

**GRU Comments to the Cabot Carbon
Supplemental Remedial Investigation and Focused
Feasibility Study Report dated May 2016
August 5, 2016**

General Comments:

General Comment #1

Throughout the FFS Cabot states that the document addresses “pine tar-related” contaminants or impacts and in Section 4.3.2 identifies those contaminants as phenol, cresols (2-methylphenol, and 3&4-methylphenol) and 2,4-dimethylphenol). GRU does not believe that Cabot is free from responsibility for any of the BTEX and naphthalene detected in the comingled Cabot/Koppers plume. GRU believes that the FFS should address all contaminants that exceed cleanup criteria within the Cabot portion of the Superfund site.

General Comment #2

The FFS states that “Florida GCTLs that are based on organoleptic end points are not appropriate groundwater CUGs for remedial action at the site.” Cabot has proposed alternatives to the established Florida Groundwater Cleanup Target Levels (GCTLs) for several “key pine processing-related COCs”. Those COCs are phenol, cresols (2-methylphenol, and 3&4-methylphenol) and 2,4-dimethylphenol. GRU disagrees with this statement and believes that existing GCTLs, some of which are organoleptic, should be enforced at this site.

General Comment #3

As stated in the previous comment, Cabot has proposed alternatives to the established Florida Groundwater Cleanup Target Levels (GCTLs). Cabot incorrectly refers to the currently enforceable GCTLs as “alternative” cleanup goals and presents in the body of the report contaminant plume maps in which the lowest contoured values are Cabot’s proposed cleanup values, rather than the enforceable criteria. The terminology used in the FFS should be corrected; Cabot’s proposed alternative to the enforceable GCTLs should be clearly identified as the “alternative” goals. The figures in the body of the report should include contoured values at least as low as the enforceable standard. If Cabot wants to show alternative plume maps, those should be placed in the appropriate appendix.

General Comment #4

The FFS should accommodate remediating all contaminants at the site to the currently enforceable cleanup standards. That includes contaminants both upgradient, cross-gradient, and downgradient of the Former Cabot Lagoons and includes BTEX and naphthalene.

General Comment #5

Cabot states that groundwater plumes have been adequately characterized. GRU agrees that there is sufficient knowledge to complete the FFS. However, GRU believes additional specific groundwater investigation will be required to meet two objectives for the remedial design and long-term monitoring of remedial performance:

1. Delineation of the dissolved-plume boundaries and characterization of additional sources must be completed before the remedial design can be completed. Some examples of areas requiring additional characterization include the apparent source beneath the Winn Dixie, very smelly soil and groundwater at SB-31/WS-31, and the benzene and 2&4 dimethyl phenol hot spots.
2. Installation of additional permanent wells for routine monitoring and monitoring of plume migration and the performance of remedial actions. Some of these well locations could also satisfy the objective 1, above.

GRU believes that it would be highly advantageous to undertake these investigations in advance of the remedial design activities. GRU is developing some recommendations for additional characterization which will be provided in a separate correspondence.

General Comment #6

The FFS should clearly state an RAO to reduce mass of contamination within the barrier wall enclosure.

Specific Comments:

Comment No./ Section/PDF Page	Comment
1 / 1.3.2.2 / 17	1st bullet: While groundwater quality has improved since the 1990s in many Surficial Aquifer monitoring wells, they remain high (phenol and/or 2,4-dimethyl phenol in the 1,000's µg/L) in ITW-13 and ITW-14 nearest the interceptor trench in the area of the former Northeast Lagoon.
2 / 1.3.2.2 / 17	2nd bullet point: This discussion should compare recent groundwater quality near the former lagoons with current FL GCTLs and Koppers ROD, not 1990 CUGs. Although concentrations are probably lower than in the 1990s, they still exceed GCTLs for several Cabot-related compounds. Figure 1.6, cited here, should also show the GCTL of 10 µg/L for phenol.

3 / 1.3.2.3 / 18	The FFS states: “At the few locations with exceedances, the PAH concentrations are expected to attenuate and attain background concentrations or comply with the PAH Threshold Effects Concentration...” How long does Cabot believe it will take PAH concentrations to attenuate to background concentrations?
4 / 3.3.2 / 35	Cabot states “Groundwater in the HG formation has been comprehensively characterized as part of the SRI. “ GRU does not agree that the dissolved plumes have been fully delineated at the Cabot Site. GRU believes this information must be acquired in advance of the development of the remedial design and long-term performance monitoring. We are providing, under separate cover, our opinion of additional investigations that would be necessary before the remedial design is completed for the Cabot Site.
5 / 3.3.2 / 36	<p>Second paragraph: Figures 3.8, 3.9, 3.12, and 3.13, cited here should also show contours for the current FL GCTLs for phenol, and 3-/4-methyl phenol. See pdf pages 141, 142, 145, and 146, respectively. Current GCTLs are the applicable standards and the contours should reflect those standards.</p> <p>It is not appropriate at this time, to ignore current GCTLs and place maps with the applicable cleanup goals – which Cabot refers to as “alternate depictions” - in Appendix J. GRU requests that Cabot present maps showing the current GCTLs in the body of the report. If Cabot wants to present alternative cleanup criteria (proposed alternative cleanup goals), those should be presented in an appendix.</p> <p>Second paragraph; second bullet: The FFS states “The lateral and vertical extent of the pine processing-related groundwater that exceeds health-based criteria – the information needed for making remedial decisions at Superfund sites – has been adequately delineated in all aquifer units...” GRU takes issue with this statement on multiple grounds. GRU believes that:</p> <ol style="list-style-type: none"> 1. The FFS should address all COCs irrespective for who released them. 2. Cabot should propose to meet currently enforceable GCTLs. 3. Some plume boundaries are poorly identified. 4. Some hot spots (some inside the plume boundary and some outside it) require additional investigation in order to complete the remedial design.

