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Subject: GRU & ACEPD Preliminary Comments on Cabot HG Groun
Date: Thursday, May 03, 2012 1:55:02 PM
Attachments: [Cabot_HG_Investigation_Report-GRU_ACEPD_Initial_Comments.pdf](#)
[GRU Proposed Cabot MW Locations.pdf](#)

Scott,

Attached are GRU and ACEPD's preliminary comments on the Cabot Hawthorn Group investigation report. We wanted to get these to you and others prior to the May 30 meeting so that we can discuss them further on May 30.

Best Regards

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May 3, 2012
Preliminary Comments by GRU and ACEPD
Cabot Carbon HG Investigation Report (Draft) dated March 16, 2012

Gainesville Regional Utilities (GRU) and the Alachua County Environmental Protection Department (ACEPD) have reviewed the Draft Hawthorn Group Investigation report dated March 16, 2012. Cabot Carbon has scheduled a meeting on May 30, 2012 in Gainesville to discuss findings of the Hawthorn Group investigation and resampling event, recommendations of the report, and the path forward (remedial alternatives).

We offer the following preliminary comments/observations to the report. We would like to discuss these items during the May 30, 2012 meeting.

- 1. We are interested to see results of the resampling event given the likelihood that analytical results are biased low in several wells.** Inadequate well development as evidenced by higher bromide concentrations than desired (pg 8, paragraph #1) and inflow of surface water via a leaking well cap at HG-29S will be of particular interest.

- 2. COC concentrations should be compared to appropriate ARARs – including current Federal MCLs and state GCTLs or other criteria, whichever is lower.** This is a particular concern for certain compounds like “phenols”. Currently, if the 1990 Cabot ROD lists a cleanup goal (CUG) for a particular contaminant, the data are compared to that CUG only – even though the federal MCLs and Florida GCTLs for that compound may be much lower (pg 15, first bullet).

- 3. A critical factor on which the 1990 ROD and CUGs were based has been proven to be false in that EPA and Cabot believed that contamination was restricted to the surficial aquifer. Because the discovery of significant concentrations of Cabot Carbon derived contamination in the Upper and Lower Hawthorn has significantly changed the assumptions and technical data on which the original 1990 ROD was based, the ROD should be reopened or amended.** Recent data regarding contaminant distribution has caused a substantial revision of the Cabot conceptual model and is requiring additional delineation of extent of contamination and evaluation of treatment alternatives. EPA should revise CUGs based on the following:
 - a. Contamination has migrated much deeper beneath the Cabot site than anticipated, and is more likely to have impacted the Floridan aquifer. Based on the recent data, the Cabot phenolic contamination has penetrated the upper and middle clay layers. It is not known whether it has penetrated the lower clay layer. However, based on observations at

the Koppers site, the presence of significant contamination in the LHG indicates a high likelihood of Floridan Aquifer contamination.

- b. Health/risk data have changed since the 1990 ROD was issued. Recent risk/health data should be considered when resetting CUGs.
 - c. Other factors should be considered in setting CUGs for example the potential for phenolic compounds to generate unacceptable odors upon chlorination at the Murphree Wellfield. The phenol CUG of 2,630 ppb specified in the ROD must be reduced to a much lower concentration.
4. **Weston concludes that “Concentrations that are smaller (by one or two orders of magnitude) in wells screened in the lower HG unit than in wells within the UHG unit, suggesting that the middle clay unit is limiting downward migration of contaminated groundwater” (pg 16, third bullet). That generalization fails at the SA/HG-29 well cluster where concentrations of benzene and phenol increase with depth (Figures 4.1 and 4.7).** The conceptual model must be corrected to reflect the field observations.
 5. **The detection limit for total arsenic is uniformly 20 ug/L. It should be set at detection limits of 2.0 ug/L.** The CUG from the ROD is 50ug/L. Table 4.4 references that value as being health based; however, the MCL was lowered to 10 ug/L effective January 2006. The Cabot Carbon CUG for arsenic must be lowered to the FDEP GCTL with detection limits of approximately 2.0 ug/L.
 6. **The detection limit for nonphenolic compounds is greatly elevated in the presence of high concentrations of phenolic COCs (Table 4.3).** The detection limit for naphthalene is 1,000 ug/L or more in five samples; the highest detection limit being 11,000 ug/L in HG-28S). Sample extraction in preparation for analysis by Method 8270C is conducted separately for acids and base-neutrals so it should be possible to avoid the elevated detection limits reported for these samples. Was the 50x dilution (see the lab report for HG-28S, Lab Sample ID 680-74576-3, pg. 21/72) performed before extraction or were they diluted between extraction and analysis? Cabot should consider a combination of analytical methods that will provide adequate detection limits for all COCs.
 7. **Significant levels of methyl ethyl ketone (2-Butanone) and acetone are reported in well clusters 28, 29, 30, and 31. What is the source of these compounds?** These compounds could be Cabot constituents associated with the pyroigneous acid wastes that were discharged into the Cabot lagoons. The 1990 EPA ROD describes this waste to contain, acetic acid, acetone, methanol and other pine terpene compounds. Also, the 1990 ROD states that a “light oil” produced from the Cabot process contained “aldehydes, ketone, acids and

