



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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ALACHUA COUNTY  
ENVIRONMENTAL

SEP 13 2004

PROTECTION  
DEPARTMENT

September 8, 2004

Mr. Michael Slenska, P.E.  
Beazer East, Inc.  
One Oxford Center, Suite 3000  
Pittsburgh, PA 15219-6401

Subject: EPA Comments on Proposed Interim Measures/Remedy Pilot Approach,  
Koppers Portion of the Cabot Carbon/Koppers Superfund Site  
Gainesville, Florida

Dear Mr. Slenska:

The United States Environmental Protection Agency (EPA) has reviewed the Proposed Interim Measures/Remedy Pilot Approach, dated August 4, 2004, prepared by Beazer East, Inc. (Beazer). This letter provides EPA comments regarding Beazer's approach to evaluating interim measures and long-term remedial alternatives. Letters from Alachua County Environmental Protection Agency (ACEPD) and Gainesville Regional Utilities (GRU) providing comments on this document are attached. The attachment also contains EPA comments on Beazer's July 2, 2004, Groundwater Flow Model Development and Interim Report (transmitted to you via email on August 19, 2004) and modeling comments from GRU and ACEPD.

1. The above-referenced document proposes pilot remedy approaches to be initiated in the surficial aquifer (page 6). Three points are noted in this proposal: (1) There is a higher probability of success in testing the surficial aquifer materials compared to testing the Hawthorn Group earth materials; (2) The surficial aquifer shallow depth equates to easier monitoring of the testing; and (3) There is less risk in terms of potential impacts to the upper Floridan Aquifer, compared to performing the pilot tests in the Hawthorn Group. EPA has the following concerns about this approach for testing in the surficial aquifer: (1) Recently presented data do not demonstrate that there are more dense non-aqueous phase liquids (DNAPLs) or potentially more mobile DNAPLs, present in the surficial aquifer as opposed to the Hawthorn Group, and (2) There may be limited applicability of results obtained from the surficial aquifer to the Hawthorn Group earth materials. Thus, any locations for pilot testing in the surficial aquifer need to be carefully selected so that the results from these pilot tests have the greatest likelihood of potential applicability to earth materials in the Hawthorn Group.

2. The proposed cement grout injection and chemical oxidation pilot tests need to be directed toward the parts of the surficial aquifer where there are likely to be DNAPLs, and which are more clayey and thus relatively similar to the textures in the Hawthorn Group (locations that

are sandier and thus more representative of the surficial aquifer as a whole can also be selected in addition to locations for pilot testing where surficial aquifer soil textures are most similar to the Hawthorn Group). One point to be made is that the enhanced pumping approach is likely to have limited applicability to address DNAPL contamination, regardless of the surficial aquifer soil texture, due to the inherent properties of creosote DNAPL, of which much is unresponsive to removal attempts by well pumping. Thus, the enhanced pumping DNAPL recovery would likely be used as an initial remedial step, to be followed by some other technology that would address the immobile, residual DNAPL. In this regard, it may be advantageous to perform the DNAPL recovery pilot test in a suitable area, then follow that pilot test with one of the other pilot test options that would address the residual contamination present. This two-phase action would also reduce the potential for unwanted DNAPL mobilization by one of the more aggressive in-situ technologies.

3. Figures presented in the "Fifth Addendum to the Workplan for Additional Investigation of the Hawthorn Group Formation DNAPL Source Evaluation..." (GeoTrans, Inc., 2004) show areas of surficial aquifer materials where there is potentially DNAPL present near the base of the surficial aquifer and in more clayey parts of the surficial aquifer. This condition is most likely to yield results that have some applicability to remediation of DNAPL contamination in the Hawthorn Group. While the PW-1 proposed location for the enhanced pumping recovery of DNAPL is possibly one such location (reference cross section C-C' in GeoTrans, 2004), a more advantageous location might be around boring SFS-B6 in the former south lagoon area (reference cross section B-B' in GeoTrans, 2004). There may be an even better location that can be proposed utilizing more recently obtained data from the Site. The point is that the attempt to pump DNAPL from the surficial aquifer needs to be directed to an area (or possibly multiple areas) where the results are most likely to have relevance to the concerns about DNAPL in the Hawthorn Group. The further details of the proposed pilot test applications (as promised on page 6 of the pilot test remedies discussion) need to present a case for why the location for the enhanced pumping application in the surficial aquifer is proposed, based on its potential relevance to the DNAPL contamination problem in the Hawthorn Group, among other factors.

