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October 22, 2008

Mr. Scott Miller
Remedial Project Manager
Superfund Remedial Branch, Section C
US EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Dear Scott:

DEP has reviewed the September 25, 2008 Surficial IRM and Soil S/S Pilot Test Work Plan submitted by GeoTrans for the Koppers portion of the Cabot Carbon/Koppers site and offers the following comments.

Surficial Aquifer IRM

- We are pleased to see an IRM Work Plan (WP) which proposes to expand the surficial aquifer recovery system to address contaminated groundwater in the known source areas and mitigation of vertical migration of groundwater contamination. The proposed design includes 4 trenches, excavated to a maximum depth of 20' bls with a sump at 1 end of each to withdrawal water for treatment and offsite disposal. Trench locations are similar to those incorporated in Simulation #5 in Beazer's December 22, 2006 "Evaluation of the Surficial Aquifer Hydraulic Containment System". The design extraction rates presented in table 1 of the WP show a total proposed trench system gpm of 35.6 and a total cumulative perimeter extraction well gpm of 10.1 gpm (with EW-01, EW-02, and EW-14 turned off) for a total design system gpm of 46.7 (note there appear to be some math errors in table 1). The current perimeter extraction system averages 30gpm cumulative recovery rate. The 2006 Simulation #5 trench system (no perimeter recovery wells) recovery rate totaled 41 gpm. It is unclear based on the previous model simulations how the proposed system will effectively capture both the source area contamination and the perimeter contamination.

  While Figure 5 was provided in the WP which shows the projected lateral effectiveness of the trench recovery system, no detailed simulation and hydrologic assumptions are provided to substantiate the basis for that effectiveness or demonstrate the anticipated vertical range of effectiveness of the

proposed combined system. The WP notes that the effectiveness in the deeper zone of the surficial aquifer as compared to the shallower zones is more limited. Previous surficial groundwater monitoring results confirm that there are significantly greater contaminant concentrations (naphthalene) at the base of the surficial, confirming the likely presence of DNAPL in that zone. Please provide a multilayer layer specific simulation similar to that in the December 2006 modeling effort that more clearly illustrates the anticipated effectiveness of the proposed combined trench /extraction well system.

There appears to be an inconsistency between text and Figure 5- the figure indicates that the trenches will be installed *"approx 20', on top of upper clay unit"* whereas text indicates the depth is *20' maximum*. Please clarify the anticipated depth of the trenches and how proposed recovery mechanics are incorporated into the simulation to predict the lateral and vertical effectiveness of the trenches in capturing the deeper groundwater contamination just above the top of the Hawthorn clay.

- It will be difficult to discern the effectiveness of the trenches in mitigating migration of groundwater contamination from the source areas, based on some of the WP's proposed MWs. Existing MWs closer to the source areas should be included (for example: M-21B, M32-B, M-24 B, M-15B) and additional MWs installed down gradient and more proximal to the trench/source areas to support performance monitoring.

  Proposed monitoring wells M-25B, -23B, -20B, -16B and ITW-22 are useful in evaluating the effectiveness of the combined system at the perimeter of the site. However, note that ITW-22 is screened from 3-13' bls and is not adequate to monitor the deeper surficial groundwater contamination likely present in that area. MW-25B near the process area shows very high naphthalene concentrations, along with M-20B, M-23B, M-17 and M-16B. Monitoring data to date in these areas continues to point to likely offsite groundwater contamination in the surficial aquifer, indicating that down gradient monitoring wells east of the property boundary are necessary offsite delineation and performance monitoring of the surficial aquifer remedy.

  Please relook at the proposed performance monitoring component of the WP.

- While we appreciate the "forward thinking" in hypothesizing the sequencing and timing of future discontinuance of the surficial recovery systems; without knowing the final site remedy, particularly the remedial alternatives for the surficial aquifer and source areas, the proposed scenario is speculative.

As previously indicated by DEP, Chapter 62-780 allows for natural attenuation monitoring (NAM) of portions of a plume (as the primary groundwater remedy or in conjunction with active groundwater remediation) *as long as* the contaminant source is addressed, the plume has been delineated and is not migrating (or discharging to surface water above standards), and it has been demonstrated that site specific aquifer conditions are conducive to NAM for groundwater to attenuate to GCTLs or alternative cleanup goals (with institutional controls). This site specific evaluation will need to be conducted and incorporated into the Feasibility Study to support selection of the final site remedy, including a scenario for demobing or amending the surficial system if NAM is to be considered.

Soil S/S Pilot

- The intent of the pilot is to evaluate the effectiveness of fixing contaminants via a solidified material. We assume that the anticipated product will be a solidified mass ("monolith"), not friable material. Performance of a friable material is less predictable and provides significantly greater surface area for groundwater contact (& leaching), and is not recommended by DEP.

- We appreciate the need to perform bench scale testing to determine the appropriate formula mix for ex-situ treatment. Bench testing allows much greater control of treatment conditions and uniformity than field pilot testing. The WP proposes to field test the mix(es) using an excavator and backhoe. DEP's experience has been that a pug mill or similar equipment is necessary to ensure the homogeneity of the mix and greater consistent performance in the field. We recommend a similar approach be used for this field pilot test. If in-situ mixing is anticipated as a component of the remedy, the pilot should consider what method of field testing would most approximate those conditions.

