



May 25, 2010

Scott Miller
United States Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303

Re: Response to USEPA Comments

Dear Mr. Miller:

On behalf of Cabot Corporation (Cabot), this letter responds to the USEPA comments (USEPA, 2010)¹ on the Hawthorn Group Sampling Results Report submitted for the eastern portion of the Cabot Carbon/Koppers Superfund Site (Site) on December 4, 2009. Cabot has also prepared a revised Hawthorn Group Sampling Results Report and Work Plan at USEPA's request, which will be submitted separately.

The following section presents our response to the USEPA comments.

USEPA Comments and Responses

USEPA General Comment #1: The report attempts to make a case that the groundwater contamination noted at HG-29S is, at least in part, due to contaminant carry down or faulty well construction. EPA considers this possibility as very unlikely and would suggest that Cabot remove this language from the Work Plan.

Response: Cabot believes that cross-contamination during well construction is a possible explanation for contamination detected at HG-29S/D. However, Cabot will install and collect data from additional monitoring wells to further evaluate groundwater quality in both the surficial aquifer and the Hawthorn Group formation at the Site, and investigate the possibility of cross-contamination at this location. The details of the proposed plan are presented in the revised work plan and discussed below.

USEPA General Comment #2: We do not concur with the proposal to monitor ITW-4 as a well that is upgradient of the HG29S/29D location. This well would provide some indication of background groundwater quality that is not greatly affected by either the Cabot or Koppers groundwater contamination, although some impacts to groundwater at this location have been noted. However, the well does not appear to be upgradient of the HG-29S/29D location under current hydraulic conditions. A better choice might be ITW-5. This well has been relatively dramatically impacted by the Koppers groundwater contamination. Thus, ITW-5 might give the best indication of any surficial aquifer contamination bypassing the hydraulic containment system and then migrating toward the HG-29S/29D location, although the considering the location of ITW-5, the well is probably not useful for determining if surficial aquifer contamination has somehow migrated from the chemical oxidation test area at Koppers eastward to the vicinity of HG-29S/29D.

¹ Miller, S. [US EPA]. 2010. Letter to W. Reiber [Cabot Corporation] re: Comments re: Hawthorn Group Sampling Results, Cabot Carbon/Koppers Superfund Site, Gainesville, Florida. January 14.

In addition to monitoring the surficial aquifer, resampling of HG-29S/29D is needed. The Hawthorn wells have already been sampled twice, so one might make a case for concluding that organic contaminants need not be rechecked in those wells. However, contamination by both phenolic compounds and “BTEX” increased in the HG-29S/29D samples from May to August 2009. Thus, an additional analysis of organic contaminants of potential concern in HG-29S and HG-29D samples is needed to determine if concentrations have increased further, or if the observed values from earlier samples are indicative of the range in concentrations that might be expected.

Response: Cabot proposes to install additional surficial aquifer wells upgradient of the former Cabot Lagoons in order to better delineate the extent of the upgradient plumes on the former Cabot property. In particular, three upgradient surficial aquifer wells (SA-31, SA-32 and SA-33), which will be screened at the base of the surficial aquifer and will be located between potential source areas on the Koppers property and the former Cabot lagoon area, will be installed (see Figure 1 of the revised work plan). Thus, groundwater quality data collected from these upgradient wells will improve our understanding of upgradient conditions for the eastern portion of the Site and help place any detections in the former Cabot Lagoon area wells in proper perspective.

Cabot will resample well pair HG-29S/D along with the proposed surficial aquifer and Hawthorn Group monitoring well clusters discussed in the revised work plan. Please note that Cabot was not aware of the August phenol and BTEX sampling results for HG-29S/D until mid-January.

USEPA General Comment #3: As a generalization, and this may already be the case, the designs of the proposed Hawthorn wells should as closely as practicable replicate the as-built and constructed designs of the existing Hawthorn wells (those installed for investigation of groundwater contamination originating from the Koppers portion of the Site, and completed within the last year).

