OHIO EPA DDAGW / BATTELLE MEETING

OEPA attendees: Division of Drinking and Ground Water (DDAGW) Chief, *Mike Baker*; DDAGW Asst. Chief, *Tom Allen*; CDO Chief, *Craig Butler*; DDAGW- GW Manager, *Linnea Sauko*; DDAGW- DW Manager, *Scot Foltz*; DDAWG- GW Geologist, *Michael Bondoc*; OEPA Public Interest Center, *Jed Thorpe*; DDAGW-DW Admin. Asst. *Tiara Bryant*.

Battelle attendees: Environmental Protection Manager, *Gretchen Farnung*; Radiation Safety Officer, *Joe Jacobsen*.

NRC personnel present via phone conference for observation purposes: Project Manager NRC/US EPA Memorandum of Understanding Division of Waste Management, *Rafael Rodriguez*; Senior Hydrogeologist Environmental Performance and Assessment Directorate Performance Assessment Branch, *Jon Peckenpaugh*; Branch Chief Special Projects Branch Division of Waste Management*, Lydia Chang*; Chief NRC, Region III, Division of Nuclear Material Safety (DNMS) Decommissioning Branch (DB), *Patrick Louden;* Senior Health Physicist RIII, DNMS, DB, *Mike McCann*; Regional Liaison Officer NRC, Region III, Office of the Regional Administrator, *Sheri Minnick*.

Subject: Soil and groundwater results reported in the Site Environmental Reports at Battelle's West Jefferson (WJ) North Site.

The summary below provides the major highlights from the meeting on June 29, 2007 and the next steps.

Groundwater Results:

During the course of site remediation, contaminated soils were removed and the waste was managed/disposed of as radioactive waste in the "bog" (low lying area as a result of dam construction for Battelle Lake) and the filter bed areas. The radioactive isotopes of concern for the site were developed based on the types of radioactive materials that were historically present at the site and based on the types of work conducted at the site. From this data, a scaling ratio was developed for the radionuclides and reviewed by the NRC as part of the decommissioning process. All soil samples were collected according to NRC regulation guidelines and the activity results were within volumetric release criteria based on 100mR/yr and actually met NUREG 1757 criteria for soils (25 mrem standard). Final status surveys were conducted, documented, and verified by NRC and ORISE. Hence, remediation efforts in the "bog" or filter bed areas were completed and verified to meet Battelle's goal to have the site ready for unrestricted future use.

The groundwater in the "bog" area is isolated and is not suitable for use as a drinking water source due to very low yield volumes of water (see additional information provided to OEPA in Document 7 listed at the end). Plutonium, Strontium-90 (Sr-90), and Uranium (U) were slightly above detection limits for some of the wells in the "bog" area. Plutonium is below regulatory concern and Sr-90 will decay away. The groundwater is isolated in the "bog" area and will not move measurably down due to the type of clay layer. The ratio of the isotopes (U-238, U-235, U-234) listed for the samples indicates natural uranium. Three wells (6-855, 6-805, and 6-885) to the east, and expected to be down gradient of the "bog" area, have been sampled and they do not show any contamination including Sr-90. Historical sampling over 20 years of the Battelle Lake and discharges from the lake do not indicate radioactive contamination concerns per Battelle's Environmental Monitoring Program. Hence, we conclude that the low level of contamination in the "bog" area doesn't pose a threat to the lake, environment, or human health.

Potential exposure to residents of Darby Estates and the Girl Scout Camp across the Big Darby Creek was never a concern; it wasn't even brought up as an issue during the decommissioning process. Due to the conservative nature of our remediation efforts, radioactive contaminated discharge pipes and soil from the filter bed, and contaminated soil from the "bog" area have been

excavated and shipped offsite. Environmental samples in the area of the site were collected / analyzed for sediments, soil, water, and air for nearly 20 years. Radioanalytical data generated from the environmental monitoring program has not shown any level of concern tied to applicable requirements.

Radioanalytical Lab and MDAs:

Battelle had an on-site radioanalytical laboratory dedicated to analyzing environmental and project samples. In February 2004, this laboratory function was assumed by Department of Energy contractors who hired two former Battelle staff for the laboratory. The staff were already trained on the analytical procedures, quality control methods, and instrumentation.

Historically, the annual Site Environmental Reports used MDA values (which represent counting instrument detection limits and are not actual activity levels) when no radioactive materials were detected. MDA values are lab specific (based on natural background radiation, instrument counting efficiencies, and count times) making it difficult to maintain consistent MDA values when samples were contracted out for analyses within the last few years of the remediation project. Some higher MDAs were reported as a result of these changes. Both uranium isotopic (newer/advanced technology) and uranium Gamma Spec data have been reported for environmental samples in the annual Site Environmental Reports. The uranium isotopic data are the results used by regulators. Gamma Spec results are used mainly as a screening tool to determine if additional isotopic separations are required.

Gross alpha and beta in water samples were filtered and analyzed for dissolved and suspended activity per National Pollutant Discharge Elimination System reporting requirements for surface water. The gamma spec analysis was performed on unfiltered water samples.

Next Step:

The OEPA and Battelle staff collected separate samples from the three drinking water wells at Battelle's WJ site for gross alpha and beta analyses on July 3, 2007. Sample results were either below detection limits or below regulatory concern for drinking water. NRC is proceeding with the public meeting scheduled in September.

The following is a list of additional documents provided by Battelle to the OEPA during the meeting for their review:

1. WJ site map showing the three drinking water wells (north, south, and middle)
2. WJ site map with monitoring wells and surface water sampling locations and filter bed location
3. WJ North site map from Geology & Hydrogeology of WJ Site Report, showing ground elevations and well depths, dated 9/14/90
4. WJ site map of monitoring wells installed September-October 2006
5. WJ North Facility Monitoring Cluster Location Plan, 8/3/06
6. Letter – Summary Results of Installation and Sampling of Additional Groundwater Monitoring Wells at the Battelle WJ North Site, 11/15/06
7. Letter – Response to Request for More Information on Battelle WJ North Site Groundwater as Directed by NRC Phone Conference Record Dated 3/21/06, letter dated 5/23/06
8. Report DLZ Spring 2003 Well Installation & Geotechnical Testing, 9/11/03
9. WJ North Site Dose Assessment, July 2006, Rev. 0
10. Well Installation and Geotechnical Testing WJ North Site, 9/24/02
11. GW Monitoring Well Installations at Battelle WJ North Site West Jefferson, Ohio, 10/30/06, Report No. 138455-1006-292

[A copy of the Geology and Hydrogeology of WJ North Site Report dated 09/14/1990 was mailed to Linnea after the site visit on July 6, 2007.]