TETRA TECH

November 3, 2011

Mr. Scott Miller
Remedial Project Manager
U.S. Environmental Protection Agency
Region IV, Superfund North Florida Section
61 Forsyth Street, SW
Atlanta, GA 30303-3104

Subject: Response to GRU Comments on the workplan titled: "*Upper Floridan Aquifer Extraction Well FW-32BE Installation Workplan, Koppers Inc. Site, Gainesville, Florida*"

Dear Mr. Miller:

On behalf of Beazer East, Inc. (Beazer), attached is a response to select Gainesville Regional Utilities (GRU) comments on the workplan titled "*Upper Floridan Aquifer Extraction Well FW-32BE Installation Workplan, Koppers Inc. Site, Gainesville, Florida.*" The workplan was approved by the U.S. Environmental Protection Agency (EPA) in an email dated October 24, 2011. Beazer does not agree to the proposed extraction well design changes, but will incorporate some of the suggested changes to the aquifer testing program. A discussion of select GRU comments is provided in the attachment with this letter.

Beazer is moving forward with mobilizing to the field to install the groundwater extraction well and would like to begin drilling in late November to early December 2011. Should you require additional information, please feel free to contact me at (303) 665-4390.

Sincerely,

James R. Erickson
Principal Hydrogeologist

Enclosure

cc: W. O'Steen, U.S. EPA
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Beazer Team Responses to Select GRU Comments on FW-32BE Extraction Well Installation

The primary changes to the FW-32BE extraction well construction suggested by the GRU Team are the following:

1) A third upper isolation casing was requested from 0 to 25 feet to isolate impacts in the Surficial Aquifer prior to drilling into the Upper Hawthorn; and
2) A shorter well screen (Approximately 25 to 30 feet) was suggested to minimize drawdown in the lower portion of the Upper Transmissive zone.

Beazer does not does not agree with the need to isolate the Surficial Aquifer from the Upper Hawthorn for a number of reasons, with the primary one being that the Upper Hawthorn already has significant impacts in this area. Beazer also feels that a longer screen interval is required to ensure that the UF Aquifer impacts are captured and for long-term operation and maintenance of this well. A more detailed discussion of these issues is provided below, in addition to responses to GRU's proposed changes to the aquifer testing.

Well Construction:

1) The Beazer proposed well construction includes two isolation casings and one final well casing. The uppermost isolation casing is to be completed into the middle clay of the Hawthorn Group (HG) deposits at an approximate depth of 67 feet. An upper isolation casing to temporarily isolate the Surficial Aquifer from the Upper Hawthorn was not proposed for the following reasons:

    a. The primary objective for the isolation casings is to minimize the potential for vertical leakage outside of the well casings. In order to mitigate this potential, larger diameter boreholes are being installed, such that a thicker grout seal can be placed outside of the isolation/well casings. Previous Upper Floridan (UF) transect wells used smaller diameter boreholes and isolation casings; however the smaller diameter boreholes only allowed for an approximately 2" thick grout seal outside of the casings. The Saint Johns River Water Management District (SJRWMD) well design specifications require a minimum 2" thick grout seal. More recent UF wells were constructed with larger borehole diameters, so a greater than 2" grout seal could be placed outside of the isolation/well casing to help ensure a more competent seal.
    b. The current well design for FW-32BE calls for an 18" isolation casing in a 22" borehole to an approximate depth of 65 feet, a 10" isolation casing in a 16" borehole to an approximate depth of 116 feet; and a 4" well casing in a 9" borehole to a depth of 250 feet. If an isolation casing was installed from 0 to 25 feet, it would require an approximately 30" borehole, which would necessitate the mobilization of a third drill rig just to install this one casing.

c. The Upper Hawthorn is already impacted in this area as evidenced by monitoring well pair HG-4S, -4I and -4D. This monitoring well pair is located in the immediate vicinity of the proposed location for FW-32BE. The 2010 naphthalene concentration in monitoring well HG-4S was 3,700 µg/L. Hence, the Upper Hawthorn is already impacted in this area and an upper isolation casing for the Surficial Aquifer will provide limited additional benefit.
d. During the well construction, the borehole for the 18" upper isolation casing will only be open about 3 days prior to grouting this casing. Hence, potential impacts to Upper Hawthorn from Surficial Aquifer groundwater will be minimal during this 3-day period.

2) Beazer proposes to screen FW-32BE over a 90-foot section of the UF Aquifer. The larger screen interval is required for the following reasons:

a. Beazer would prefer to have a groundwater extraction well with the capacity to recover water from entire Upper Transmissive zone (UTZ) in the event that impacts are detected in deeper zones in the future.
b. Groundwater recovered from extraction well FW-32BE should be from the more permeable pathways in the UTZ. Assuming that impacts observed in FW-16B are following the more permeable pathway, then groundwater extraction in FW-32BE should also be from these more permeable pathways.
c. A larger screen interval is needed to provide additional drawdown capacity for the well. We are currently experiencing well efficiency losses due to bio-fouling in FW-31BE resulting in excessive drawdown in this well. Hence, there is a need to set the pump into the screen interval at greater depths to allow for this well loss.

Aquifer Testing:

1) Beazer will perform step drawdown tests; however, we do not plan to collect water quality samples. The primary objective of this test is to evaluate drawdowns and potential well losses;
2) Beazer agrees to monitor FW-21B in addition to the other wells proposed during the pumping test;
3) Beazer does not plan to change the sampling frequency from that proposed in the workplan. More detailed sampling performed as part of FW-31BE did not provide additional insight for capture zone extent and/or groundwater extraction rates.
4) Tt GEO will perform a capture zone analysis for extraction well FW-32BE, similar to the analysis performed for extraction well FW-31BE.