ANSWERS TO QUESTIONS FROM EPA REGARDING BATTELLE MEMORIAL INSTITUTE

Question: How was the determination made of low yield for the groundwater at the Bog Area?

Answer: The determination was made by a site cognizant hydro-geologist working with the information discussed below:

a) February 14, 2005, letter from Battelle to NRC with subject: "Submittal of Battelle's technical basis documentation for groundwater monitoring well locations at the West Jefferson North Site under the SNM-7 License." In particular, please review submittal #4 for that letter titled: "Site Characterization West Jefferson North Site Groundwater Monitoring Well Hydraulic Conductivity Testing and Analysis" dated January 31, 1990, as well as submittal #5 titled: "Geology and Hydrogeology of West Jefferson North Site" dated September 14, 1990. **(ADAMS Accession Number ML050460411. Submittal # 4 starts on page 324 and submittal # 5 starts on page 87).**

b) May 27, 2005, letter from Battelle to NRC with subject: "Submittal of part of Battelle's documentation for the groundwater monitoring program as requested at the conclusion of the telecom meeting on 5/17/05." In particular, please review submittal #3 for that letter titled: "The 2001-2002 report that discusses the groundwater directional maps/text for the site." **(ADAMS Accession Number ML051530517. Submittal # 3 starts on page 180).**

c) The May 23, 2006, letter from Battelle to NRC with subject: "Response to Request for More Information on the Battelle West Jefferson North Site Groundwater as Directed by NRC Telephone Conference Record Dated March 21, 2006." In particular, please review the discussion section on "Bog Area Groundwater Layer." **(ADAMS Accession Number ML061450071).**

In addition to the documents referenced above, the hydro-geologist used his experience at the site and expertise in this functional area.

Question: What was the yield at the Bog Area?

Answer: No specific yield type measurements were made of the Bog Area over the course of the license termination process. The Battelle hydro-geologist used minimally the information discussed above, and also noted that the 1990 document referenced above contains hydraulic conductivity measurements for the Bog Area wells

Question: What level of yield does NRC consider to be too low?

The NRC staff does not have written requirements for a minimum groundwater yield. However, the staff has frequently used the requirements for a resident farmer (that is,

drinking water and household water for four individuals with additional water for livestock and a garden uses).

Question: What guidance or regulation (federal or state) was used to make the determination?

Answer: No federal or state regulation was used to make this determination. Instead, the determination was made using Battelle hydro-geologist's experience with drinking water well construction, and what is necessary for a groundwater table to provide adequate water for drinking and associated recovery of that groundwater table to continue to provide drinking water to the user(s). Most of the groundwater pumped or used is recharged, so that there is no significant groundwater declines on an annual basis.

From an informational standpoint, there are groundwater documents that the State and the counties put out on their aquifers, which include recovery rates and other types of information. Geologists and hydro-geologists use these documents for targeting well development projects.

Question: Where is the rationale for this determination written up?

Answer: The following documents were used to document the rationale for the determination:

a) February 14, 2005, letter from Battelle to NRC with subject: "Submittal of Battelle's technical basis documentation for groundwater monitoring well locations at the West Jefferson North Site under the SNM-7 License." In particular, please review submittal #4 for that letter titled: "Site Characterization West Jefferson North Site Groundwater Monitoring Well Hydraulic Conductivity Testing and Analysis" dated January 31, 1990, as well as submittal #5 titled: "Geology and Hydrogeology of West Jefferson North Site" dated September 14, 1990. **ADAMS Accession Number ML050460411. Submittal # 4 starts on page 324 and submittal # 5 starts on page 87).**

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Question: Other than the Ohio regulation that well screening must be at least 25 feet deep, how was the determination made that the groundwater was too shallow at the Bog Area?

Answer: Battelle used the Ohio regulation on required well depth as its basis discussion on why "The Bog" area water table was too shallow for a drinking water well use. The regulatory requirement is the Ohio Administrative Code 3745-9-05 **(accessible at http://codes.ohio.gov/oac/3745-9).**

Question: What level was considered too shallow?

Answer: In accordance in the regulations of the State of Ohio, less than 25 feet deep to the groundwater table the level was considered too shallow.

Question: What guidance or regulation (federal or state) was used for this determination?

Answer: Ohio EPA Regulations for Drinking Water Wells **(accessible at http://codes.ohio.gov/oac/3745).**

Question: Where is the rationale for this determination written up?

Answer: Ohio EPA Regulations - Division of Drinking and Groundwater requirements. Please read the Ohio Administrative Code contained in 3745-9: "Water Well Standards" **(accessible at http://codes.ohio.gov/oac/3745-9).**

In particular, the May 27, 2005, letter to the NRC that is referenced in this write up, Section # 1, has a statement that says: "The state of Ohio rules for sinking wells for drinking water purposes as to required minimum depths NOTE: We verified with the Ohio EPA that, for non-public water wells, that rules are the same-twenty five feet of casing."

The licensee discussed this with Susan Hampton from the Ohio's Environmental Protection Agency. Her phone number is 614-728-5033.

Question: What is citation for the Ohio regulation on well screening depth?

Answer: Ohio EPA Regulations - Division of Drinking and Groundwater contained in the Ohio Administrative Code 3745-9-05 **(accessible at http://codes.ohio.gov/oac/3745-9).**