

## John Mousa

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**From:** Hutton, Richard H [HUTTONRH@gru.com]  
**Sent:** Tuesday, October 25, 2011 12:33 PM  
**To:** Hutton, Richard H; Cunningham, Anthony L; 'Greg Council'; 'Helton, Kelsey'; Herget, Ron G; 'jherbert@geohydroconsultants.com'; 'Jim Erickson'; 'jim mueller work'; 'joanna.moreno@adventusgroup.com'; John Mousa; 'Kevin Koporec'; 'Miller.Scott@epamail.epa.gov'; 'Mitchell Brouman (mitch.brouman@hanson.biz)'; 'Murchison, Nancy'; 'Osteen.Bill@epamail.epa.gov'; 'Richard Jackson'; Richardson, David M; Robin Hallbourg; 'Stanley Feenstra'; Jim Erickson (Jim.Erickson@tetrattech.com)  
**Subject:** RE: GRU Comments to FW-32BE Workplan  
**Attachments:** GRU Comments\_TetraTech\_FW-32BE Workplan.pdf; Kopper\_Site\_Topography\_FW-32BE\_WkrPln.pdf

Scott,

Attached are GRU's comments again. The only change is that I removed the "DRAFT" watermark which had been inadvertently left on.

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**From:** Hutton, Richard H  
**Sent:** Tuesday, October 25, 2011 12:07 PM  
**To:** Cunningham, Anthony L; Greg Council; Helton, Kelsey; Herget, Ron G; [jherbert@geohydroconsultants.com](mailto:jherbert@geohydroconsultants.com); Jim Erickson; jim mueller work; [joanna.moreno@adventusgroup.com](mailto:joanna.moreno@adventusgroup.com); John Mousa ([jjm@alachuacounty.us](mailto:jjm@alachuacounty.us)); 'Kevin Koporec'; [Miller.Scott@epamail.epa.gov](mailto:Miller.Scott@epamail.epa.gov); Mitchell Brouman ([mitch.brouman@hanson.biz](mailto:mitch.brouman@hanson.biz)); Murchison, Nancy; [Osteen.Bill@epamail.epa.gov](mailto:Osteen.Bill@epamail.epa.gov); Richard Jackson; Richardson, David M; Robin Hallbourg; Stanley Feenstra  
**Subject:** GRU Comments to FW-32BE Workplan

Scott

Attached are GRU's comments to the FW32-BE Workplan.

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**GRU DNAPL Team Comments to Tetra Tech Work Plan for for  
Floridan Aquifer Extraction Well FW-32BE  
October 21, 2011**

This document presents comments from the GRU DNAPL on the *Upper Floridan Aquifer Extraction Well FW-32BE Installation Work Plan, Koppers Inc. Site, Gainesville, Florida* submitted to EPA by Tetra Tech GEO, Louisville September 23, 2011.

**Well Construction:**

The construction of this well is stated to be similar to FW-31BE, which extracts groundwater from the PAH plume in the Upper Floridan Aquifer (UFA) being transported off-site in the NW corner of the Koppers site. Consequently, because FW-31BE uses two isolation casings and one four-inch diameter well casing completed throughout the Upper Florida Aquifer (UFA), the same is planned for FW-32BE on the eastern perimeter of the Koppers site. We believe that this is inadvisable on two counts.

- 1) The two FW-32BE isolation casings are to be set into the HG Middle Clay at 70 ft bgs and the HG Lower Clay at 116 ft bgs approximately. No isolation casing is to be set into the HG Upper Clay because none was installed at FW-31BE. However FW-31BE in the NW corner was not located close to a DNAPL source zone as FW-32BE is. The attached figure shows that FW-32BE is to be installed through a part of the Surficial Aquifer that is heavily contaminated by nearby DNAPL. The most recent data available to GRU indicates that the groundwater naphthalene concentration in this part of the Surficial Aquifer is ~5,000 µg/L<sup>1</sup>, which is about 40% of the effective solubility of naphthalene in creosote. Therefore it is entirely possible that FW-32BE will be drilled through a DNAPL zone at the base of the Surficial Aquifer. We recommend that an isolation casing be set into the UHG clay at approximately 30 ft bgs with two other isolation casings installed as planned. This will reduce the potential of cross-contaminating Upper Hawthorn zone with creosote from the Surficial Aquifer during well installation and will be consistent with other monitor wells constructed onsite.
- 2) It was necessary to install a fully-penetrating well screen in FW-31BE because there was evidence of contamination by PAH and BTEX compounds throughout

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<sup>1</sup> From Table 5, First Semiannual Comprehensive Groundwater Monitoring Report. FTS, Carnegie, Pennsylvania, October 18, 2010.