4. As noted on page 6 of the "Proposed Interim Measure/Remedy Pilot Approach", the information presented in the document is of a conceptual nature, rather than being a detailed plan for the pilot scale testing. EPA expects that the detailed plan for pilot testing of the three technologies will both address the comments given to Beazer on the pilot scale testing and will include detailed plans for monitoring the performance/effectiveness of the pilot scale testing.

5. On page 3 of the "Proposed Interim Measure/Remedy Pilot Approach", the last part of the paragraph beginning "Understanding the practical limitations..." states, in part, "a more attainable goal to DNAPL source remediation...is to reduce the contaminant flux into groundwater ... followed by monitored natural attenuation." It should be noted for the record that while EPA agrees that this is indeed a more attainable goal than complete DNAPL removal, reduction of contaminant flux out of DNAPL source zones is not necessarily followed by monitored natural attenuation (i.e. there may be additional ground-water remedial measures required under certain circumstances).

6. A phased approach for DNAPL sites is generally recommended by EPA to facilitate identification of appropriate short- and long-term site remediation objectives. Because the technical approaches appropriate for the DNAPL zone may differ significantly from those appropriate for the aqueous contaminant plume, separate evaluations of remedial alternatives need to be conducted for the DNAPL zone (residual and free phase), and the aqueous contaminant plume.
7. The Draft Table of Contents for the Feasibility Study, provided in Attachment D, indicates that removal (and other potential technologies) is being evaluated in the FS. However, due to the seriousness of potential continuing migration of DNAPL and contaminant mass transfer from DNAPL to groundwater, EPA is requesting that source removal be evaluated as a short-term alternative (part of the interim measures plan) and be submitted to EPA prior to submittal of the Feasibility Study for long-term remediation. Consistent with this requirement, EPA is requesting that each Site source area (Process Area, North Lagoon, South Lagoon, Drip Track Area) be evaluated in the interim measures plan for: (1) degree of risk reduction that would result from removal, (2) feasibility of source removal, and (3) cost.
8. Presently, it is unclear how much contaminant source resides in the surficial aquifer, and how much has been distributed through parts of the underlying Hawthorn Group sediments. EPA is requesting that Beazer adequately address: (1) the value of removing the source in the surficial aquifer and (2) the ability of the interim actions in the surficial aquifer to significantly reduce risk and limit contaminant migration from the surficial aquifer to and within the Hawthorn Group. This evaluation should include an assessment of whether the source material in both the surficial aquifer and the Hawthorn Group is free-phase DNAPL or residual DNAPL, and this evaluation should include an estimation of the mass of DNAPL present in each source area.
9. EPA requests that Beazer provide all recent environmental monitoring data collected in accordance with the "Fifth Addendum to the Workplan for Additional Investigation of the Hawthorn Group Formation DNAPL Source Evaluation..." (GeoTrans, Inc., 2004) and any subsequent monitoring data to EPA by September 13, 2004. The availability of this data is necessary for a complete understanding of the magnitude of the contamination problem. There should be sufficient data available to begin selection of a remedial strategy to address the DNAPL in the surficial aquifer.
10. Further characterization of groundwater in the Hawthorn Group and Floridan Aquifer is necessary. In particular, groundwater in the Hawthorn Group west of the Koppers property and groundwater downgradient of FW-6 must be characterized. The detailed plan for pilot-scale testing referenced in page 2 of this letter (paragraph 4) should include a proposal for additional Hawthorn Group and Floridan Aquifer monitoring well construction and sampling to satisfy concerns expressed by ACEPD in their August 27, 2004, letter.

11. EPA is requesting that Beazer provide a schedule in the revised interim measures plan for implementation of the interim measures, collection of additional environmental data, and submittal of data to EPA and other stakeholders. EPA requests that Beazer respond to all comments provided by EPA and other stakeholders within 30 days of receipt of this letter.

We appreciate Beazer's cooperation in responding to the pertinent issues related to contamination at the Koppers portion of the Cabot Carbon/Koppers Superfund Site. If you have any questions or comments regarding these issues, please contact me at 404-562-8776.

Sincerely,

A handwritten signature in cursive script that reads "Amy L. Williams".

