MEMORANDUM

TO: Mark Bohne, PBOW RAB Co-chair and RAB members

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

RE: Draft Baseline Human Health Risk Assessment and Ecological Risk Assessment Work Plans for Acid Area 1, Former Plum Brook Ordnance Works, Sandusky, Ohio – JE Jacobs

DATE: February 2, 2009

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 educational review of the J E Jacobs November 2008 "Draft Baseline Human Health Risk Assessment and Ecological Risk Assessment Work Plans for Acid Area 1, Former Plum Brook Ordnance Works, Sandusky, Ohio" documents. Please forward these comments to the other RAB members.

General Comments

These documents are a continuation of the numerous draft baseline human health and ecological risk assessment work plans that we have been reviewing for the site. I have developed more substantive comments describing the "Risk Assessment" process in previous memos and so those comments will not be repeated here. By their very nature, these risk assessments are "boilerplate" or "cut and paste" documents, based on previous reports generated for Acid Area 1, for the PBOW site as a whole and/or for other sites where Jacobs has undertaken Human Health and Ecological Risk Assessments in the past. The documents benefit from all the strengths of the previous documents, such as the excellent background description of historical activities at the site located in section 1.2 "Background" of each of these documents and the excellent graphics. However, since this is simply a rehashing of historical documents, new information, such as the research on the properties of the carbonate bedrock formations under the PBOW site, is not incorporated into the documents.

For instance, all of the information presented in the Human Health Risk Assessment in Section 1.3.2 "Groundwater Use" resubmits the historic conclusions that the limestone wells in the area of Acid Area 1 are incapable of sufficient yields of ground water for a potable ground water source. However, this time ground water is considered a source of potable water. This section notes the locations of the closest private water wells (page 1-4, 2nd full paragraph) as being 3,800 feet (recorded log - 6115 Schenk Rd.) and 2,250 feet (no well log - 1810 Schnek Rd.) away on Schenk Road. A search on Google Earth locates the center of Acid Area 1 at 41^0 22' 32.56" North Latitude and 82^0 41' 03.01" West Longitude which creates a significantly greater distance to the local

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private water supply wells of 8,074 feet for the 1810 Schenk Rd site. The SAIC reference must be to the boundary of the property and not to specific locations on the site.

Another limitation to using a "boilerplate" work plan document is that it is not clear the last time Jacobs undertook a comprehensive literature review to determine the most current considerations in human health and ecological risk assessments. The latest general reference I saw was dated 2005. Is that the date of the most current general reference that has been published or does 2005 reflect the last time Jacobs updated their basic risk assessment documents. This is at least the second time I have noted this comment. It would be extremely helpful if a section was included in these documents that noted the last thorough literature review on these topics.

Specific Comments - Baseline Human Health Risk Assessment Work Plan for Acid Area 1

Page 3-19

1. Page break fault here. Please correct.

Page 3-35

2. Page break fault here. Please correct.

These two errors are carried over from the last baseline human health risk Assessment Work Plan presented for the Reservoir No. 2 Burning Grounds.

Specific Comments - Baseline Ecological Risk Assessment Work Plan for Acid Area 1

Page 2-7 Section 2.6.5 Surface Water

1. This paragraph speaks to the issue that surface water at the site is ephemeral and so was dry at the point in time of sampling. The paragraph goes on to state that "Due to the ephemeral natural of the drainage ditch, it does not represent a habitat for aquatic biota or a significant source of drinking water for terrestrial biota." In an earlier e-mail that I sent to Jacobs last month when reviewing this document, I asked if there was any reason to consider the surface water sites at Acid Area 1 to be vernal pools. If not, why not, and if so, would that change the review process? I stated that I would include their responses in this memo, but to date, I have no reply.

   For those not familiar with the term, vernal pools are short lived wetlands that are used as spring breeding grounds for frogs and salamanders. The ephemeral nature of the pools makes them unsuitable habitats for fish which would eat the frog and salamander young. In fact, some of Ohio's most rare species use vernal pools. There has been a vigorous effort on the part of the Ohio EPA Division of Surface Water, the Ohio Department of Natural Resources, and the Ohio Biological Survey to identify and

inventory vernal pools in Ohio. There was a recent awareness article in the Columbus Dispatch newspaper on vernal pools which brought my question to mind. In thinking back, I do not remember any mention of vernal pools at Plum Brook in any of the reports. However, I don't know if that is because they were never inventoried or because they were inventoried and do not exist.

This concludes my educational comments on these Draft Baseline Human Health Risk Assessment and Ecological Risk Assessment Work Plans for Acid Area 1, 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.