



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

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March 1, 2007

Mitchell Brouman
Environmental Manager
Beazer East, Inc.
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Pittsburgh, PA 15219-6401

Subject: Five-Year Review Recommendations Regarding Additional Hawthorn Investigation,
Cabot/Koppers Superfund Site, Gainesville, Florida

Dear Mr. Brouman:

This letter pertains to the United States Environmental Protection Agency's (EPA's) request for additional Hawthorn Group monitoring at the Koppers portion of the Cabot/Koppers Superfund Site (Gainesville, Florida). EPA has reviewed recent responses from Beazer East, Inc. (Beazer) to EPA's recommendations, and is providing comments and clarification in this letter.

EPA's April 4, 2006, Five-Year Review Report for the Cabot/Koppers Site recommended that Beazer conduct further investigation of the Hawthorn Group. Recommendation 3 in the Five-Year Review Report (Table 13, page 44) addressing the Koppers portion of the Site states the following:

Further characterization of the Hawthorn Group sediments is necessary for remedial design and action. The extent of contamination in the Hawthorn Group at the entire site should be better delineated. Investigations at Koppers confirm the presence of contamination in the Hawthorn.

On December 7, 2006, Beazer provided a response to many of the issues and recommendations made in the Five-Year Review Report, including the third recommendation above. In an effort to clarify the need for additional Hawthorn monitoring at the Koppers Site, EPA is providing comments regarding Beazer's response in the attachment to this letter.

EPA requests that Beazer develop a plan for additional monitoring in the Hawthorn Group by March 31, 2007. Please contact me to discuss this issue further.

Sincerely,

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

Amy L. McLaughlin
Remedial Project Manager

Attachment

Attachment
Comments/Responses Regarding Five-Year Review Recommendation 3

The third recommendation in EPA's April 4, 2006, Five-Year Review Report addressing the Koppers portion of the Site states the following:

Further characterization of the Hawthorn Group sediments is necessary for remedial design and action. The extent of contamination in the Hawthorn Group at the entire site should be better delineated. Investigations at Koppers confirm the presence of contamination in the Hawthorn.

This recommendation is further discussed in Section 3 of EPA's November 17, 2006, letter to Beazer:

The Hawthorn Group should be further characterized to delineate the extent of contamination. The five-year review Milestone Date for this action is March 31, 2007. This is the date by which Beazer should develop a sampling/analysis plan for characterization of the Hawthorn, including ITF-3 (east) and west of the Koppers site (offsite), installation of additional monitoring wells, sampling, groundwater analysis, and conduct an evaluation of the site stratigraphy. Beazer had proposed to submit and implement a Hawthorn groundwater monitoring plan and reevaluate the site stratigraphy (at all depths down to 140 ft), utilizing new core information obtained over the last year. However, in its June 2, 2006, letter to EPA, Beazer stated that it "does not believe that detailed Hawthorn Group delineation is necessary for remedial decision making, and that drilling for Hawthorn Group delineation is risky because it will create potential conduits through the low permeability deposits of the Hawthorn Group". Beazer did state that "additional Hawthorn Group work could potentially focus on addressing the question of off-site migration/risk versus source delineation". It is unclear what this approach would entail. Furthermore, EPA is convinced that Hawthorn wells can be designed with minimal risk to the subsurface. EPA requests that Beazer submit a plan to EPA by December 29, 2006, for installation of additional Hawthorn wells to the west and east of the existing Hawthorn wells. Once the Hawthorn well plan is approved, EPA requests that Beazer install and monitor additional Hawthorn wells, as well as conduct an evaluation of the site stratigraphy by March 31, 2007.

Beazer's December 7, 2006, response to this portion of the letter is as follows:

On November 17, 2006, Beazer provided the USEPA with an updated Site stratigraphy that was based on all prior field work, including the newest core data available from the recent Floridan monitoring well installations. Concerning Hawthorn Group groundwater monitoring, Beazer does not recall any prior correspondence in which we "...had proposed to submit and implement a Hawthorn groundwater monitoring plan..." Nevertheless, Beazer believes that it may be appropriate to discuss the potential scope of such activities in the context of the Hawthorn Group monitoring wells described within Attachment 4 of USEPA's October 25, 2006 letter to Beazer.

