Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR SEAN D. LOGAN, DIRECTOR

Deborah F. Hoffman • Chief

Division of Water

May 29, 2007

Mr. Mark Bohne
PBOW RAB Co-Chairman
311 East Mason Road
Milan, Ohio 44846

Dear Mr. Bohne;

This is in response to your request for comments concerning the report titled " Feasibility Study for Groundwater, TNT and Red Water Pond Areas, Former Plum Brook Ordnance Works, Sandusky, Ohio".

The report refers to the limestone bedrock as the Delaware Limestone. The Delaware is just the uppermost limestone formation and is typically less than 50 feet thick. The Columbus Limestone lies beneath the Delaware Limestone and is typically more water bearing than the Delaware Limestone.

The direction of ground water flow in the carbonate aquifer is to the north. The Division of Water has constructed a historical potentiometric surface map. This map can be accessed at http://www.dnr.state.oh.us/water/gwpsurface/PSurfPDFs/ErieBed_Psurf.pdf . This map was created using existing water well records.

The presence of the Wagner quarry north of the PBOW means that the quarry could be capturing most of the ground water that flows beneath the site. I have talked with the inspector for the Division of Mineral Resources Management and he indicated that maps showing the extent of the dewatering at the quarry have not been developed. Even if the area of influence due to pumping at the quarry extends 1000 feet beyond the quarry property, the quarry sump would capture most of the ground water coming from beneath the PBOW site. I recommend that the proposed monitor wells be installed along the northern edge of the PBOW property and extend towards the quarry to better define the effect that the quarry might be having on the direction and rate of ground water flow. The limestone monitor wells should be deep enough so they are completed below the bottom of the Delaware Limestone.

I am aware of one karst feature mapped in Perkins Township by the Erie County Soil and Water District, but there are extensive karst features in the Columbus Limestone on the

western side of Erie County and eastern Sandusky and Seneca Counties. Ground water flow through fractures or voids should not be ruled out at this site. The existence of fractures or voids should be logged during the installation of any monitor wells.

Thank you for giving us the opportunity to respond. If you have any questions, please give me a call at 614-265-6747.

Sincerely,

James M. Raab
Hydrogeologist/Supervisor
Hydrogeology Program
Water Resources Section
Division of Water

JMR/jr
cc: Eric Dodrill