Response: The proposed well construction details for the new Hawthorn Group wells on the eastern portion of the Site presented in the draft work plan are identical to the design of the Hawthorn monitoring wells installed by Beazer on the eastern portion of the Site.

USEPA General Comment #4: The list of analytes for both the Surficial Aquifer and the HG deposits should be the same, given that hydraulic communication across the HG upper clay unit allows for mixing of these two units. The list of analytes for the HG deposit monitoring wells must be modified to include VOCs and SVOCs. In addition, the list of analytes for the Surficial Aquifer indicates that only phenol will be analyzed. The June 2008 analyses of Surficial Aquifer monitoring wells (Cabot 2008) indicate that all phenol compounds (Phenol, 2,4-Dimethylphenol, 2-Methylphenol, 3&4-Methylphenol) are elevated in the vicinity of the former lagoons. Similarly, the May 2009 groundwater sampling results for monitoring wells HG-29S and HG-29D demonstrates that Phenol (3,000 and 1,700 µg/L), 2,4-Dimethylphenol (570 and 1,600 µg/L), 2-Methylphenol (1,300 and 1,300 µg/L), and 3&4-Methylphenol (4,200 and 7,800 µg/L) are elevated in these wells, respectively. Therefore, the list of analytes must be modified to include all phenol compounds. The analysis method listed for the Terpenes and Terpenoids analysis is “Method 8270”. The method must be modified to “Method 8270C”. Similarly, the SVOCs must be analyzed with “Method 8270C”.

Response: The existing and new surficial aquifer and Hawthorn Group monitoring wells included in the proposed sampling event will be sampled for the full list of VOCs (Method 8260B), SVOCs (Method 8270C), phenols (Method 8270C), and terpenes and terpenoids (Method 8270C). Additionally, the Hawthorn Group wells and the new surficial aquifer wells will be sampled for the full suite of inorganic parameters using Methods 6010 and 300. Note, the existing surficial aquifer wells included in the investigation were already sampled for these inorganic parameters shortly after the draft

Hawthorn Group Work Plan was submitted to USEPA in December 2009. The list of proposed wells and analytes to be included in the sampling event is presented in Table 2 of the revised work plan.

USEPA General Comment #5: Cabot should map the contamination both in the Surficial and the HG on the Cabot site (regardless of suspected source). Also, maps of surficial and HG sampling wells on the Cabot site should include Beazer-installed wells in addition to Cabot-installed wells. These maps should also plot pH as an indicator of Cabot contamination.

Response: Cabot will prepare plots showing the distribution of pH and key contaminants in the surficial aquifer and Hawthorn Group formation, using groundwater quality data collected during the proposed sampling event. To the extent available, data collected at Beazer-installed wells will be included in the maps.

However, Cabot does not agree that pH is a unique indicator of Cabot related contamination. A review of pH measurements collected during well development and groundwater sampling events at the Site indicates that pH in the surficial aquifer at both the Koppers and Cabot portions of the Site is low, ranging from 4 to only 6 s.u. (Table 1). Even upgradient monitoring wells and/or wells that are located a significant distance away from the former Cabot lagoons show low pH values (ITW-1≈4.9 s.u., ITW-2≈5.0 s.u., WMW-17E≈5.4 s.u., WMW-18E≈5.13 s.u., ESE-002≈5.5 s.u.). These data indicate that pH in the shallow unconfined aquifer at the Site is naturally depressed and does not appear to be significantly impacted by Cabot related contamination.

USEPA General Comment #6: The Work Plan should specify which FDEP SOPs will be used to collect groundwater samples (Section 4.4.2, pg. 13).

Response: Groundwater sampling for the proposed investigation will be conducted in general accordance with Florida Department of Environmental Protection Standard Operating Procedure FS 2200 and EPA Region IV requirements. Well purging will be conducted with either peristaltic and/or submersible pumps and with tubing that is compatible with the proposed group of analytes.