Regarding the statement that "...Beazer believes that it may be appropriate to discuss the potential scope of such activities in the context of the Hawthorn Group monitoring wells described within Attachment 4", it should be noted that any Hawthorn wells that may be installed for pumping tests will necessarily be located within close proximity to the pumped wells (likely within 200 feet) and would not fully meet the intent of recommendation 3 in the Five Year Review.

EPA's regulations concerning a Remedial Investigation include the following statement [40 CFR Part 300 Section 300.430(d)(2)]:

The lead agency shall characterize the nature and threat posed by the hazardous substances and hazardous materials and gather data necessary to assess the extent to which the release poses a threat to human health or the environment or to support the analysis and design of potential response actions...

This regulatory language directs EPA to require responsible parties to assess the nature and extent of ground-water contamination that may pose a threat to human health or the environment; also, to define the magnitude of ground-water contamination at it relates to potential ground-water remedial actions. A review of Hawthorn ground-water monitoring data from the Koppers property demonstrates that such characterization is incomplete, necessitating the installation and sampling of additional wells in the Hawthorn.

Data from monitoring and borings completed on the Koppers property have identified three Hawthorn Group clay units separating relatively permeable zones within the Hawthorn. Beneath the uppermost clay in the Hawthorn Group is a generally clayey sand unit. This clayey sand is relatively uniform across the Koppers property in terms of composition and thickness. Between the middle and lower clays in the Hawthorn is a complex variety of sediments, primarily sand to clay-sized clastics, with some isolated carbonate beds. This lower, relatively permeable zone is quite variable texturally. In some locations, there is a lowermost clayey sand or coarser-textured zones that are embedded within the lower Hawthorn clay.

Monitoring of the Hawthorn Group sediments can be divided into two categories: older monitoring wells completed during 1987, and monitoring wells on the Koppers property that were completed in the 2002-2003 period. The latter group of wells has identified significant contamination in the Hawthorn within the Koppers property. Monitoring of the older wells prior to 2002 had not detected contamination of the magnitude seen in samples from some of the newer Hawthorn monitoring wells.

Site investigations during the 2002 to 2004 period have established that in the upper relatively permeable part of the Hawthorn Group, the direction of ground-water flow is northeastward, while in the lower Hawthorn Group, the direction of flow is to the northwest (TRC, 2003, Figure 3.8 and Figure 3.9). Based on the directions of ground-water flow established in the above-referenced figures, the following points are made:

- ▶ There are no upper permeable zone Hawthorn wells completed downgradient of the Koppers property.
- ▶ In order for the two older Hawthorn wells completed east of the Koppers property to possibly detect contamination from Koppers, there would have to be movement of contamination downward from the upper permeable zone at locations east of the Koppers property (the two wells east of Koppers are reportedly completed in a part of the lower Hawthorn Group, where the flow direction is northwestward).
- ▶ There are no Hawthorn Group wells monitoring the lower relatively permeable zone that are directly downgradient of the Koppers property (west or northwest of the Koppers property boundary).

The nature of contamination in the upper permeable part of the Hawthorn Group has been established through monitoring that has occurred during the last several years. Referring to data obtained

in the 2002-2004 period from upper permeable zone Hawthorn wells at the downgradient (eastern) margin of the Koppers property, the following contaminant concentrations are of greatest note:

HG-4S benzene initially at 5.8 ug/L, several subsequent samples were nondetect
 naphthalene 2900 to 7800 ug/L
 carbazole initially nondetect, later 125 to 266 ug/L
 dibenzofuran 66.6 to 181 ug/L

