



State of Ohio Environmental Protection Agency

Northwest District Office

347 North Dunbridge Road
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 FAX: (419) 352-8468
www.epa.state.oh.us

Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

Re: Former Plum Brook Ordnance Works
Erie County
Groundwater Baseline Human Health
Risk Assessment, Technical
Memorandum dated May 23, 2005

October 20, 2005

Rec'd 24 Oct 2005

Ms. Linda S. Ingram
Department of the Army
Nashville District, Corps of Engineers
P. O. Box 1070
Nashville, Tennessee 37202-1070

Dear Ms. Ingram:

The purpose of this correspondence is to close out my obligation to send an official letter, confirming information submitted to you via e-mail on July 27, 2005 for the Baseline Human Health Risk Assessment, Technical Memorandum dated May 23, 2005. I apologize for the delay in this letter, as since that correspondence I have been called to military duty for a total of 7 weeks. I hope this letter will satisfy my commitment.

Note: Ohio EPA comments on the US Army Corps of Engineers (USACE) Nashville District and Shaw Environmental, Inc. (Shaw) January 2005 Baseline Human Health Risk Assessment for Groundwater Work Plan are provided below in italics for reference. USACE and Shaw responses to Ohio EPA comments are contained in a May 23, 2005 Technical Memorandum entitled, 'Use of Groundwater Analytical Data in the Groundwater Baseline Human Health Risk Assessment'.

1. *Section 2.1.1 Sampling Method Considerations, page 2-2, second bullet: Since the sample method will be considered when evaluating groundwater data from the 1997-2004 time period, it may be helpful to summarize this comparison in a table that can be submitted for review prior to the actual risk calculations. This will give all team members an opportunity to evaluate and agree upon the groundwater data set that will be used in the risk calculations. The risk assessment calculations for groundwater are usually generated based on unfiltered, low-flow sample method data. The rationale for this is because receptors may be exposed to groundwater through various exposure routes (ie. drinking water ingestion, dermal contact with groundwater, inhalation, etc.) which may involve contact with unfiltered groundwater.*

Ohio EPA has reviewed the technical memorandum and corresponding ground water dataset evaluation and have the following comments. For clarification, the shallow overburden saturated zone will not be quantitatively evaluated in the baseline human health risk assessment; only the bedrock (shale/carbonate) zone.

- a. Filtered and unfiltered ground water analytical results should not be pooled into one dataset for the purpose of developing a ground water exposure point concentration (EPC). The two types of data are inherently different due to sample collection techniques (i.e., use of a 0.45 micron filter) and potential differences in exposures to receptors (e.g., filtered ingestion of ground water by an adult and unfiltered dermal contact by a construction worker). USACE/Shaw should develop ground water datasets at each well that are comprised totally of unfiltered ground water analytical results for use in the risk assessment.
- b. Ohio EPA is amenable with pooling unfiltered ground water analytical results collected using bailer and low-flow sampling techniques. Ohio EPA supports this decision due to the fact that many of the wells (both overburden and bedrock) display minimal recharge thus prohibiting the use of low-flow sampling techniques. The amount of time, funding, and other resources necessary to collect a database entirely of unfiltered low-flow ground water analytical results at each area of concern does not appear to be justified for the purposes of the sitewide ground water investigation (GWI) at the NASA Plum Brook Station (NPBS). And,
- c. Ohio EPA is unclear as to why the shallow overburden saturated zone will not be quantitatively evaluated in the risk assessment. Ohio EPA requests that Shaw provide them with the rationale for excluding this zone.

In summary, Ohio EPA is amenable with the ground water datasets proposed in the technical memorandum with the modifications noted in items a. and b. above.

2. Once the ground water datasets for each well have been established, Ohio EPA is unclear as to how the datasets will be used in the risk assessment. For example,
 - a. Will a statistical upper confidence limit be developed for each well at each area of concern (AOC) for use as a ground water exposure point concentration (EPC)?

Ms. Linda S. Ingram
October 20, 2005
Page 3

- b. Will the datasets for all the wells at a particular AOC be pooled to calculate a single statistical value for use as an EPC?
- c. Will a maximum contaminant concentration or a statistical upper confidence limit be used as an EPC at each well, whichever is higher, or will the corresponding EPC be obtained from pooling all data from all wells at a particular AOC?
- d. Is the risk assessment going to be completed at each well individually at each AOC or will the wells be 'pooled' in some manner as to evaluate each AOC as a whole?
- e. How will the risk associated with the downgradient boundary wells be compared or evaluated against the risk associated with the AOCs located further upgradient at the NPBS?

The items noted above should be clarified in some form of sitewide GWI risk assessment work plan.

3. Shaw should be preparing responses to the remainder of the Ohio EPA comment letter dated March 3, 2005 on the January 2005 Baseline Human Health Risk Assessment for Groundwater Work Plan for submittal and review by the agency.

Again, I apologize for the delay of this official letter. If you have any questions or comments feel free to contact me at (419) 373-3147.

Sincerely,



Ron Nabors
Site Coordinator
Division of Emergency and Remedial Response
Northwest District Office

/csl

cc: DERR file

ec: Laurie Moore, SWDO/OFFO
John Weaver, NWDO/DDAGW

*Forward To Shaw
Tom Sawyer on
9 Nov 2005
LSI*