Amy L. Williams  
Remedial Project Manager

cc: Brett Goodman (GRU)  
Rick Hutton (GRU)  
John Mousa (ACEPD) ✓  
Kelsey Helton (FDEP)

Attachments: ACEPD letter dated August 27, 2004  
GRU letter dated August 31, 2004

## **Attachment 1**

### **EPA Review Comments on the Draft "Groundwater Flow Model Development and Calibration Interim Report, Koppers Inc. Site, Gainesville, Florida" (GeoTrans, Inc., July 2, 2004).**

1. In the first paragraph of Section 1.1, the text needs to define the Cabot Carbon area as the Cabot Carbon portion of the Superfund Site.
2. It is my understanding that wood treating operations at Koppers have gone on somewhat longer than 80 years. The first and second paragraphs of Section 1.1 both refer to 80 years of wood-treating operations.
3. In the second paragraph of Section 1.1, the text implies that the only ground-water contaminants of concern are the PAHs and arsenic. There are other site contaminants of concern that need to be mentioned in this discussion.
4. In Section 2.2 on page 5 of the report, the text states that within the Hawthorn Group, the lateral direction of ground-water flow in the lower Hawthorn Group appears to be northeasterly to northerly. These directions are not consistent with the north westward flow direction that has been documented through previous water-level monitoring (e.g. Figure 3.9 in the "Field Investigation Activities Report," TRC, September 2002). Note that in that report, the measured heads in HG-4I and HG-4D (co-located wells screened in different parts of the lower Hawthorn) varied by less than 0.1 foot. This information implies that most of the head loss in the Hawthorn Group occurs across the clay zones and that the water levels shown for the lower Hawthorn in that September 2002 report are indicative of the general direction of ground-water flow in that particular monitored zone. A north westward direction of ground-water flow in the zone monitored by HG-4I and HG-4D is also consistent with some significant contamination found in Hawthorn wells at comparable depths that are located in the western part of the Koppers property (e.g. HG-2D). Section 3.1 of the document (page 9) states "...accurate determination of average flow directions in the lower Hawthorn is difficult to establish due to the high hydraulic gradient through this formation." This point about the high hydraulic gradient does not seem to be supported by the HG-4I/HG-4D water-level data. There may be a need to adjust the model to account for the apparent north westward direction of ground-water flow in the lower Hawthorn.
5. This report should present all relevant information that correlates the results of the electrical resistivity (ER) survey to the Site-specific lithology as determined from recent boring data, in order to substantiate the validity of the ER data for defining layer thicknesses in off-Site locations. Any report documenting the results of the ER survey should either be appended to the final report of the flow model development and calibration or should be referenced in the final report. If the ER survey report is referenced, then the flow model development and calibration report should include specific data from the ER survey report showing ER survey lines, ER data interpretations and so forth. This information is necessary

in order to fully document the applicability of the ER data to critical elements of the flow modeling.

6. As noted at the top of page 12, the external boundaries for model layers 2 and 9 are all no-flow boundaries. This designation may not be entirely accurate; specifically, it is possible that flow within model layers 7 and 8 (relatively permeable zones in the lower part of the Hawthorn Group) is to the northwest and cannot validly be represented as being parallel to the east and west margins of the model domain. This possibility of north westward flow in the lower Hawthorn may be too uncertain to support adjusting the model to account for that condition. If so, then the possibility of the north westward flow should at least be acknowledged in the Section 3.3 discussion, and text should also be added to indicate how assuming a no-flow boundary when there is actually appreciable (for those model layers) flux out of the model domain to the northwest will affect the overall model results.

7. At the bottom of page 11, the text states that model layer 1 has a combination of both no-flow and specified head boundaries and on page 12, the text identifies the locations of the specified head boundary cells for layer 1. Either a figure or additional text is needed to show the heads assigned to those cells, as well as a basis for assigning the head values.

8. Since recharge is a variable related to soil (or surface) properties, position of the water table (i.e. no recharge occurs at ground-water discharge points) and other factors, the Section 3.3 text on page 12 needs to provide some explanation for why recharge was assumed to be a spatially consistent value, with the exception of the drainage ditch that crosses the central part of the Koppers property.

9. In the discussion under the heading **Hydraulic Conductivity** on page 13, the text states that a higher vertical hydraulic conductivity was applied to a part of the basal clay in the Hawthorn Group in order to match lower water levels in lower Hawthorn wells in the western part of the Koppers property. As noted in comment 4 above, there may be lateral ground-water flow to the northwest in the lower Hawthorn Group, which would account for the lower hydraulic heads in that aquifer. While the difference in well screen elevations probably accounts for some of the difference in the observed water levels across the area, this potential factor does not appear to account for all of the difference in hydraulic head between wells to the south and east compared to water levels in wells to the west and north. Note also that the difference in lower Hawthorn water levels may reflect both a lateral hydraulic gradient to the northwest and a change in the vertical hydraulic conductivity of the Hawthorn basal clay.