HG-6S benzene 2.5 to 8.6 ug/L
 naphthalene nondetect to 296 ug/L

Monitoring well ITF-2 is located roughly 100 feet east of the Koppers property, near the northeast corner of the Koppers property. This older monitoring well is identified in Figure 4.1 of a January 2004 report by TRC as being completed in a part of the middle Hawthorn clay. The original boring log for ITF-2 (IT Corporation, 1987) suggests that within the clay zone and in the monitoring well screened interval there are some lithified limestone and sandstone layers. Monitoring of ITF-2 in the 2003-2004 period has not identified any organic contamination clearly attributable to Koppers. It is conceivable that Koppers-derived organic contamination in this area is present in a sandier interval identified in the original ITF-2 boring log as extending from about 5 to 13 feet below the top of the Hawthorn Group. That sand near the top of the Hawthorn Group is apparently separated from the ITF-2 screened zone by more than 20 feet of what is described as tight clay with phosphatic material. Such a thick sequence of middle Hawthorn clay is atypical (based on boring logs from the Koppers property). It may explain the lack of contamination in the ITF-2 samples. EPA sees the need for monitoring in the upper Hawthorn Group in the general vicinity of ITF-2, east of the Koppers property boundary.

Monitoring well ITF-3 is located several hundred feet east of the Koppers property, and north of the former Cabot Carbon property. There have been detections of some organic contaminants in samples from this well (referring to data from 2003-2004). Only xylene has been consistently found in ITF-3 samples, and at concentrations of approximately 1 to 2 ug/L. This well is completed at a depth similar to that for ITF-2, is further from Koppers than ITF-2, and is monitoring a zone that likewise, according to the original boring log, is separated from the upper permeable Hawthorn by some thickness of clay. This well is probably monitoring the uppermost part of the lower Hawthorn permeable zone. Attribution of the xylene or other contaminants detected in ITF-3 samples to Koppers, Cabot Carbon, or some other source is not possible.

To summarize, there is contamination of concern in the upper permeable zone of the Hawthorn Group attributable to Koppers and present at the downgradient (eastern) Koppers property boundary. The extent of such contamination further eastward and the ultimate movement of such contamination are unknown. Older wells completed east of Koppers are screened below the uppermost permeable zone in the Hawthorn. These observations are the reason EPA is requesting that Beazer provide a credible plan for investigating the nature and extent of upper Hawthorn contamination at locations east of the Koppers property.

Dissolved contamination in the lower Hawthorn permeable zone will migrate to the northwest. There are several lower Hawthorn monitoring wells along or in the vicinity of the western Koppers property line that monitor various depths within that rather complex sequences of sands, clays, clayey sands and carbonates. Proceeding from south to north, these lower Hawthorn Group wells include ITF-1

(an older monitoring well screened at the uppermost part of the lower Hawthorn); HG-2D (located in the lower part of the lower Hawthorn); HG-8 (open to the very lowermost part of the lower Hawthorn and monitoring a thin relatively permeable zone or zones within the lower Hawthorn clay); HG-5D (completed in the lower part of the lower Hawthorn) and HG-7 (completed to monitor a relatively permeable zone embedded in the lower Hawthorn clay).

The nature of contamination in the lower permeable parts of the Hawthorn Group has been established through monitoring that has occurred during the last several years. Referring to data obtained in the 2002-2004 period from lower permeable zone Hawthorn wells at or near the downgradient (western) margin of the Koppers property, the following contaminant concentrations are of greatest note:

ITF-1 naphthalene initially nondetect (June 2003), later 411 to 499 ug/L

HG-2D benzene 83.1 ug/L to 148 ug/L

HG-2D, cont. 2,4-dimethylphenol nondetect to 5980 ug/L
 carbazole nondetect to 81 ug/L
 naphthalene 2220 ug/L to 4410 ug/L

HG-5D benzene 1.9 ug/L to 58.3 ug/L

naphthalene nondetect to 1120 ug/L

the initial HG-5D sample appeared to be very contaminated; subsequent samples had lower to much lower concentrations of benzene and naphthalene. Contamination resulting from well construction is a possible explanation for the discrepancy.