USEPA General Comment #7: Upper HG and Lower HG wells should be constructed with well screens positioned at the base of the sandy silt units of the HG, not mid-way within them (Section 4.3.1 and 4.3.2, pgs. 10 and 11 respectively).

Response: The well screen intervals proposed in the December 2009 draft work plan for well cluster HG-30S/D (i.e., in the middle of the Hawthorn Group formation) were consistent with the well screen intervals used by Beazer to construct Hawthorn Group well clusters at the eastern portion of the Site (e.g., HG-26S/D and HG-29S/D). The rationale for screen placement was not presented by Beazer in the work plan (GeoTrans, 2009)² or the investigation report (GeoTrans, 2009)³ – documents that were reviewed by USEPA.

Regardless, Cabot has considered and incorporated USEPA's recommendation in the revised work plan. Two pairs of Hawthorn Group wells (HG-28S/D and HG-30S/D) will be initially installed downgradient of the former Cabot lagoons⁴. Well pair HG-30S/D will be installed immediately downgradient of the former Cabot lagoons (see Figure 1 of the revised work plan) to evaluate if pine tar

² GeoTrans, Inc. 2009. "Supplemental Hawthorn Group Investigation and Monitoring Well Installation Workplan." January 14.

³ GeoTrans, Inc. 2009. "Supplemental 2009 Hawthorn Group Investigation and Monitoring Well Installation Report." August 14 August 14.

⁴ Since these comments were originally issued (USEPA, 2010), USEPA has agreed that the installation of two (rather than three) new Hawthorn Group well pairs would be adequate for the Site.

related compounds have impacted groundwater quality in the Hawthorn Group formation (i.e., determine if the former lagoons are a source of contamination to the Hawthorn Group formation). The well pair at this location will be screened at the base of the Hawthorn Group units, unless field screening indicates presence of contaminants at shallower depths. Well pair, HG-28S/D, will be installed approximately 1000 feet downgradient of the former Cabot Lagoons to define the downgradient extent of contamination (see Figure 1). The Upper and Lower Hawthorn Group wells at HG-28S/D will be screened at depths comparable to HG-29S/D (i.e., in the middle of the Hawthorn Group units), where pine tar related compounds were detected. Based on the sampling results for the two proposed Hawthorn Group well pairs, the need for the installation of a third Hawthorn Group well pair at the Site will be evaluated.

USEPA General Comment #8: Although there would not appear to be critical concern regarding the toxicity of camphor, borneol or other terpene and terpenoids at concentrations of several thousand ppb (Section 2.2.2, pg. 4), these compounds do emit strong odors and it is likely that these compounds would cause taste & odor problems in drinking water supplies at low ppb concentrations. As a consequence, these compounds are important to be monitored and mapped at the Cabot site not only as indicators of contamination originating from Cabot, but also due to their potential impact on the Floridan Aquifer. Analysis of terpenes and terpenoids should be included in all future monitoring and investigations of the Cabot site.

Response: Analysis of terpenes and terpenoids were included in both expanded surficial aquifer sampling events performed at the former Cabot property (March 2005 and July/August 2008), and in the HG-29S/D sampling events. This work plan proposes the collection of two rounds of groundwater samples from the proposed surficial aquifer and Hawthorn Group monitoring wells for analysis of terpenes and terpenoids to supplement the prior data and determine potential risks posed by these compounds to human health and the environment. Since terpenes and terpenoids are not expected to be risk driving compounds (due to their low toxicity), Cabot does not believe it is necessary to include these compounds in future compliance monitoring events performed at the Site.

USEPA General Comment #9: ITF-3, ITW-15 and ITW-16 should also be redeveloped and sampled as part of the surficial aquifer sampling plan, i.e. all of the IT wells should be sampled, with the possible exception of ITW-13 and 14 since they are in the NE Lagoon site. All of the IT wells should be cleaned out and redeveloped before sampling.

Response: Monitoring wells ITF-3, ITW-15, and ITW-16 along with the other IT wells at the former Cabot property were redeveloped and sampled during both the March 2005 and the July/August 2008 expanded sampling events (Gradient, 2005⁵ and Gradient, 2008⁶). Based on available data for these wells, Cabot does not believe that additional sampling is required.