6 / 3.3.2 / 38	3rd bullet. There are insufficient temporal monitoring data at the margins of the phenolic plumes to confirm that the plumes are "stable". Indeed, later in the report groundwater modeling indicates that the plumes will continue to expand.
7 / 3.3.2 / 38	There is no discussion of the elevated phenol and 3&4-methyl phenol in the Surficial Aquifer at WS-27, WS-28, WS-29, apparently detached from the area of the former lagoons. Is this from a separate source? Has this zone become detached as a result of source depletion/attenuation processes?
8 / 3.3.2.1 / 39	Footnote: trichloroethene and tetrachloroethene are misspelled.
9 / 3.3.2.1 / 39	<p>Bullets top of page 39: GRU believes that the plumes in the LHG require additional investigation. Specifically:</p> <p>Figure 3.12 (Phenol/LHG; pdf page 145) HG-31D hot spot. No data to the south. Distance to HG-26D (southwest) and to HG-39D (southeast) is approximately 720 ft. and 660 ft., respectively.</p> <p>Figure 3.13 (3&4 Methylphenol/LHG; pdf page 146) See comments to Figure 3.12.</p> <p>Figure 3.14 (Naphthalene/LHG; pdf page 147) Lack of plume boundary definition to north and south.</p> <p>Figure 3.15 (Benzene/LHG; pdf page 148) LHG HG-39D isolated hot spot boundary undefined, undefined heart of plume at HG-31D and HG-28D, and undefined boundary of the plume.</p>
10 / 3.3.2.1 / 40	Figures 3.22, 3.23, and 3.24 (pdf pages 155, 156, and 157, respectively). The dividing lines for the Naphthalene/3&4Methylphenol=1 and Benzene/Toluene= \sim 0.4 require some explanation as to their basis.
11 / 4.1 / 44	<p>RAOs should be based on enforceable groundwater criteria, including currently enforceable FDEP GCTLs, some of which are organoleptic.</p> <p>An RAO should be added to require mass removal from groundwater within the containment area in order to reduce the potential for vertical migration into the LHG and the Floridan.</p> <p>RAOs should not be restricted to pine tar-related compounds. They should address other COCs (BTEX and naphthalene for example) and sources in addition to the former Cabot Lagoons. This should be incorporated in the selected remedy.</p>

12 / 4.1 / 45	GRU and FDEP had previously commented that additional MWs are needed; that HG-36S is too far downgradient to serve as a compliance point. The HG-36 cluster location is too far downgradient particularly for long-term performance monitoring and to serve as a point of compliance.
13 / 4.3.1 / 48	The FFS states that leachability criteria are irrelevant. GRU believes that leachable soil outside the impermeable cap should be remediated.
14 / 4.3.1 / 48	<p>Cabot concludes – from the decline in GW concentrations over the last 30 years – that contamination remaining in the vadose zone is not a continuing source of dissolved phase contamination. GRU believes the data do not support the conclusion drawn by Cabot. COCs may still be leaching to groundwater thereby extending the period of time required to reach groundwater cleanup goals.</p> <p>While considering modeling of COC mass transport and time to attain remedial goals, it should be remembered that desorption from soils (especially for aromatics and PAHs) and back-diffusion of all COCs from finer-grained layers will affect the length of time the extraction systems must operate – and will delay the time when they can be shut down.</p>
15 / 4.3.2 / 48	Does Cabot have an estimate of the length of time required for COC concentrations in groundwater to reach health-based criteria? Should meet GCTLs.
16 / 4.3.2 / 48	<p>The FFS states that ICs will be established to prevent exposure to “on-Site groundwater.” What about offsite groundwater? Hamilton property and auto dealerships for example.</p> <p>Have all onsite property owners agreed to perpetual ICs?</p>
17 / 4.3.2 / 48	The FFS states “As discussed in Section 4.1, downgradient monitoring wells, such as HG-37S/D and HG-36S/D will be used to monitor plume migration and attenuation patterns while remediation activities are ongoing.” GRU believes that the HG-36 and HG-37 clusters are too far downgradient to monitor the effectiveness of groundwater remediation within the phenol, 3&4 methylphenol, and naphthalene plumes in the UHG. See Figures 3.8, 3.9, and 3.10, respectively. GRU recommends that Cabot reconsider the location of wells used to monitor remedial performance.
18 / 4.3.2 / 49	The FFS states “Florida GCTLs that are based on organoleptic end points are not appropriate groundwater CUGs for remedial action at the site.” As discussed elsewhere in our comments, GRU disagrees with this statement and believes that existing

