April 23, 2004 Project No. 29016402

Ms. Kelsey Helton
Hazardous Waste Cleanup Section
Florida Department of Environmental Protection
Mail Station 4250
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Response to FDEP Comments Provided in Memoranda from
Zoe Kulakowski to Kelsey Helton dated April 1, April 2, and April 7, 2004

Dear Ms. Helton:

On behalf of Beazer East, TRC is respectfully submitting this combined response to review comments from the Florida Department of Environmental Protection (FDEP) provided in the above referenced memoranda. The review comments were related to submittals regarding the Cabot Carbon/Koppers Superfund Site in Gainesville, in Alachua County. In particular, the memoranda provided review comments on:

- January 19, 2004 Response to comments and revised *Final Third Addendum to the Work Plan For Additional Investigation of the Hawthorn Group Formation, Sampling of Private Wells* (the Third Addendum; TRC, January 2004a).
- January 19, 2004 Response to comments and revised *Final Fourth Addendum to the Work Plan For Additional Investigation of the Hawthorn Group Formation, Abandonment of Monitoring Wells* (the Fourth Addendum; TRC, January 2004b).
- January 29, 2004 *Work Plan, Groundwater Flow and Transport Modeling* (the modeling workplan; GeoTrans, January 2004).
- January 2004 *Data Report, November Sampling Event, Investigation of the Hawthorn Group Formation* (the January Data Report; TRC, January 2004c).
- February 10, 2004 *Fifth Addendum to the Work Plan For Additional Investigation of the Hawthorn Group Formation, DNAPL Source Evaluation* (the Source Delineation Workplan; GeoTrans, February 2004).

The present letter combines responses from Beazer East, GeoTrans, and TRC on the comments presented in all three of the FDEP memoranda.

21 Technology Drive • Irvine, California 92618
Telephone 949-727-9336 • Fax 949-727-7399

The responses to FDEP's comments are presented in Attachment A. FDEP's comments are reproduced in their entirety, followed by our response. Also included with the response are the proposed changes to the documents. If you have any questions, please contact Mr. Mike Slenska of Beazer East at (412)-208-8867.

Sincerely,

Tom Patterson
Senior Project Manager

cc: Maheir Budeir, USEPA
John Mousa, ACEPD
Brett Goodman, GRU
John Herbert, JEA
Mike Slenska, BEI

ATTACHMENT A
RESPONSE TO ACEPD COMMENTS

April 1, 2004 Memoranda regarding the Third and Fourth Addenda, and the Modeling Workplan

Comment #1: *Item (1) needs to add total and dissolved copper and chromium (as per the response to comments) to the Field Data Sheet.*

Response: Total and dissolved copper and chromium were measured as part of the field investigation that was performed in March 2004.

Changes: No changes necessary.

Comment #2: *Item (2) is acceptable.*

Response: Comment noted.

Changes: No changes necessary.

Comment #3: *Item (3) on page 2, needs to show (or type micro before g/l) the cited groundwater concentrations in ug/l throughout the paragraph.*

Response: All concentrations of metal and organic constituents are and will be presented in µg/l. There was a typographical error at the location noted in the comment.

Changes: No changes necessary.

Comment #4: *On page 5, first paragraph. GeoTrans should be notified that following heavy rains, citizens report the presence of NAPL blobs in Springstead Creek to the north. Therefore the DNAPL may be more widespread and mobile than discussed here.*

Response: Comment noted. GeoTrans is now aware that following heavy rains, citizens report the presence of NAPL blobs in Springstead Creek.

Changes: No changes to the workplan are necessary.

Comment #5: *Also on page 5, second paragraph. No groundwater elevation data nor groundwater quality data have been provided to establish that the series of pumping wells is effective at preventing further down gradient plume migration. Such a demonstration would include groundwater elevation data and groundwater quality data from paired wells located on the down gradient side of the recovery well system.*

Response: As part of the performance monitoring program for the ground water pump and treat containment system, Beazer routinely has a capture zone analysis performed for each quarter of operation to determine if the system is providing effective containment. The results are presented in semi-annual ground water monitoring reports, and the results indicate that there is effective containment.

Changes: No changes necessary.

Comment #6: *The model design appears to be well thought out and technically appropriate for site conditions. Approval is recommended.*

Response: Comment noted.