Both HG-7 and HG-8 samples indicated minimal contamination. These wells are completed in what appear to be one or more localized permeable zones embedded within the clay of the lowermost Hawthorn. The absence of significant contamination at these two monitoring wells is therefore not interpreted as indicating there is no contamination of concern in the lower Hawthorn Group in the vicinity of these monitoring wells.

There is clearly some contamination of concern in the lower Hawthorn Group on the western part of the Koppers property, most notably at monitoring well HG-2D. It is noteworthy that some of the contaminants detected in the HG-2D samples are present at higher concentrations than the concentrations of those contaminants detected in any of the upper Hawthorn Group monitoring well samples. This point also applies to some of the contamination detected at lower Hawthorn wells on the eastern Koppers property boundary (benzene contamination at HG-6D and HG-4D). This condition implies there is more significant contamination elsewhere in the upper Hawthorn Group that has not been characterized to date. The presence of significant contamination at HG-2D suggests that contamination of concern extends to the northwest off the Koppers property in that area. There is only one monitoring well (HG-5D) in the upper part of the lower Hawthorn Group in the area to the north of HG-2D. Therefore, it is unclear if the contamination detected at HG-2D is a localized lower Hawthorn contamination problem or if there is more widespread contamination in the lower Hawthorn in the western part of the Koppers property. Regardless, there is clearly a need for investigation of the lower Hawthorn sediments west of the Koppers property.

To summarize, there is contamination of concern at both the eastern and western Koppers property line and inadequate indication of the extent of such contamination downgradient of the Koppers property. Therefore, additional monitoring wells are needed in the Hawthorn Group to the east and west

of the Koppers property. This memorandum does not include any specific recommendations for numbers or locations of monitoring wells. Rather, Beazer is asked to provide an outline of a monitoring plan for further Hawthorn characterization east and west of the Koppers property. This outline proposal must be consistent with recommendation 3 in the Second Five-Year Review, with the following points in mind:

- There is significant contamination of concern in samples from HG-4S, HG-4I, HG-4D, HG-6D and HG-6S (to a lesser extent) to the east of the Koppers property. These data indicate the need for upper Hawthorn Group monitoring wells east of Koppers at multiple points moving from south to north, to account for what is likely to be movement of contamination eastward across a large part of the eastern Koppers property line.
- The presence of substantial concentrations of several contaminants in the lower Hawthorn Group along the eastern Koppers property line at both the HG-4 and HG-6 locations suggests vertical movement of contaminants from the upper to lower Hawthorn Group over a substantial area. This statement is made because available data indicate continuity of the middle Hawthorn clay across this area and thus the clay likely precludes a high mass flux rate for contaminant movement from the upper to lower Hawthorn. A high mass flux rate could mean significant contaminant movement from the upper to lower Hawthorn occurs over a small area; conversely, a low mass flux rate would mean there is a more widespread vertical movement of contamination over a larger area. Because of the potential for widespread movement of contamination from the upper to lower Hawthorn, it is considered possible that much of that vertical mass flux occurs to the east of the Koppers property. Therefore, there is a need for monitoring in the lower Hawthorn Group as well as the upper Hawthorn Group to the east of the Koppers property. Such monitoring can establish the extent of vertical contamination in the Hawthorn Group to the east of the Koppers property and will help to assess the potential need for Floridan aquifer monitoring to the east of the Koppers property.
- Some of the lower Hawthorn monitoring wells at or near the western Koppers property line appear to be poorly placed vertically to detect potential lower Hawthorn contamination. Therefore, in further investigation of the nature and extent of lower Hawthorn contamination extending west of the Koppers property, there is a need for monitoring to the north or northwest of the apparent area of lower Hawthorn contamination at and south of well HG-5D. Beazer may want to propose an initial monitoring well completed in the upper part of the lower Hawthorn Group and perhaps 200 to 300 feet south of HG-7, at the Koppers property line. Such a well would evaluate ground-water quality in the lower Hawthorn Group in the northwestern part of the Koppers property. Data from this well could then be used to determine the need for monitoring outside the Koppers property, to the west of the northwestern corner of the Koppers property. Further south, EPA sees the need for monitoring to the west of the Koppers property based on the available data.