10. Under the heading **Hydraulic Conductivity** on page 13, the report references TRC (2002) as the source of the hydraulic conductivity data for the Floridan aquifer. This reference is incorrect. The correct reference should be TRC (2003) (Addendum Hawthorn Group Field Investigation Report, August 2003). Also, note that the "aquifer tests" conducted on the upper Floridan wells were in fact slug tests. Slug tests are probably unreliable measures of the hydraulic conductivity of more permeable earth materials such as

the upper Ocala Limestone, which would account for the large discrepancy between measured hydraulic conductivities and the model-calibrated value.

11. On page 14, in the discussion of the storage coefficient, the text indicates that variations in  $S$  are a result of variable saturated thicknesses. Table 3-1 shows variations in storage coefficients have applicability to some layers that at the Koppers property are fully saturated (e.g. model layer 8). Either the rationale for varying the storage coefficient needs some revision or there are some areas with limited Site-specific head data where it is either assumed (or the model predicts) that unsaturated conditions extend downward into the Hawthorn and upper Floridan aquifer. Such conditions would perhaps be near the Murphree well field where there is substantial drawdown in the upper Floridan aquifer. The text on page 14 would benefit from providing some further discussion of where there is a variable saturated thickness in layers that are fully saturated at the Koppers property. If this is an incorrect interpretation of why there are variable  $S$  values applied to layers in the Hawthorn, upper Floridan aquifer et cetera, then some other modification to the text is needed.

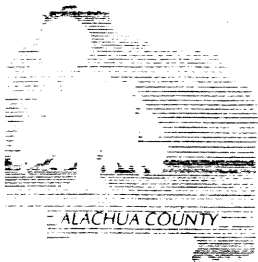
12. To avoid confusion, monitoring wells that are not relevant to the primary information being provided on Figure 3-5 and Figure 3-6 (clay thicknesses in the Hawthorn) should be removed from those figures. The placement of wells on the figures implies that they are data points for determination of the clay thicknesses.

13. Under the heading **Recharge** on page 15, the report indicates that the percentage of precipitation assumed to be recharge was a function of the total rainfall occurring each month. This approach would seem to be reasonable, but assumes that all other variables (evapotranspiration, storage, interception, runoff) are seasonally invariant, such that 8 inches of precipitation in July has the same disposition as 8 inches of precipitation in January. This is clearly not the case. Thus, the precipitation apportionment procedure contributes to some error in the modeling analysis. Some further discussion is needed here for why this source of error can be ignored.

14. In the first paragraph of Section 3.3.3, the text states that the middle and lower clay units in the Hawthorn Group mitigate the effects of water-level changes in the Hawthorn on water levels in the Floridan aquifer. While this is true, the apparent insensitivity of the Floridan aquifer to water level changes in the Hawthorn is also a result of the substantial overall discrepancy in the transmissivity of the Floridan aquifer compared to the transmissivity of the most permeable parts of the Hawthorn. This additional factor should be noted here.

## **Attachment 2**





# ALACHUA COUNTY ENVIRONMENTAL PROTECTION DEPARTMENT

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August 27, 2004

Ms. Amy Williams

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Superfund Remedial and Technical Support Branch

Waste Management Division

EPA Region 4

61 Forsyth St., S.W.

Atlanta, GA 30303 – 8960

Re: ACEPD Comments on Beazer East, Inc Proposed Interim Measures/Remedy  
Pilot Approach Cabot -Koppers Superfund Site—Dated August 4, 2004  
ACEPD Comments on GeoTrans, Inc. Groundwater Flow and Transport  
Modeling Cabot-Koppers Superfund Site—Dated April 22, 2004

Dear Ms. Williams:

The Alachua County Environmental Protection Department (ACEPD) is enclosing as Attachment 1 with this letter specific comments and recommendations concerning the above referenced reports for the proposed interim/ pilot studies and groundwater modeling studies at the Cabot-Koppers Superfund Site as well as recommended site data acquisition requirements. These comments include recommendations for further investigation of the Floridan and intermediate aquifers (Hawthorn Group) and expansion of the proposed pilot remedy approaches that are needed for developing an appropriate final remedy for the site considering the deeper presence of free product and the significant impacts to the deeper aquifers at the site that has been revealed by the recent site investigations.