	<p>GCTLs should be enforced at this site.</p> <p>The FFS states that Cabot will continue monitoring GW quality in the downgradient plume until “the State’s organoleptic GCTLs have been met.” GRU needs confirmation of this statement in light of Cabot’s recalculation of the Phenol cleanup goal using health-based criteria. The GCTL for phenol=10 µg/L (organoleptic criterion), but there are no organoleptic criteria established by FEDP for 2-, 3-, or 4-methyl phenol, or 2,4-dimethyl phenol because there are already low concentration health-based criteria for these compounds. If health-based criteria were raised, organoleptic criteria for these compounds would likely be in the low µg/L range but these have not yet been established by the State.</p>
19 / 4.7 / 64	The selected remedy must not be restricted to pine tar-related compounds. It must address other COCs (BTEX and naphthalene for example) and sources in addition to the former Cabot Lagoons.
20 / 4.7 / 64	Will the proposed P&T system within the slurry wall containment area continue to operate indefinitely to control downward migration of groundwater to the UHG, or until GCTLs or some other performance criterion is achieved?
21 / 4.7 / 64	How was the phenolic removal mass of 8,000 lbs. calculated? Does this include phenol, methyl phenols and dimethyl phenols?
22 / 4.7 / 64	Regarding the proposed groundwater extraction system outside the containment area, the FFS states “it is estimated that the P&T system will be operated until the mass removal rate achieves an asymptote...”. Does Cabot assume the asymptote will be very near the cleanup goal? What if the asymptote is not near the cleanup goal? Please clarify.
23 / 4.7 / 65	Substantial concentrations of phenolics were reported at WS-27, WS-28, and WS-29 just west of the interceptor trench and associated with the former Northeast Lagoon. Will the interceptor trench be operated until these areas have attenuated? Will additional wells be added to monitor this area?
24 / Table 4.5 / 121	On what dataset is this table based? Note that the exceedence frequency is based on Cabot’s proposed updated GCTLs that FDEP and stakeholders have not accepted. These statistics should be calculated based on the currently enforceable cleanup goals.
25 / Table 4.6 / 122	At multiple locations Cabot states the case that surficial groundwater quality indicates that leaching is not a mechanism of concern. GRU does not believe the evidence cited supports this conclusion.

26 / Table 4.7 / 123	<p>Surficial Aquifer: Effectiveness of the GW Interceptor Trench is still being debated.</p> <p>MNA is proposed for LHG in all remedial alternatives. How will Cabot confirm that natural attenuation is occurring in the LHG?</p> <p>Alternative 1/Remedy Approach: It is unclear from this presentation which interval will be treated by the PRBs; Surficial and UHG?</p> <p>Alternative 6a/Remedial Approach: HG-28S can be expected to yield very little water.</p>
27 / Fig. 1.3 / 129	<p>Note additional features identified on this map not previously identified. Boiler House/Pump House; Fuel Oil Tanks and Pump House; Fuel Oil Tanks Area for example.</p>
28 / Fig. 1.6 / 132	<p>Figure should also show current GCTL for phenol of 10 µg/L. ITW-13 and ITW-14 show very different trends, i.e. little decline. These wells and the NE Lagoon should be plotted on all appropriate maps, even if the FFS does not address that source.</p>
29 / Figures 3.8, 3.9, 3.12, 3.13 / 141, 142, 145, 146	<p>These figures should also show contours for the current FL GCTLs for phenol, and 3-/4-methyl phenol.</p>
30 / Figures 3.22, 3.23, 3.24 / 155, 156, 157	<p>Cabot calculated COC ratios by using half of the detection limit where one or more compounds were ND. At a minimum, those datapoints should be flagged in these figures. .</p> <p>To be most rigorous, if any one of the compounds was ND, no point should be plotted. At least, if both compounds of the same calculated ratio were ND, no point should be plotted.</p> <p>In the alternative, if one compound of a calculated ratio was ND, a directional arrow could be shown depicting that the ratio is less than, or greater than, the plotted value.</p>
31 / Figure 4.1/158	<p>On what is the footprint of the Potential In-Situ Treatment Area based?</p> <p>What is the rationale for the length of the PRBs? It would seem reasonable that the trenches would be progressively longer the farther downgradient one goes.</p>
32 / Appendix H	<p>All of the cleanup goals noted on the figures in this Appendix are based on the proposed GCTLs, not the current, enforceable standards. All the figures should also show the current GCTLs.</p>