Changes: No changes necessary.

April 2, 2004 Memoranda regarding the January Data Report

Comment #1: *This report appears technically acceptable; however, there are some discrepancies with the laboratory reports as follows:*

1. Table 4.4 needs to be corrected to show that orthophosphate was detected at FW-3 equal to 0.11 mg/l.
2. Figure 4.2 needs to be corrected to show that dibenzofuran was detected at ITF-1 equal to 14.5 ug/l.
3. Table 4.4 needs to be corrected to show that sulfide was nondetect at FW-4 at less than 1 mg/l.
4. Table 4.4 needs to be corrected to show that BOD was nondetect at HG-2S at less than 43.8 mg/l.
5. Figure 4.1 needs to add xylene at HG-4S at 13.2 ug/l.
6. Figure 4.2 needs to be corrected to show that styrene was detected at HG-2D equal to 2.8 ug/l (CAS analysis).
7. Figure 4.2 needs to be corrected to show that 2-methylphenol was detected at HG-2D equal to 3200 ug/l (CAS analysis).
8. Figure 4.1 needs to be corrected to show nondetect for phenols at HG-4D, HG-6S, and FW-5.

Response: FDEP is correct in general regarding the comments above. However, for item 4, the BOD concentration should have shown ">43.8," for item 8, constituents which are nondetect for all sampling events are not listed, and phenol was nondetect for the wells noted for all sampling events,

With the exception of the error noted in item 7, all of the above are typographical errors. The water quality database (presented in Appendix C of the January Data Report) was cross checked against the comments and the lab reports, and the one value for 2-methylphenol at HG-2D was determined to be entered incorrectly (i.e., 3,300 vs. 3,200 µg/L). There were no plans to revise the January data report, and the errors noted above will be addressed in future presentations of the data.

Changes: No changes necessary at this time.

April 7, 2004 Memoranda regarding the Source Delineation Workplan

Comment #1: *My review copy was not sealed nor dated. Is James W. Mercer a Florida registered P.G.? This Work Plan and the Report to follow both need to be signed and sealed by a Florida registered professional that is qualified to do so.*

Response: Dr. Mercer has been a State of Florida Professional Geologist since 1988; his number is PG275 with an expiration date of July 31, 2004.

Changes: No changes to the workplan are necessary. Future submittals regarding this investigation will be sealed and signed.

Comment #2: *Although the dominant slope of the top of the Hawthorn Group surface is to the northeast, better characterization of the source areas needs to be performed in all directions, including up gradient, because of its undulating surface. Specific areas for concern needing additional Geoprobe samples from the top of the Hawthorn are:*
(a) Former cooling pond/tank containment/process area; (1) east of SB-44 and south of OW-2, (2) west of SB-44 (SB-41 did not extend to the top of the Hawthorn), (3) southeast of SFS-B-3, (4) adjacent to TP-11, (5) west and south of EW-16 (high pentachlorophenol-7200J ug/l, captured by the surficial extraction system. This DNAPL compound can desiccate clays and create cracks in the clay to allow continued downward migration. Its delineation should extend upgradient/upslope and any recovery efforts should target this impacted area first.), and (6) northwest of MW-24A/B.
(b) Creosote/Penta Drip Track: (1) south of SB-62, (2) west of the depicted DNAPL zone, (3) additional down slope delineation (recall that EW-14 and EW-13 have contained naphthalene concentrations of 4600 and 6100 ug/l, respectively.
(c) Former North Lagoon: (1) west of SB-38, (2) between SB-37 and SB-32, (3) east of NL-1 and south of TP-5, (4) At SO-011, (5) north of SB-39, and west of M-1. Also, in consideration of the groundwater concentrations detected at MW-3B, a line of Geoprobe locations perpendicular to groundwater flow and slope of the top of the Hawthorn should be aligned with MW-3B to establish the width of the DNAPL dissolved plume down gradient of the North Lagoon.
(d) Former South Lagoon: (1) between SB-22 and SB-23, (2) south of SO-017, (3) upgradient/upslope and around of MW-32AR/32B, (4) at SB-25, (5) at SB-13, (6) at TP-2, (7) and northeast of SFS-B6.