The confirmed increased contamination impacts to the Floridan and intermediate aquifers at the site and the increased potential impact of this contamination to our community's water supply sources has significantly raised the urgency and need for immediate remedial actions at this site. In March 2004, Alachua County specifically requested that USEPA take immediate interim remedial actions to remove source material from the surficial aquifer and begin the process of curtailing discharges to the Floridan and Intermediate aquifers. While ACEPD acknowledges the recent actions taken by USEPA to expedite field investigations by Beazer East (Beazer) and to expedite Beazer's progress toward developing a revised feasibility study for the site, ACEPD remains concerned that USEPA and Beazer have not initiated nor appear to be seriously considering expedited actions to remove source material from the site. The recent "interim actions" proposed by Beazer are inadequate and do not address the specific request made by the County to USEPA in terms of initiating source removal actions. ACEPD requests that immediate actions to remove source

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material from the site be taken simultaneously with continuing progress toward developing a site wide feasibility study and remedial plan. The need for immediate action by USEPA and Beazer is made more urgent when one considers the recent new data from the site investigations. Field activities conducted at the Koppers site in April through June 2004 have proven that creosote related source material has migrated into the Hawthorn Group formations at depths of greater than 100 feet below the surface. The presence of this source material in seven of 10 wells installed on the site indicates that the Hawthorn Group contamination is widespread and mobile. Napthalene has been detected in the Floridan aquifer near the source areas at confirmed concentrations of 1,240 parts per billion which is 62 times the Florida Groundwater Clean-up standard and 12.4 times the site groundwater clean-up goals established in previous draft Record of Decision for this site. Benzene has also been detected in the Floridan aquifer at 5 to 8 times Florida groundwater clean-up standards. Evidence of possible offsite migration in the Hawthorne Group has also been observed from nearby offsite well data. ACEPD is concerned about the continuing impacts to the Floridan and intermediate aquifers that will continue unabated during the several year period that may be needed to complete feasibility studies, develop designs and implement the final remedy for this site. Considering the disappointing and lengthy 20 year history of studies and delays at this site, it seems that time is long overdue for implementing immediate measures to remediate the source areas at this site.

ACEPD understands that Beazer intends to evaluate all recently obtained site data as well as the results of the proposed pilot remedial studies in developing the draft Feasibility Study report which is proposed by Beazer for completion in December 2004. ACEPD believes that it is critical and would expedite the review of the draft Feasibility Study if all assumptions and conclusions made by Beazer from the recent completed and proposed field studies that will be used by them to develop the draft Feasibility Study be made available to EPA, ACEPD, Gainesville Regional Utilities (GRU), Florida Department of Environmental Protection (FDEP) and all other stakeholders for their review and comments prior to completing the draft Feasibility Study. For instance, assumptions or conclusions about the mobility of the source material or the technical viability or limitations of excavation or other treatment techniques should be clearly communicated and agreed to by EPA and other stakeholders.

If you have any questions or comments about these concerns please contact me at 352-264-6801.

Sincerely,



Chris Bird

Environmental Protection Director

CC: Mike Slenska, Beazer East, Inc.  
Kelsy Helton, FDEP  
Robin Hallbourg  
John Mousa

Brett Goodman, GRU  
Paul Myers, ACHD  
File Copy (1658 Green)

CB/jjm

**Attachment 1:** ACEPD Comments on Proposed Interim Measures/Remedy Pilot Approach Cabot - Koppers Superfund Site—Dated August 4, 2004  
ACEPD Comments on GeoTrans, Inc. Groundwater Flow and Transport Modeling Cabot-Koppers Superfund Site—Dated April 22, 2004

**Attachment 1**  
**ACEPD Comments on Proposed Interim Measures/Remedy Pilot Approach**  
**Koppers Portion of the Cabot Carbon/Koppers Superfund Site**  
**Dated August 4, 2004**