esters.” The methyl ethyl ketone thus could also be a likely constituent or degradation and or alternate reaction product of this waste.

- 8. COC ratios for Cabot and for Koppers sources are distinct – see the following table. COC ratios in HG-28S clearly have a Cabot signature. Those of HG-28D appear to have more of a Koppers signature.**

Cabot & Koppers Chemical Fingerprints

	<i>M-25BR Feb11</i>	<i>HG-6D Nov09</i>	<i>SA-31 Nov11</i>	<i>HG-26S Nov11</i>	<i>HG-26D Nov11</i>	<i>ITW-7 Nov11</i>	<i>ITW-9 Nov11</i>	<i>SA-29 Nov11</i>	<i>HG-28S Nov11</i>	HG-28D Nov11
Benzene	660	40	34	13	14	42	15	6	170	65
Naphthalene	17,000	3200	2600	2000	1800	<99	<96	<54	<11,000	130
2,4-DMP	570J	580J	<210	<190	320	990	800	56	<11,000	870
Phenol	87J	0	<210	<190	<98	<99	<96	<54	63,000	<99
Naph/Benz	25	80	75	150	130	<2	<7	<9	<65	2
Benz/Phenol	8	--	--	--	--	--	--	--	0.003	>0.7
Benz/24DMP	1	0.1	>0.2	>0.1	20	0.04	0.02	0.1	--	0.07

Notes:

¹Naphthalene/Benzene ratios between 20 – 150 are characteristic of **Koppers** contamination. Values <20 for indicate **Cabot** contamination.

²The relatively low naphthalene in HG-28D may simply be due to $V_{benzene} \gg V_{Naphthalene}$ resulting in chromatographic separation of benzene from naphthalene at the front of the Koppers plume rather than it being an indicator of Cabot’s contamination, which would be indicated by a much higher phenolic contamination.

