

**From:** [Erickson, Jim](#)  
**To:** [Hutton, Richard H](#); [Council, Greg](#); [Cunningham, Anthony L](#); [Helton, Kelsey](#); [Herget, Ron G](#); [jherbert@geohydroconsultants.com](#); [jim mueller work](#); [joanna.moreno@adventusgroup.com](#); [John Mousa](#); [Koporec.Kevin@epamail.epa.gov](#); [Miller.Scott@epamail.epa.gov](#); [Mitchell Brouman \(mitch.brouman@hanson.biz\)](#); [Murchison, Nancy](#); [Osteen.Bill@epamail.epa.gov](#); [Richard Jackson](#); [Richardson, David M](#); [Stanley Feenstra](#)  
**Subject:** RE: Koppers Gainesville - Norehole completions  
**Date:** Tuesday, July 24, 2012 10:25:05 PM

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Rick, see responses below in red. Jim

**James R. Erickson, P.G.**  
Vice President | Principal Hydrogeologist  
Main: 303.665.4390 | Fax 303.665.4391

**Tetra Tech GEO**  
363 Centennial Parkway | Suite 210 | Louisville, CO 80027

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**From:** Hutton, Richard H [mailto:HUTTONRH@gru.com]  
**Sent:** Tuesday, July 24, 2012 10:41 AM  
**To:** Council, Greg; Cunningham, Anthony L; Helton, Kelsey; Herget, Ron G; jherbert@geohydroconsultants.com; Erickson, Jim; jim mueller work; joanna.moreno@adventusgroup.com; John Mousa (jjm@alachuacounty.us); Koporec.Kevin@epamail.epa.gov; Miller.Scott@epamail.epa.gov; Mitchell Brouman (mitch.brouman@hanson.biz); Murchison, Nancy; Osteen.Bill@epamail.epa.gov; Richard Jackson; Richardson, David M; Stanley Feenstra  
**Subject:** Koppers Gainesville - Norehole completions

Jim/Scott,

See John Herbert's e-mail below. We have some thoughts/questions about the borehole completions. John Herbert will either talk to you in the field today, or will call Jim to discuss.

Rick Hutton, P.E.  
Supervising Utility Engineer  
Strategic Planning  
Gainesville Regional Utilities  
(352) 393-1218

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**From:** John Herbert [mailto:jherbert@geohydroconsultants.com]  
**Sent:** Thursday, July 19, 2012 5:44 PM  
**To:** Hutton, Richard H  
**Subject:**

Rick,

I spoke to Dick Jackson and Stan Feenstra regarding Tetra Tech Geo's proposed revisions to the Process Area ISGS Characterization Work Plan.

We agree with Tetra Tech Geo that we need to gain as much use from these borings as we can. We offer several comments/suggestions

- We agree with the proposed modification so long as it is still the intent to treat all strata visually impacted by DNAPL (as was agreed to in the December 2011 meeting held in Gainesville). **The objective and intent has not changed from what is stated in the February 14, 2012 Workplan titled "Former Process Area In-Situ Geochemical Stabilization**

*Remediation Demonstration Project Workplan for Hawthorn Group Deposits, Former Koppers Inc. Site, Gainesville, Florida,"*

- We suggest that Tetra Tech install pressure gages at Phase I characterization borings (on the threaded 1-inch pipe) near the Phase II Geoprobe injection points. We may be able to get useful data regarding the distribution of permeable zones during injection. **We had not planned to use the temporary injection points as requested in this comment. The decision to utilize the injection points as pressure monitoring points will be evaluated after the characterization program is complete and prior to performing injections.**

We also have a couple of questions:

- Why will the bottom of the 1-inch pipe be open rather than have an end cap? See Figure 1. **The primary objective for the temporary injection points is to allow for ISGS reagent injection, hence an open bottom is open to allow for injection of ISGS reagent** We think better distribution of the ISGS solution would be obtained if an end cap were used. **The ISGS reagent will flow out of base of pipe as well as out of the 1/8" diameter holes. Disagree with suggestion of end cap**
- What will happen to accumulated DNAPL in the pea gravel? For instance – if there is 3 ft of DNAPL in the gravel packed boring and injection commences. **The DNAPL will be treated by ISGS reagent; suspect that some of the 3 ft DNAPL will flow up into the 10 feet of pea gravel and some will flow back into the formation, but ultimately it will come in contact with reagent; best conceptual guess**
- Does Tetra Tech intend to inject ISGS reagent in all 100 borings? **This will be determined after the characterization is completed**, If not, what criteria will be used to determine where to inject? **We will discuss after characterization.** It would be possible to see the migration of ISGS reagent over time (after injection ceased) if some of the borings were not used as injection points. But clearly we do not want to compromise treatment at the top of the MHG Clay. **Agree, will be decided after characterization.**

John R. Herbert, P.G.

Sr. Hydrogeologist

GeoHydro Consultants

1204 NW 13th St.

Gainesville, FL 32605

352-371-5553

[jherbert@geohydroconsultants.com](mailto:jherbert@geohydroconsultants.com)