1. The initial sampling of Floridan well FW-06 indicated that the naphthalene concentration was 2,560 ug/L. Elevated levels of other compounds (e.g. methylphenols, polynuclear aromatics, benzene and other volatile organics) were also measured in samples from this well. The results of resampling this well (FW-06) following redevelopment (removing approximately 1,300 gallons), reported that the naphthalene concentration was 1,240 ug/L and the other organics were somewhat lower in concentration. Based on the elevated concentrations of site contaminants in the Floridan aquifer, ACEPD is requesting that this well be further developed and again resampled.
2. Since it is unclear whether the contaminants detected in well FW-06 entered the Floridan aquifer due to vertical migration or through well construction activities, ACEPD requests that a second Floridan well be installed downgradient of FW-06. ACEPD recommends this well be installed, developed and sampled immediately to further define the contamination in the Floridan aquifer. This would aid in determining if the contaminants found in FW-06 were "carry down" from drilling activities or are moving northerly in the groundwater. Timely installation and sampling of this additional well is paramount to protection of the Floridan aquifer at the site.
3. The contamination of the Geiersbach irrigation well is evidence that there is a westerly component of contaminated groundwater flow at the site. To delineate the magnitude of this westerly contaminant movement, ACEPD strongly recommends installation of the Beazer proposed Hawthorn well cluster closer to the Geiersbach property. The proposed location at NW 31<sup>st</sup> Street is approximately 1,500 feet northwest of the Geiersbach property and too far from the closest on-site wells, HG-2S and HG-2D, to adequately assess contaminant migration to the west and southwest. Continuous split-spoon sampling or other techniques of drilling and testing should be conducted at each of these locations to accurately determine the monitoring interval (screen placement) and identify off-site contamination.
4. Since elevated concentrations of naphthalene and other constituents were reported in samples collected in the upper intermediate wells in the South Lagoon (HG-9S, naphthalene 11,400 ug/L) and the Process Area (HG-11S, naphthalene 20,200 ug/L; HG-15S, naphthalene 8,690 ug/L), ACEPD recommends that lower intermediate (Hawthorn Group) wells at the South Lagoon and Process Area (Former Cooling Pond area) be installed and paired with wells HG-9S and HG-11S, respectively. This would allow the determination of contaminant impacts to the Lower Hawthorn Group in these two source areas.
5. Proposed pilot product recovery efforts through a recovery well should be expanded to add active recovery (pumping) in the upper intermediate aquifer (Hawthorn Group) in the vicinity of the North Lagoon and the Former Cooling Pond area as well as the proposed pilot recovery pumping in the surficial aquifer. A pilot study to include the upper intermediate aquifer (Hawthorn Group) is extremely important, as seven of the ten recently installed wells were observed to have "product" following well development. This additional recovery pilot effort should be implemented and the data evaluated prior to developing the draft Feasibility Study.
6. Active pumping alone should not be the only method of product recovery evaluated at the site for the surficial aquifer and Hawthorn Group sediments. Product removal enhancing techniques such as thermal treatment or use of surfactants and/or dilutants must also be evaluated in the feasibility study.

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7. Additional data on the horizontal and vertical extent of contamination contained in the Hawthorn Group formations near the source areas is needed to evaluate source removal and remedial options. Wells constructed in the intermediate aquifer (Hawthorn Group formations) only provide one or two vertical profiles of contamination in each of the four source areas. Without this additional information, it may not be possible to accurately determine the cost of source removal and treatment options.
8. Excavation and treatment of excavated contaminated sediments must be thoroughly evaluated as a site remedy in the Feasibility Study. Excavation of surficial and Hawthorn Group sediments (to a depth of 47') and treatment of contaminated sediments was conducted to remediate a release of chlorinated solvents at the FDOT Fairbanks Sand Pit. This site is located northeast of the Murphree Wellfield, in an area with similar geology.
9. The distribution and mass of the source material among the surficial aquifer and Hawthorn Group formations has not been provided. ACEPD requests a detailed definition of the amount of product in these units. This information is essential in fully evaluating source removal as a remedial option. The Hawthorn Group sediments must be evaluated at the same level of detail as the surficial aquifer to obtain enough information to select remedial technologies for abatement of dissolved, residual, and mobile contaminants.
10. The work plan for assessment of the source areas, Fifth Addendum (April 27, 2004), showed cross sections of the surficial aquifer characterizing the extent of contamination. The recently acquired data from this assessment should be used to update these cross sections.
11. ACEPD requests continued bailing of the Hawthorn Group wells that are found to contain DNAPL product. This product is mobile; ACEPD staff observed bailing activities conducted on 8/24/04. The initial bailer removed from well HG-10S in the North Lagoon contained over two feet of creosote. Continued tabulation, recording and reporting of removed DNAPL should be regularly reported.

**ACEPD Comments  
Koppers Groundwater Flow Model Development and Calibration Interim Report  
Dated July 2, 2004**

12. The presence of site contaminants off-site in the Geiersbach irrigation well is evidence that there is some westerly component of groundwater flow in the intermediate aquifer system (Hawthorn Group) at the site. How does this affect the model?
13. The assumption that "15 percent of the produced flow was originating from the upper transmissive zone and 85 percent from the lower" (page 16) may under estimate the amount of water produced from the upper portion of the upper Floridan. The "worst case" scenario would be to use 25 percent, the high end of the reported range of 10 to 25 percent.
14. The proposed groundwater model is based on limited information about the actual geologic conditions in the Intermediate aquifer at the Koppers site. There are also limitations on the interpretation and type of information obtained using the geophysical techniques applied at the site. Considering the limited information available and complexity of the site, the reliability of conclusions drawn from the modeling results will always be limited.