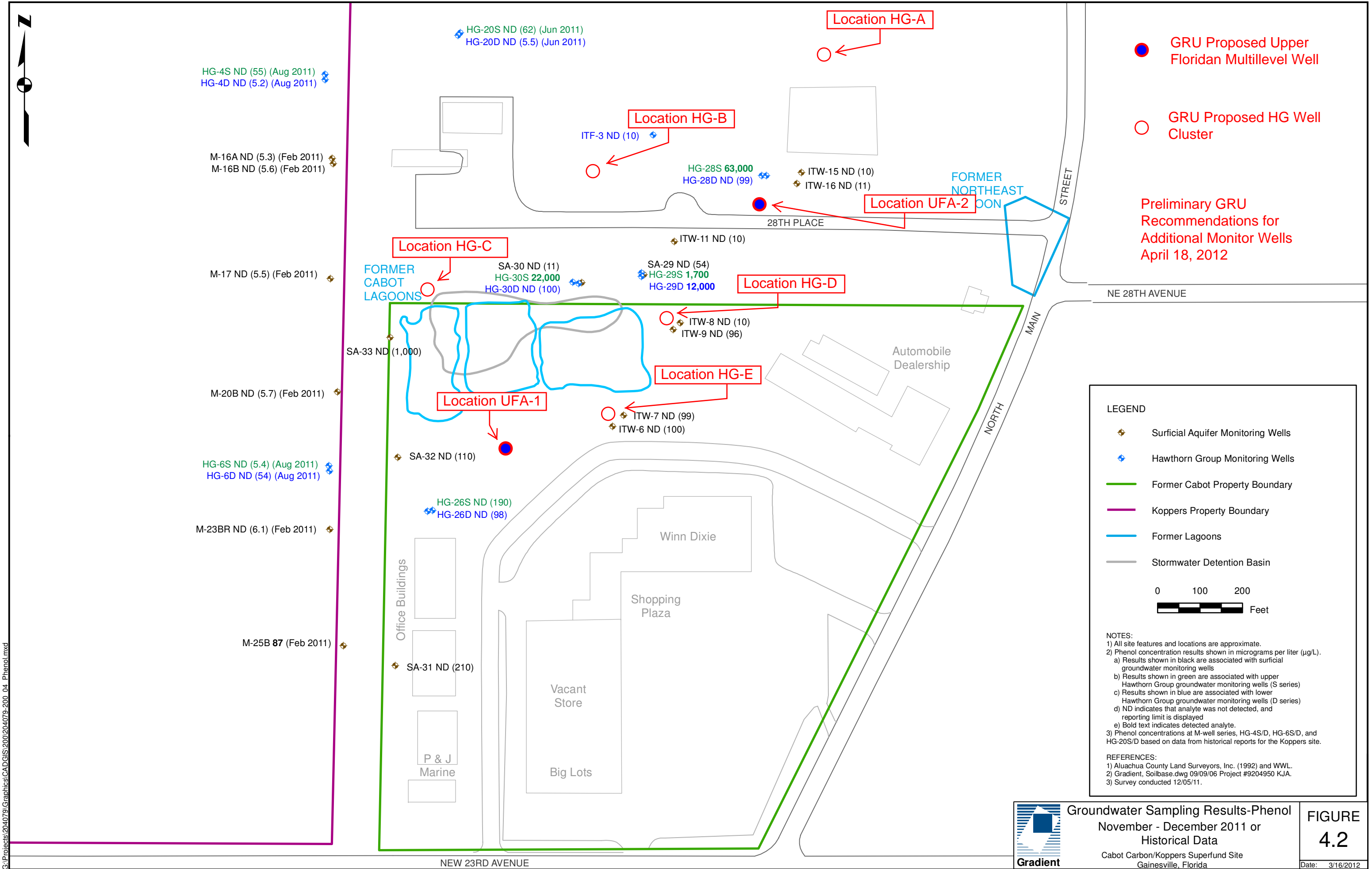
- 9. Water collected in the stormwater ponds at the Cabot Carbon Site may produce a groundwater mound that increases hydraulic head; thereby increasing downward movement of contaminated groundwater from the surficial aquifer to the Upper Hawthorn.**
- 10. We propose additional monitoring wells (see attached Figure) to define the lateral extent of HG impacts and potential impacts to the Upper Floridan aquifer.** Upper Floridan wells should be installed as multilevel completions. Well IDs presented here are meant to be place-holders for discussion purposes.
- Location HG-A: HG-31S and D where proposed by Cabot. Distal downgradient of contaminated HG-28 cluster.
 - Location HG-B: West of HG-28 cluster. Distal downgradient.
 - Location HG-C: Proximal downgradient of western part of lagoon complex.
 - Location HG-D: East of the Cabot lagoons near ITW-8 and 9
 - Location HG-E: Adjacent to ITW-6 and 7. Distal upgradient of lagoons.

- Location UFA-1: Upgradient of Cabot Lagoons and downgradient of HG-26 well cluster that is apparently impacted by Koppers sources.
- Proposed UFA-2: Adjacent to HG-28 cluster and downgradient of HG-29 cluster where COC concentrations increase with depth.

11. The vertical positioning of these new HG monitoring wells must be such that the well screens are positioned at the bottom of each HG formation. The present HG wells are positioned in the middle of the UHG and LHG. As experience has shown at Koppers next door, DNAPL can penetrate the HG clays and migrate to the base of the UHG and LHG. Only by proper positioning of the well screens can the presence of NAPL be confirmed.

12. ISCO will likely have the same problem as ISGS at Koppers, i.e., poor sweep of reagent, and incomplete contact of oxidant with contaminant due to low permeability and high level of heterogeneity in the Hawthorn. We have expressed several concerns about the use of ISGS at the Koppers site. We have the same concerns about the use of ISCO at the Cabot site.

13. We believe it is premature to select ISCO as the remedial technology for the Cabot site. The extent of DNAPL and dissolved phase contamination has not been delineated. Cabot must establish the nature and extent of the contamination beneath the former ponds prior to selecting a remedial technology. Cabot appears to believe that the contamination is aqueous in nature with no non-aqueous phase liquids (NAPL) present. This remains to be demonstrated by further site characterization that incorporates the lessons learned at the Koppers site. There needs to be an evaluation and ranking of remedial alternatives before selecting a final remedy.



● GRU Proposed Upper Floridan Multilevel Well

○ GRU Proposed HG Well Cluster

Preliminary GRU Recommendations for Additional Monitor Wells April 18, 2012

Groundwater Sampling Results-Phenol
 November - December 2011 or Historical Data
 Cabot Carbon/Koppers Superfund Site
 Gainesville, Florida

FIGURE 4.2
 Date: 3/16/2012

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