USEPA General Comment #10: All new and existing intermediate aquifer (Hawthorn Group) including HG-29 cluster and surficial aquifer system wells should be sampled on a routine basis as part of compliance monitoring for the former Cabot portion of the Site.

Response: Two rounds of groundwater samples from the new and existing surficial aquifer and Hawthorn Group monitoring wells will be included in the proposed sampling event (Table 2 of the revised work plan). The analytical results of these sampling events will be evaluated to determine if any of the monitoring wells should be included in the routine compliance monitoring events performed at the Cabot portion of the Site.

⁵ Gradient Corporation. 2005. "Remedy Status and Expanded Remedy Performance Monitoring Program." September 30.

⁶ Gradient Corporation. 2008. "Expanded Groundwater Quality Monitoring Event Results." September.

USEPA General Comment #11: Cabot should install a total of three HG nested well pairs downgradient of the former Cabot lagoons. Two wells will be located approximately 150 and 300 feet to the west of monitoring well HG-29S/D, immediately downgradient of the former lagoons. These wells will provide data on potential impacts downgradient of the three former lagoons. A third well should be installed approximately 150 feet downgradient of HG-29S/D to investigate the downgradient lateral extent of impacts. A distance of 150 is within the approximately 200-foot distance projected for the non-detect isoconcentration contour by Cabot.

Response: See response to Comment #7.

USEPA General Comment #12: Cabot should install two Surficial Aquifer monitoring wells. Both wells should be screened at the base of the Surficial Aquifer and immediately above the HG upper clay unit, in that concentrations tend to be the highest in the lower portion of this aquifer. The proposed locations of the monitoring wells are as follows: a) One well should be installed adjacent to monitoring well HG-29S to provide additional concentration data with which to evaluate the vertical leakage conceptual model; b) A second well should be installed in the central area of the former lagoons to evaluate potential source zone concentrations to both the Surficial Aquifer and HG deposits.

Response: Two surficial aquifer monitoring wells (SA-29 and SA-30) will be installed at the former Cabot Lagoons. One well (SA-29) will be installed adjacent to well pair HG-29S/D to evaluate groundwater quality at the base of the surficial aquifer at this location. An additional surficial aquifer well (SA-30) will be installed immediately downgradient of the lagoons, adjacent to well pair HG-30S/D (see Figure 1 of the revised work plan). Given the proximity to the former lagoons, this well will be used to evaluate if the former lagoons are a continuing source of contamination to the surficial aquifer. Note, since a clay-lined stormwater retention pond (associated with the shopping mall) now overlies the former Cabot lagoons, it is not feasible to install a well within the footprint of the former lagoons.

Additionally, as discussed in the response to Comment #2, three surficial aquifer monitoring wells upgradient of the former Cabot lagoons will be installed to better define the quality of groundwater migrating onto the former Cabot property.

As previously mentioned, the details of the proposed Hawthorn Group investigation and sampling plan are provided in the revised Hawthorn Group Sampling Results Report and Work Plan. Please feel free to call if you have any questions or need additional information.

Yours truly,

GRADIENT

A handwritten signature in black ink, appearing to read 'Manu Sharma', with a horizontal line underneath.

Manu Sharma, P.E.
Principal

Table 1
Surficial Aquifer Well Field Parameters
Cabot Carbon/Koppers Superfund Site, Gainesville, FL