Response: The EPA reviewers had a similar comment (see comment number 10 in the February 27, 2004 letter to Beazer from EPA). The sample locations shown are preliminary and were provided to give the approximate number and location of direct push borings (DPB). As stated in the workplan:

> The final locations of the DPB will be selected, in part, based on access (due to active facility) and the results of the surface geophysics (locating potential features in the top of clay). Surface geophysical surveys will be employed before the Geoprobe® to delineate the top of the clay and near-surface stratigraphy. An earlier pilot study indicated that electrical resistivity might

be a useful tool to help delineate the extent of the DNAPL zones. Depending on the results from the initial DPB program (i.e., outer limit of DNAPL zone not reached), additional DPB locations (moving away from the source area down dip on the clay) may be necessary to define the DNAPL zone on top of the clay.

As part of the process of determining the final locations of DPB, given the constraints listed above, we also will consider your comments. We are now planning to use CPT/ROST™ and other CPT locations will be considered.

Changes: No changes to the workplan are necessary as we believe the comment has largely been addressed in response to the EPA comments and will be further addressed during implementation of the workplan.

Comment #3: *Figure 5 direct push borings appear to be located to delineate severe (>1000 mg/kg) soil impacts. I do not disagree with this as a first step, but it will also be necessary to delineate dissolved DNAPL. Better delineation of dissolved DNAPL on the top of the Hawthorn will be needed to eliminate the shallow source and to prevent continued vertical migration. This should be accomplished during the DNAPL investigation. (See the ground water concentrations at MW-21B and MW-32AR/32B as an example. Groundwater recovery and treatment within the South Lagoon will be likely.*

Response: DNAPL is an acronym for dense nonaqueous phase liquid. It is a liquid that is a separate phase to water. In this case, the DNAPL is creosote. Creosote that is released to the environment migrates as a separate liquid from water. As it migrates, the creosote becomes trapped due to capillary pressure effects, leaving behind a residual saturation that is immobile under ambient conditions. If released in sufficient volume, the creosote can form pools or lenses on top of low-permeability, capillary-pressure barriers. These are fine-grained materials like the Upper Hawthorn Clay. The creosote is the contaminant source that is the subject of this investigation. Because we want to locate source material, we are focusing on areas of high soil contamination.

Even though creosote is a DNAPL, chemicals (e.g., naphthalene) within the creosote will dissolve into groundwater that flows past the DNAPL source. This creates a dissolved plume down gradient of the DNAPL source. As discussed in the Workplan, existing wells down gradient of the source areas contain dissolved creosote constituents. It is not the purpose of this Workplan to delineate dissolved chemicals; the purpose is to delineate the DNAPL source.

There are a number of source area remedies that will be considered following this field investigation.

Changes: No changes to the workplan are necessary.

Comment #4: *On page 17, as previously commented, the phenolics compounds are likely daughter products from pentachlorophenol.*

Response: In the *Groundwater Chemicals Desk Reference* by John H. Montgomery and Linda M. Welkom (Lewis Publishers, 1989), 2-, 3-, or 4-methylphenol is not listed as a transformation product of pentachlorophenol. Other literature and fundamental chemical principles support that phenol, 2-, 3-, and 4-methylphenol, or 2,4-dimethylphenol are not degradation products of pentachlorophenol.

Typically, degradation of pentachlorophenol in aquatic systems would follow a path where the chlorine atoms are substituted for hydroxyl (-OH) groups and then to carbonyl (=O) groups. Once there are carbonyl groups, the benzene ring forming the backbone of the original molecule becomes destabilized and subsequent reactions would be expected to break apart the ring into chlorinated carboxylic acids and other small molecules containing carboxyl and hydroxyl groups.

Degradation of pentachlorophenol to phenol (substituting Cl atoms for H atoms) or to methylphenol (substituting Cl atoms for H atoms and methyl groups) is not expected because carbon-hydrogen (C-H) bonds and carbon-carbon (C-C) bonds are higher energy than carbon-chlorine bonds (C-Cl), so such a substitution requires energy. Further, these reactions are not electron-accepting (like sulfate reduction or methane formation from carbon dioxide) that is necessary for metabolism.

On the other hand, the methylphenols may be breakdown products of creosote constituents, and it is well known that 2,4-dimethylphenol is a minor to trace component of creosote, so there are (former) sources of these compounds at the Koppers Site.

Changes: No changes to the workplan are necessary.