- UCS and hydraulic conductivity (permeability) are fundamental performance parameters applicable to the S/S technology. Leaching criteria are also essential to meet State ARARs and remedial goal objectives. SPLP analyses should be conducted on bench scale and field scale solidified samples to confirm that the final selected formula mixes will effectively fix both inorganic and organic contaminants such that leaching will not result in a leachate exceeding GCTLs. Where RCRA TCLP criteria would normally apply, SPLP may be considered a suitable alternative leaching method to demonstrate that the treated soils are no longer hazardous and leaching, as outlined in the attached DEP memo.

- Typically bench performance testing including SPLP analyses are run on samples representing a range of contaminant concentrations as it is unlikely that soil concentrations will be uniformly distributed during actual remediation. It is

unclear what range of contaminant concentrations are anticipated in the bench test and how these concentrations would be compared to demonstrate the ability of a mix to meet performance criteria under a full scale scenario, particularly where DNAPL contaminated materials might be present.

- We agree with the proposed post-treatment schedule for testing the S/S material (1 month after treatment). We recommend that 3 samples be collected from each of the 3 mix areas in the field pilot to see what variability in performance of each mix exists. Testing should include UCS, permeability and leaching as discussed above.

- Please clarify the basis for the 50 psi UCS performance criteria, particularly as it relates to potential future land use and possible redevelopment. What type of structures would be allowed (1 story warehouses, multi-story buildings...) such that the integrity of the remedy would not be compromised?

- Please clarify how testing will be conducted to determine the effectiveness of the mix on fixing DNAPL in the subsurface if in-situ treatment is contemplated as a remedial alternative in either the surficial, upper Hawthorn or both.

- The projected 10% volume increase associated with S/S treatment material may be an underestimate.

To assist in this and future reviews, please provide a table identifying the total depths and screen intervals of the existing surficial aquifer monitoring wells as well as for the extraction wells at the site. Perhaps an additional column(s) with that information could be added to Table 1 (August 15, 15, 2008; 2008 First Semiannual Stage 2 GW Monitoring Report) and emailed as a separate attachment to the reviewers.

We appreciate consideration of these comments. I can be reached at 850-245-8969 if you have any questions.

Sincerely,

Kelsey A. Helton
Bureau of Waste Cleanup

Attachment

cc: Zoe Kulakowski, DEP

Florida Department of
Environmental Protection

Memorandum

TO: Doug Jones, Chief
Bureau of Waste Cleanup

TO: Charles Goddard, Chief
Bureau of Solid and Hazardous Waste

FROM: Augusta Posner
Senior Attorney

DATE: September 30, 2008

SUBJECT: Use of Leaching Tests to Determine Compliance with Section 403.7222, Florida Statutes

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The subject remediation project is a Superfund site contaminated by lead. Before treatment, soils at the site exhibit the hazardous characteristic of toxicity for lead [using the toxicity characteristic leaching procedure (TCLP)]. This memo addresses the question of whether the contaminated soil, after treatment, must pass TCLP in order to satisfy section 403.7222, Florida Statutes (F.S.)

Section 403.7222, F.S, provides that: "The Legislature declares that, due to the permeability of the soil and the high water table in Florida, future hazardous waste landfills are prohibited.... As used in this section, the term *'hazardous waste landfill'* means a disposal facility or part of a facility at which hazardous waste that has not undergone treatment is placed in or on land ..." The Department interprets 'treatment' in this section to mean, at a minimum, "treatment that removes a hazardous characteristic" or "treatment that renders the waste non-hazardous." Since the hazardous characteristic of toxicity for lead is defined as 5 milligrams per liter using TCLP, the obvious answer is "yes, use of TCLP is required to demonstrate that the material being disposed of in a new landfill in Florida is not hazardous waste, where the waste at issue exhibited a toxic characteristic."

However, in the context of *remediation*, the "corrective action management unit" (CAMU) rule, 40 Code of Federal Regulations (CFR) 264.552, specifically provides an alternative to TCLP. Provided that the other elements of the CAMU rule are met [e.g. CAMU-eligible waste, no free liquids, minimum design requirements, minimum treatment requirements, closure (cap) and post-closure requirements, designation of the CAMU by Florida as the authorized state], then 40 CFR 264.552(e)(4)(iv)(F) specifically authorizes "alternatives to TCLP for metal bearing wastes for which metals removal treatment is not used ..." Florida (as the authorized state), in the context of designating a CAMU, can "specify a leaching test other than the TCLP" if such alternative leach testing is "appropriate for use" and "more accurately reflects conditions at the site that affect leaching."

EPA has made it clear that "CAMUs may be used to facilitate protective remedies under RCRA, CERCLA, and state cleanup authorities." [e.g. *Use of the Area of Contamination (AOC) Concept During RCRA Cleanups*, 3/13/96] Therefore, ***if the CERLCA remedy includes a CAMU and the CAMU rule is complied with, an alternative leaching test could be used instead of TCLP to determine whether the hazardous characteristic has been removed.***

Please note, DEP disagrees with EPA's conclusion that, since placement of contaminated media within a CAMU does not constitute land disposal, then such placement cannot constitute creation of a hazardous waste landfill under section 403.7222, F.S. The exemption from the definition of 'land disposal' in 40 CFR 268.2(c) is in the context and for the purpose of defining when land disposal restrictions (LDRs) apply. It is not applicable to the Florida statute. In any event, even if we agreed with EPA's conclusion, the exemption from land disposal, like the use of SPLP, relies on designation of a CAMU and compliance with the CAMU rule.