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August 31, 2004

Mr. Mike Slenska, P.E.  
Beazer East, Inc.  
One Oxford Center, Suite 3000  
Pittsburgh, PA 15219-6401

RE: Gainesville Regional Utilities (GRU) Comments  
Proposed Interim Measures/Remedy Pilot Approach  
Koppers Portion of the Cabot Carbon/Koppers Superfund Site, Gainesville Florida

Dear Mr. Slenska:

Following are GRU's comments to the meeting held on July 21, 2004, held in Atlanta and your letter dated August 4, 2004, addressed to Ms. Amy Williams. Based on the preliminary findings presented by Beazer at the July 21<sup>st</sup> meeting, it appears that the contamination under the Koppers site is more extensive and deeper than originally anticipated. Given our latest understanding of the conditions at the Cabot Carbon/Koppers Superfund and Beazer's proposed schedule for completing the Feasibility Study in December 2004, we are making the following requests of Beazer and EPA:

#### **Source Delineation**

From the preliminary results presented by Beazer from the completion of the field work associated with the *Final Fifth Addendum to the Workplan for Additional Characterization of the Hawthorn Group – DNAPL Source Evaluation*, it appears that the horizontal and vertical extent of contamination has been established in the surficial aquifer. However, the horizontal and vertical extent of contamination in the Hawthorn and Floridan Aquifers is still uncertain after 20 years of investigation at the site. We request immediate action for completing all the necessary field work necessary to assess the mass and distribution of contamination in these lower aquifers. The proposed workplan for conducting the investigation should provide flexibility for continuing field work when unanticipated conditions are found during the additional field investigations as was done when completing the most recent investigation. Our expectation is that this investigation will be the final investigation necessary to adequately define the source areas of DNAPL in the Hawthorn and Floridan units, and the results of this investigation will provide Beazer with the additional information needed to proceed with a final remedy in these units. Our primary concern is that the Feasibility Study will propose additional investigations that will not be initiated until the Feasibility Study is accepted resulting in further delays to the remediation of the site. Additional investigations necessary to assess the contamination in the Hawthorn and Floridan units must not be delayed by the approval process of the Feasibility Study.

#### **Interim Measures**

Based on the discussion at our July 21<sup>st</sup> meeting, selection and implementation of a final remedial strategy may not occur for several years. It is anticipated that the Feasibility Study to be submitted by Beazer in December 2004 will likely outline additional investigation needed to evaluate, design, and implement a final remediation strategy in the Hawthorn and Floridan Aquifers. The timing of this process is the primary reason for our requests that interim measures be evaluated and implemented at the site that will eliminate the discharge of contaminants to the Hawthorn and Floridan Aquifers. While additional time is being spent assessing the site, the forces that drive the contamination into these lower units continue and are likely to result in higher life cycle costs for remediating the site and increased risk to the City's water supply. As an example of our concerns with the timing of the clean up process, it has taken more than three years since the proposed amendment to the Record of Decision was deemed unacceptable by the local stakeholders and there is still no resolution on the horizontal vertical extent of the contamination at the site.

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It is our assumption that the results of the most recent investigation conducted by Beazer are adequate for implementing a remediation strategy in the surficial aquifer. This information should be immediately carried forward to implementing source removal in the surficial aquifer in advance of remedial strategies in the Hawthorn and Floridan.

In your August 4, 2004 letter you outlined three different remedial approaches to be pilot tested. It is our understanding that these approaches will be evaluated both for implementation as interim measures and as part of the final remedy. The pilot testing plan should include detailed evaluation procedures including the metrics which will be used in evaluating the effectiveness and applicability of each approach. Treatment methodologies that focus on contaminant mass reduction rather than immobilization are of primary interest to GRU. We request that Beazer consider additional oxidants in the pilot testing that would enhance source depletion. We also request that bioremediation techniques be considered to evaluate their potential for interim measures and their applicability to the final remedial strategy.

We understand the basis for Beazer's decision to limit the pilot testing to the surficial aquifer at this time in order to minimize the threat of incidental mobilization of residual material and to contain costs. However, based on the field data presented from the recent Hawthorn Group Well Gauging Data (presented in your August 4, 2004 letter) and the limited pumping data from PW-1, it appears that creosote source material in some of the Hawthorn Group wells (specifically HG-9S, HG-10S, HG-11S and HG-16S) may be more mobile than that at PW-1 and potentially other surficial aquifer locations. We are concerned that a technology could be deemed ineffectual based on surficial aquifer testing, when in fact it may be more effectual under conditions in the Hawthorn Group. Enhanced recovery should also be pilot tested in one or more intermediate aquifer location in addition to the surficial aquifer location. Consideration should also be given to testing the chemical oxidation and cement clay grouting in the intermediate aquifers.

