone and shale formations…"

3. This topic of "natural hydrocarbons" was supposed to be the subject of a "hydrocarbon fingerprinting" study. Please include the results of that fingerprinting study either here and/or at some other location in this report and/or reference the report that contains the information of the "fingerprinting" study and/or present the time line for the ongoing "fingerprinting" study, whichever one applies.

4. Top of page 3-3. Please update this section beyond the Shaw 2004 report to reflect the most modern understanding of the conditions of the carbonate formations at the PBOW site. The photographs of cores for wells with low yields are not significantly different than the photographs of cores for wells with higher yields. Therefore, there is little visual support for the statement that the bedrock wells at the Reservoir No. 2 Burning Grounds "show few fractures, low porosity, etc." since that statement is not made for many of the other carbonate wells at the site which have higher ground water yields.

Page 3-19

5. Page break fault here. Please correct.

Page 3-35

6. Page break fault here. Please correct.

Table 3-1 On-Site Resident – please revise

7. The on-site resident SHOULD be expected to be exposed to the soil through "incident ingestion and dermal contact". Any on-site resident who undertakes landscaping and/or gardening will have this exposure route. This is especially true of on-site residents who undertake vegetable and fruit gardening.

8. Groundwater exposures for "ingestion and dermal contact" SHOULD be added for consideration. While it has been established that the monitoring wells that were installed at the Reservoir No. 2 Burning Grounds were inadequate to successfully monitor the ground water at the site, that condition does not preclude a future resident from installing a properly sited and developed well, allowing ground water as the potable water supply for the property.

9. Surface Water and Sediment "Incidental ingestion and dermal contact" routes SHOULD be addressed. While we understand the limited nature of the intermittent surface water at the site which has impacted the ability for successful sampling of these materials, a future on-site resident will live at the site the year round and so, therefore, will be expected to be at the site when the surface water ditches are flowing as well as when they are dry.

Kids play in water, even if it is not there all the time. These routes must be considered.

This concludes my technical comments on these Draft Baseline Human Health Risk Assessment and Ecological Risk Assessment Work Plans, Reservoir No. 2 Burning Ground, Former Plum Brook Ordnance Works, Sandusky, Ohio documents. If you have any questions and/or need further clarification on any point discussed in this memorandum, please feel free to contact me.