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DuPont Engineering

July 22, 2002

Mr. Steven E. Williams, Hydrogeologist
Division of Drinking and Ground Waters
Southeast District Office
2195 Front Street
Logan, Ohio 43138

Reply to Response to Comments
Revised Proposed Sampling Investigation Plan
Little Hocking Water Association Well Field
Washington County, Ohio, June 2002

Dear Mr. Williams:

DuPont appreciates the review of the June 2002 Revised Proposed Sampling Investigation Plan by the Division of Drinking and Ground Waters and the Division of Surface Water at the Ohio EPA Southeast District Office. DuPont has reviewed the comments offered by the Ohio EPA and the Little Hocking Water Association, Inc. and their consultants, Bennett & Williams Environmental Consultants, Inc. Our responses to these comments are presented below. For each comment in your letter dated July 8, 2002 (shown in italics), specific responses follow. (Figure 2 from the revised plan, titled Proposed Sampling Locations, is attached for reference.)

1. *DuPont proposes to collect soil samples from two borings in the vicinity of TW-4 at the following depths:*

   - *at the surface*
   - *at the first encountered water (approximately 17 to 20 feet below grade)*
   - *at the top of the sand and gravel aquifer (estimated at 30 to 35 feet below grade)*
   - *at the bottom of the sand and gravel aquifer (estimated at 50 to 55 feet below grade)*

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The Ohio EPA agrees with these sample depths, however, the Ohio EPA believes additional samples are necessary to adequately characterize the vertical distribution of C-8 from the surface to the approximate top of the sand and gravel aquifer. This data will assist in evaluating the air to soil to ground water route of travel and the potential leaching of C-8 from the fine grain alluvial soils. Soil samples should be collected at five foot intervals from the ground surface to the top of the sand and gravel aquifer. (i.e. approximate depths to be sampled include (5, 10, 15, and 25 feet below the surface at the two selected locations). This will add about 8 additional soil samples for analysis.

In addition, Ohio EPA request that DuPont collect soil samples at the remaining five foot interval depths from the two selected borings and retain these for possible future analysis. The decision to analyze these samples would be based on the corresponding water sample results. We recommend language be incorporated into the Work Plan whereby either DuPont independently could analyze these soil samples or the samples could be analyzed if requested by Ohio EPA.

DuPont Response

DuPont agrees to the revisions to the soil sampling plan as described above for the boring located at TW-4. (See Figure 2 for the location of this boring.) At this boring, soil will be sampled every five feet from the ground surface to the bottom of the sand and gravel unit. To ensure that soil will be sampled at depth, a rotosonic drilling rig will be used instead of a Geoprobe®. As indicated above, soil sampled from five-foot intervals between the top and bottom of the sand and gravel unit will be held and could be analyzed if appropriate based on the results obtained for groundwater sampled from the same depths. As suggested above, language will be incorporated into the Work Plan whereby either DuPont independently could analyze these soil samples or the samples could be analyzed if requested by Ohio EPA.

• sample water every 5 ft – add 4/5 samples

However, for the boring located mid-way between TW-4 and TW-5, DuPont proposes a slightly modified approach that will still meet Ohio EPA's objectives. (See Figure 2 for the location of this boring.) DuPont believes C-8 concentrations measured in saturated soils may not be truly representative of soil conditions because the concentration of C-8 detected may reflect C-8 contributed by the groundwater. Therefore, for this boring, DuPont proposes sampling soil every five feet from the ground surface to the depth of first water encountered as recommended by Ohio EPA. Soil will also be sampled at the top and bottom of the sand and gravel unit as was proposed by DuPont in the Revised Proposed Sampling Investigation Plan (June 2002). To ensure that soil from these depths can be sampled, a rotosonic rig will be used.

• sample every 5 feet to top of Stg.
• under wt – sample every 5 ft – retain soils / pending water analysis

2. At the two locations where soil is to be sampled, the Work Plan proposes to collect ground water samples at the following depths:

- *at the first encountered water (approximately 17 to 20 feet below grade)*
- *at the top of the sand and gravel aquifer (estimated at 30 to 35 feet below grade)*
- *at the bottom of the sand and gravel aquifer (estimated at 50 to 55 feet below grade).*

In order to evaluate the surface water to ground water and the ground water flow pathways, the Ohio EPA request that DuPont collect ground water samples at these two locations from the first encountered water to the bottom of the sand and gravel aquifer at five foot intervals. This will allow for evaluation of potential differences in concentration along different flow lines within the aquifer.

DuPont Response

DuPont agrees to the revisions to the groundwater sampling plan as described above for the boring located at TW-4. (See Figure 2 for the location of this boring.) At this boring, groundwater will be sampled every five feet from the first groundwater encountered to the bottom of the sand and gravel unit and all samples will be analyzed. To ensure that groundwater will be sampled at depth, a sonic drilling rig will be used to acquire groundwater samples instead of a Geoprobe®.

For the boring located mid-way between TW-4 and TW-5, DuPont feels that the sampling strategy as was presented in the Revised Proposed Sampling Investigation (June 2002) will allow for the evaluation of potential differences in C-8 concentration along different flow lines within the aquifer. (See Figure 2 for the location of this boring.) DuPont believes it is unlikely that significant stratified flow paths are present within the sand and gravel aquifer at the Little Hocking well field. The combined effect of active pumping and lack of stratified layering will limit the presence of separated flow lines. At this boring, groundwater will be sampled at the first water encountered and at the top and bottom of the sand and gravel unit. Again, to ensure that the groundwater from the bottom of the sand and gravel unit can be sampled, a rotosonic rig will be used to access the sampling zones.

3. In addition to the indirect measurements of river stage height proposed in the Work Plan, a direct measurement of river elevation should be collected at Kraton Polymers. Jim Thrall, Senior Environmental Engineer with Kraton, indicated to Ohio EPA that a measuring point for river elevation is located on the Kraton property and with permission, DuPont can access this point. Please contact Jim, in advance, at (740) 423-2278.

DuPont Response

DuPont concurs that measuring river elevation directly is preferable over indirect measurements. DuPont appreciates the opportunity to collect this data from the measuring point located on the Kraton Polymers property. DuPont will make the necessary arrangements in advance with Jim Thrall, as suggested.

As noted in your letter, Ohio EPA and the Little Hocking Water Association would like the investigation to begin as soon as possible. However, the rotosonic rig proposed for use in this investigation is currently being used to install wells at the DuPont's Local Landfill in West Virginia (one of the C-8 Plume Identification/Groundwater Assessment Work Plan activities). DuPont proposes that this investigation at Little Hocking commence in early August 2002 during an anticipated break in the drilling program. DuPont also proposes a slight delay in the quarterly sampling event for Little Hocking that was scheduled for July 2002 so that this quarterly sampling event will coincide with the proposed sampling investigation. If, at that time, the laboratory is still unable to analyze C-8 in the soil samples, the samples will be retained at the laboratory until the laboratory has developed the protocols needed to perform these analyses.

Pending approval of the latest modification in the revised proposed sampling investigation plan, DuPont will update the plan to reflect the agreed upon changes in soil and groundwater sampling strategy, in sampling equipment, in river stage measurement and in schedule. The updated investigation plan will then be forwarded to Ohio EPA for final approval.

Should you have any additional questions or comments on the responses provided, please feel free to contact me at (302) 992-6820.

Sincerely,

Andrew Hartten
Project Director

cc: David M. Rurak, DuPont
Bernard, J. Reilly, DuPont Legal
Ann M. Bradley, Spillman Thomas & Battle
Laura Walter, DuPont Legal
David Watkins, WVDEP

Attachment