#### Feasibility Study

A central theme of the presentations given at the July 21<sup>st</sup> meeting was the condition of the DNAPLs in the Hawthorn formation. We believe that the assumed condition of the DNAPL, free-phase and mobile vs. residual-phase and immobile, will be critical to the proposed remediation strategies that will be presented in the Feasibility Study. Given that the amount of DNAPL released at the site is unknown, that free product has been recovered in the Lower Hawthorn, and the lack of confirmatory evidence that the contamination is immobile, we request that Beazer treat the contamination in the Upper and Lower Hawthorn as mobile free product in the preparation of the Feasibility Study Report. This assumption is critical to the selection of the final remedial strategies and should be clarified in advance of the planned submittal of the Feasibility Study in December. We believe our request is supported by the results of the recent field investigations presented on July 21, 2004, in Atlanta as well as the EPA document, "The DNAPL Remediation Challenge: Is There a Case of Source Depletion?" that was discussed in the Atlanta meeting. The EPA document specifically addressed the uncertainty of DNAPL mobility at creosote and coal tar sites:

**"... the Panel concluded that at the vast majority of sites impacted with chlorinated solvent DNAPLs, the presence of highly mobile separate free phase cases is the exception rather than the rule since most chlorinated DNAPLs (PCE, TCE) generally come into hydraulic equilibrium relatively quickly following releases. However, sites with wetting DNAPLs may be an exception to this general rule, and the Panel is aware of several reports of continued mobility of DNAPLS such as creosote and coal tars even though disposal may have occurred decades earlier."**

We believe the conclusion of the EPA document is consistent with the latest findings at the site. Faced with all the uncertainties of this site and its potential for impacting the public drinking water supply, Beazer must approach the proposed remediation strategies from a more conservative or worst case scenario, rather than a best case assumption.

The August 4, 2004, letter states several findings of the EPA document that provides perspective on the expectations of source depletion technologies applied at known DNAPL sites. We understand the complexities of the site and realize that

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any one source depletion technology may not succeed in obtaining complete removal of the DNAPL source material in the Upper and Lower Hawthorn formations, however, all efforts and multiple remedies should be exhausted to reduce the mass of inorganic and organic contamination below the ground surface in all aquifer units including the surficial, the Upper and Lower Hawthorn and the Floridan. Delaying remediation activities at the site until it is deemed technically impractical to achieve DNAPL remediation is not acceptable to GRU.

#### Schedule

In order to start preparing for the review and approval of the final remediation strategies as well as monitor the progress of the evaluation of interim measures, we are requesting an estimated schedule for completing the evaluation and implementation of interim measures as well as the anticipated schedule for site activities after the Feasibility Study is submitted in December 2004. This schedule will be beneficial to GRU for planning the necessary resources to expedite the review and approval of the proposed interim measures and the final remedial strategies presented in the Feasibility Study. The schedule should provide anticipated activities with review times for the EPA and local stakeholders clearly indicated.

We appreciate the opportunity to comment on the proposed evaluation of interim measures. I have also enclosed ~~are~~ our comments to EPA. If you need additional information, please contact me at 352-393-1613

Sincerely,



Brett Goodman, P.E.  
Senior Water/Wastewater Utility Engineer

| xc:    Amy Williams (EPA)  
         John Mousa (ACEPD)  
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Subject RE: Interim Model Calibration Report Gainesville, FL Site

Please find below Gainesville Regional Utilities' comments on the "Groundwater Flow Model Development and Calibration Interim Report" (Draft) prepared by GeoTrans, Inc. and submitted by Beazer East, Inc. on July 2, 2004.

- The recharge parameter is assumed as a fraction of precipitation primarily based on a regional assumption by Motz (2003) and treated as a calibration parameter in the model. However, the model is very sensitive to this parameter (particularly groundwater levels in the surficial aquifer, as is discussed in the draft report). It seems that the model would be more robust if recharge were calculated directly. Please provide a discussion on why recharge was not estimated more rigorously by taking into account surface water runoff, evapotranspiration, soil and vegetation.
- The Upper Floridan potentiometric surface is very sensitive to the distribution of withdrawals in the upper and lower transmissive zones of Upper Floridan aquifer. Sensitivity analysis is highly recommended for different scenarios of withdrawal distribution.
- Layer-by-layer flow budgets for the calibration period should be included in the report.
- Please provide discussion of the potentiometric surface estimated for the surficial aquifer around the groundwater extraction system on the north and east boundaries of the Koppers site. Our primary interest is why the predicted groundwater levels indicate flow across the existing extraction system boundaries. It appears that the existing extraction system provides little hydraulic control of surficial groundwater moving across the site. Our concern is that some of the dissolved contaminants from the site in the flow field to the extractions wells may not be getting captured.

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