the full depth of the UFA at FW-12B and FW-27B (and indeed into the semi-confining unit at FW-27B). This is not the case with FW-16B where, according to the latest data available to GRU, contamination is limited to the uppermost zone of this Westbay installation. Therefore, installing a fully-penetrating well will result in some downward gradients being exerted between FW-32BE and FW-21B that will in turn cause contamination of parts of the UFA that have so far remained uncontaminated in the vicinity of FW-32BE. Furthermore, by extracting groundwater from the full-depth of the aquifer, the concentrations of PAH and BTEX compounds from the uppermost zone of the UFA in FW-32BE will be diluted by clean groundwater from the lower zones. This hitherto clean groundwater will have to be treated by Beazer causing a loss of effective treatment capacity that could be much better devoted to increasing extraction from FW-6 and FW-21B. Therefore GRU recommends that FW-32-BE be screened only through the uppermost zone of the UFA, i.e., the upper 25-30 ft of the UFA.

### **Step Drawdown Aquifer Test**

The first paragraph of Section 2.5 (Aquifer Tests and Water-Quality Samples) states that a step drawdown test and a constant rate (specific capacity) test are proposed for FW-32BE. However Section 2.5.1 (Aquifer Tests) makes no mention of a step drawdown test. Please clarify the intent and provide details of the step-drawdown test.

We further recommend that groundwater quality samples be collected at the end of each drawdown step to evaluate the effects of increased pumping on the concentration of an indicator parameter, e.g., naphthalene. A plot of the indicator parameter concentration versus pumping rate will guide the choice of the best pumping rate to employ so as to avoid excessive dilution that will require additional treatment.

### **Groundwater Monitoring during the Constant Head Aquifer Test**

- 1) We recommend that Tetra Tech cease pumping FW-21B and monitor water levels in that well during the aquifer test at FW-32BE. This will require allowing FW-21B to return to steady-state conditions before the aquifer test at FW-32BE begins.
- 2) We request a clarification of the term “semi-continuous”, which appears section 2.5.1 in the Work Plan. Please define what the recording frequency will be for the pressure transducers.
- 3) Section 2.5.2 of this Work Plan indicates that groundwater samples will be collected from wells FW-16B and MW-32BE after long-term pumping begins. The work plan goes on to state “The sampling frequency will range from weekly to

monthly during the first 4 months” . However, Table 1 indicates that weekly sampling is not planned during the first four weeks. We recommend that TetraTech Geo modify Table 1 to specify a sample from FW-32BE, FW-16B, FW-21B and the new monitoring well discussed below during weeks 2 and 3 as well as on the dates identified in the table. A sample from FW-16B at week 1 should also be included.

- 4) It appears that the sampling event “at the completion of the aquifer tests to document initial dissolved-phase concentrations” (last full sentence on page 6) and the week 1 sample event (Table 1) are the same event. Please make the terminology consistent between the table and the text. Also, please discuss the how the sample schedule would change in the event of a hiatus between completion of the aquifer tests and operational pumping startup.

### **Additional Downgradient Monitoring Wells**

In our comments submitted to EPA on 16 December 2009 re the Draft FS, and in our comments to the Proposed Plan (October 2010) ACEPD and GRU called for the installation of UFA monitoring wells off-site immediately downgradient of FW-16B, and FW-31BE to ensure that the extraction wells are successfully preventing off-site plume migration. Tetra Tech indicates that the objective of installing FW-32BE “upgradient of FW-16B is to pull the plume back on Site and not allow it to spread further downgradient”. Therefore the need for an additional monitoring well on the east side of the Railroad tracks is now clear and a monitoring well should be installed to determine the effectiveness of this remedial goal. We recommend that the Work Plan be revised to include a new Westbay monitoring well in the UFA at the location of the well cluster HG20S/D (see attached Figure) before the aquifer test so that its hydraulic and water quality response may be recorded and aquifer parameters be determined for this part of the UFA.

### **Capture Zone**

GRU requests that TetraTech Geo provide an illustration of the anticipated capture zone similar to that provided in the FW-31BE work plan assuming  $Q = 20$  gpm and FW-32BE is completed only in the first 25-30 ft of the UFA as recommended in this memo.

### **Treatment Capacity**

GRU requests that Tetra Tech identify how it plans to partition its on-site treatment capacity between its various needs, e.g., treatment of groundwater from (a) the Surficial Aquifer wells and drains, (b) FW-6 and FW-21B, (c) FW-31BE and (d) FW-32BE. Which of these components will have priority in capture and treatment? How much surplus treatment capacity will exist following the commissioning of FW-32BE?

