



February 1, 2006

Michael Slenska, Environmental Manager
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RE: Response to ACEPD Comments on the RETEC 3rd Qtr 2005 Floridan Aquifer Groundwater Monitoring Report, Cabot-Koppers Superfund Site

Dear Mr. Slenska:

The RETEC Group, Inc. (RETEC) hereby responds to the comments issued by the Alachua County Environmental Protection Department (ACEPD) on December 21, 2005 regarding the above referenced report. ACEPD's comments are presented in *italics* and RETEC's responses are presented in normal text below them.

Comment 1

ACEPD is concerned about the reliability and accuracy of the reported concentrations for phenol, 2,4-dimethylphenol and 3 and 4- methylphenol and pentachlorophenol in the samples from FW3 and FW3-DUP due to the very low recoveries reported for the acid surrogates phenolics of less than 10% recovery. The sample concentrations for phenolics are reported as "estimated", however, with surrogate recoveries as low as 10% the actual concentrations in the samples may be as much as 10 times higher than what is being reported. Therefore, the conclusions stated on Page 3 of the RETEC report that "For well FW-3, none of the organic constituents exceeded GCTLs or MCLs" may not be an accurate conclusion. There appears to be a continuing problem with obtaining good quality control with the phenolic analysis from this site, as ACEPD has commented on similar problems observed in earlier RETEC monitoring data from these Floridan wells.

Response 1

The March 2005 semivolatile organics (SVOCs) samples from wells FW-3, FW-6, and FW-7 and September 2005 SVOC results from well FW-3 formed emulsions upon organic extraction. The tight emulsions formed during the addition of acid to adjust the pH to 2 for the organic acid extraction. Samples that formed emulsions at this step had extremely low acid surrogate recoveries that indicated poor organic acid extraction efficiency. Our belief is that the tight emulsions prevented the separation chemistry that allows the acid surrogates to migrate from the aqueous phase (sample) to the organic phase for measurement.

The cause of these sample emulsions is unknown; however, we suspect particulates or limestone silt from the borehole may have provided a source of caustic material that results in formation of an emulsion when the acid extraction process is applied. This problem did not appear in the June or December 2005 sample set (the December 2005 report has not been submitted yet). In fact, review of the 2005 data sets shows that the phenolics results are consistent from quarter to quarter, regardless of the surrogate recovery issues (see attached Table 1). The fact that the 2005 analytical results are consistent from quarter to quarter indicates that, although the emulsion (when present) prevents the migration of the *surrogates* to the organic phase for measurement, it apparently does not prevent the migration of the *constituents of interest*, as their presence/concentrations remain consistent regardless of the presence or absence of the emulsifying agent.

Table 1
Summary of 2005 Phenolics Analytical Results for Wells FW-3, FW-6, and FW-7
Floridan Aquifer Groundwater Monitoring
Cabot Carbon/Koppers Superfund Site, Gainesville, FL

Analyte	Well ID		FW-3	FW-3	FW-3	FW-3	FW-3
	Sample Date	Sample Type	3/9/2005 SMP	6/21/2005 SMP	9/13/2005 SMP	9/13/2005 DUP	12/13 - 14/2005 SMP DRAFT
	Florida GCTL ⁽¹⁾	Units					
Method 8270C (Semivolatile Organic Compounds)							
2,4-DIMETHYLPHENOL	140	µg/L	36 J	36	28 J	28 J	28
2-METHYLPHENOL	35	µg/L	13 J	14	9.9 J	8.5 J	9
3&4-METHYLPHENOL	35 / 3.5 ⁽³⁾	µg/L	13 J	13 J	8.6 J	6.4 J	7.2
PENTACHLOROPHENOL	1 ⁽²⁾	µg/L	UR	U	UR	UR	0.41 U
PHENOL	10	µg/L	8.1 J	13	6.2 J	3.3 J	7.7
Emulsion?			Emulsion		Emulsion	Emulsion	

Analyte	Well ID		FW-6	FW-6	FW-6	FW-6	FW-6
	Sample Date	Sample Type	3/8/2005 SMP	3/8/2005 DUP	6/22/2005 SMP	9/13/2005 SMP	12/13-14/2005 SMP DRAFT
	Florida GCTL ⁽¹⁾	Units					
Method 8270C (Semivolatile Organic Compounds)							
2,4-DIMETHYLPHENOL	140	µg/L	70 J	65 J	16 JD	16 J	17 J
2-METHYLPHENOL	35	µg/L	14 J	12 J	6.7	4.3 J	5.4
3&4-METHYLPHENOL	35 / 3.5 ⁽³⁾	µg/L	26 J	22 J	9.8 J	7.4	8.7
PENTACHLOROPHENOL	1 ⁽²⁾	µg/L	UR	UR	U	UJ	0.41 U
PHENOL	10	µg/L	UR	UR	U	UJ	1.8 U
Emulsion?			Emulsion	Emulsion			

Analyte	Well ID		FW-7	FW-7	FW-7
	Sample Date	Sample Type	3/8/2005 SMP	6/22/2005 SMP	12/13-14/2005 SMP DRAFT
	Florida GCTL ⁽¹⁾	Units			
Method 8270C (Semivolatile Organic Compounds)					
2,4-DIMETHYLPHENOL	140	µg/L	4.8 J	0.83 J	0.57 U
2-METHYLPHENOL	35	µg/L	1.7 J	U	0.47 U
3&4-METHYLPHENOL	35 / 3.5 ⁽³⁾	µg/L	UR	U	0.78 U
PENTACHLOROPHENOL	1 ⁽²⁾	µg/L	UR	U	0.42 U
PHENOL	10	µg/L	UR	U	1.9 U
Emulsion?			Emulsion		

Notes:

U - Indicates analyte was not detected above the MDL.

J - Indicates result is estimated

D - Indicates result is from reanalysis of the sample at a secondary dilution.

R - Indicates result is rejected.

SMP - Primary field sample

DUP - Field duplicate sample

BOLD text indicates a detection

RED text indicates that the detection is above the Florida GCTL.

⁽¹⁾ Florida Groundwater Cleanup Target Levels (GCTLs) are guidelines as set forth in 62-777 Florida Administrative Code (F.A.C).

⁽²⁾ Florida GCTL is the Primary Drinking Water Standard as set forth in 62-550 F.A.C.

⁽³⁾ 3-Methylphenol and 4-methylphenol cannot be quantified separately using USEPA SW-846 Method 8270C.

January 23, 2006

Greg Malzone
The Retec Group, Inc.
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Monroeville, PA 15146

Re: Emulsification of Gainesville Floridan Samples

Dear Greg:

There are several techniques we use to try to break emulsions. First, we will let the sample sit to see if the emulsion will break on it's own. If this does not work, we will use a stirring rod to break the emulsion manually. If both of these techniques do not work, then we will drain the available methylene chloride and emulsion through sodium sulfate. All of these techniques are listed in EPA Method 3510C. From my experience, there are several factors that can create emulsions. These are, but are not limited to, sediment or silt in the samples, highly colored samples, and samples that contain elevated levels of organic constituents. For future sampling events at this site, we will try to modify the techniques (e.g. let the samples sit longer) to see if we can reduce or eliminate the size of the emulsion.

Please call if you have any questions. My extension is 289.

Respectfully submitted,

Columbia Analytical Services, Inc.



Tom Kissinger
Client Services Manager

TK/tk

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