

**GRU Comments to
Draft Hawthorn Group Investigation Work Plan
Cabot Carbon/Koppers Superfund Site (dated September 5, 2012)
September 25, 2012**

Section 2.2.4 Storm Water Pond Access

1. The work plan calls for placing prefabricated mats on the ground from the edge of the stormwater pond to the sample location. The condition of the pond (water several feet deep and heavily vegetated by small trees) should be considered when planning drilling activities. It may be necessary to dewater the pond.

Section 2.4.1 Electrical Resistivity Survey

2. GRU remains somewhat skeptical of claims that NAPL and contamination by dissolved organics can be identified using electrical resistivity imaging ("ERI"); however, we do not want to discourage Cabot from using advancements in methods and innovative techniques to characterize the site. We note, however, that in the Halihan et al. (2005) paper the NAPL is present at a depth of only 4-5 m bgs – in contrast to the 15-20 m depth of Hawthorn Group sediments of considerably varying texture and conductivity that will be the target for investigation at the Cabot Carbon site. We do expect that even if the ERI is not very successful in delineating NAPL and dissolved phase plumes, it will be useful in assessing the continuity, depth, and thickness of the HG clay units. We also hope that ERI can be helpful in mapping the migration of any oxidant injectate plume (ESTCP, 2009, p.5), and for that reason alone, a preliminary survey would be worthwhile.

Section 2.4.2 Soil Sampling

3. The first sentence of the first paragraph of this section begins by stating that 12 soil borings will be drilled. The last sentence of that section states that the final number of borings will depend on ER survey results. Please clarify.
4. On page 8 the first paragraph states that "...composite samples from each boring will be collected...". Please provide detail as to the interval over which composite samples will be collected and how the interval will be determined. Will sub-samples of each of the components of the composite sample be retained also so that more depth-specific analyses can be performed if warranted by the results of the composite analysis?

5. We suggest that several soil samples from uncontaminated zones should be tested for natural organic carbon content for future assessment of dissolved-phase contaminant fate and transport.
6. How does Cabot intend to grout borings from the bottom up? We are concerned about the potential for hole collapse if the intent is to install a tremmie pipe in an open hole after tools are extracted. (Cabot clarified during a meeting that the tools used in this characterization effort will be equipped with grouting plugs in the bottom that will allow placement of grout without removing the tools from the borehole. However, those details are lacking in the revised work plan. Grouting of the soil borings/groundwater sampling points is addressed in the final sentence of section 2.4.)

Section 2.4.3 Groundwater Sampling

7. Please provide more detail regarding how groundwater samples will be retrieved from the sonic or Geoprobe borings. Will slim-line bladder pumps be used? (We assume that the discussion of peristaltic and inertial pumps - first sentence on page 11- is referring to development/purging methods.)
8. Groundwater samples should be analyzed also for terpene compounds.
9. As stated in our comments to the previous version of the HG work plan -we suggest that Cabot complete each groundwater sampling boring as a permanent or temporary monitoring well with screen in either the zone of highest contamination or at an appropriate depth when it is a clean borehole. These will be useful sampling locations and having a clean boundary delineated is useful information. In the case of a clean borehole, we do not know how long an area will remain uncontaminated, so a monitor well would help. This could be a cost savings in the long run.

Section 3

10. Metals should be included in the list of analytes for treatability testing.