Well ID	Screen interval (ft bgs)	Date	Purge Volume (gallons)	Conductivity (umhos/cm)	Dissolved Oxygen (mg/L)	pH	Temperature (degrees C)	Source
ESE-005	9.5-29.5	6/23/2008	50	185	1.42	5.63	23.87	1
		6/24/2008		86	1.7	5.07	24.76	1
ESE-006	7.5-27.5	6/23/2008	45	131	1.71	5.69	28.4	1
		6/24/2008		171	0.91	5.85	27.76	1
ITW-4	5.0-15.0	6/23/2008	40	229	2.3	5.98	26.2	1
		6/24/2008		245	1.43	5.94	25.87	1
ITW-6	18.5-28.5	6/24/2008	45	77	1.49	5.02	22.81	1
		6/25/2008		101	1.44	5.28	22.76	1
ITW-7	8.5-18.5	6/24/2008	45	253	1.28	5.99	22.9	1
		6/25/2008		345	1.41	6.18	23.98	1
ITW-8	18.5-28.5	6/24/2008	50	45	1.45	4.17	22.99	1
		6/25/2008		66	1.16	4.9	24.71	1
ITW-9	8.0-18.0	6/24/2008	45	75	1.67	4.53	23.27	1
		6/25/2008		68	1.56	4.45	24.36	1
ITW-11	6.0-16.0	6/24/2008		534	1.64	6.19	25.50	1
		6/24/2008		40	340	1.69	5.67	23.63
ITW-15	20.0-30.0	6/25/2008		424	0.93	5.69	26.39	1
		6/24/2008		40	831	2.25	6.16	24.95
ITW-16	12.5-22.5	6/25/2008		839	1.02	6.15	26.18	1
		6/16/2009		7	155	0.64	4.88	22.59
ITW-1	15.5-25.5	6/17/2009	0.3	148	0.6	4.87	22.48	2
		6/16/2009		5	186	0.54	5.03	22.42
ITW-2	5.5-15.5	6/17/2009	0.3	188	0.64	5.03	22.47	2
		6/16/2009		8.5	75	0.31	5.47	24.01
ESE-002	8.0-23.0	6/17/2009	0.2	73	0.32	5.52	24.06	2
ESE-004	6.5-21.5	6/16/2009	8	380	2.73	5.36	25.33	2
ESE-007	7.5-22.5	6/16/2009	11	483	5.36	5.44	21.32	2
		6/16/2009		11	174	4.69	4.77	25.23
ITW-13	23.0-33.0	6/17/2009	0.2	155	3.68	4.88	25.46	2
		6/17/2009		0.2	273	0.99	5.46	24.22
WMW-17E	9.0-29.0	6/17/2009	0.2	314	1.72	5.19	24.88	2
WMW-18E	9.0-29.0	6/17/2009	0.2	314	1.72	5.19	24.88	2
ESE-001		12/10/2008	8	73.8		5.19	22.8	3
EW-01		12/10/2008		123		5.01	29.1	3
EW-02		12/10/2008		186		5.38	26	3
EW-03		12/10/2008		78		5.62	26.2	3
EW-05		12/13/2006		228		6.2	23.31	4
EW-06		12/13/2006		98		6.01	23.71	4
EW-08		12/13/2006		119		5.82	27.55	4
EW-09		12/10/2008		170		5.58	27.1	3
EW-10		12/10/2008		180		5.61	26.5	3
EW-11		12/10/2008		215		6.02	27.2	3
EW-13		12/10/2008		196		5.83	24.9	3
EW-14		12/10/2008		194		5.54	25.8	3
EW-15		12/10/2008		181		5.25	26.1	3
EW-16		12/10/2008		270		6.05	25.3	3
EW-17		12/10/2008		843		6.11	27.0	3
ITW-12		12/10/2008	7	429		6.41	23.2	3
ITW-20		12/10/2008	9.5	95.4		4.91	21.4	3
M-05B		12/10/2008	8.5	119.2		5.42	23.6	3
M-33B		12/10/2008	9	64.7		5.25	25.4	3

Notes

Blank cells indicate field parameter was not measured or data was not found in available sources

Sources:

- (1) Gradient, Expanded Groundwater Quality Monitoring Event Results, September 2008
- (2) Weston Solutions, Second Quarterly Report, July 2009.
- (3) Beazer, 2008 2nd Semi-annual Stage 2 Groundwater Report, March 2009
- (4) Beazer, 2006 2nd Semi-annual Stage 2 Groundwater Report, April 2007