

From: [Helton, Kelsey](#)
To: [John Mousa](#); [Hutton, Richard H](#)
Cc: [Helton, Kelsey](#)
Subject: FW: Koppers- DEP comments on revised draft FS alternatives tables
Date: Monday, August 18, 2008 6:46:57 PM

John, Rick- FYI- recent email to FS “team” following April FS meeting, outlining current areas that DEP feels require further elaboration, evaluation or delineation. Much of this was discussed at the recent August FS mtg in Atlanta.- Kelsey

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From: Helton, Kelsey
Sent: Thursday, August 07, 2008 6:47 PM
To: 'Miller.Scott@epamail.epa.gov'; Brourman, Mitch; Council, Greg
Cc: Helton, Kelsey; Kulakowski, Zoe
Subject: Koppers- DEP comments on revised draft FS alternatives tables

Scott- At our recent conference call to finalize the April 2008 FS meeting minutes, I indicated that there were areas in the FS alternatives tables that needed more detail and clarification. This email identifies those areas. I request that they be discussed where pertinent during the next FS Team meeting and addressed in the subsequent draft FS.

1. For each alternative and each media and “aquifer” or “Group” addressed by that alternative, the FS should be specific regarding:
 - 1) the final remedial goals for each media etc;
 - 2) the final (permanent) Point of Compliance (POC) for each media etc.
Examples of specificity are- a) “In the surficial aquifer the gw remedial goal both onsite and offsite are the Florida GCTLs. The POC being the GCTLs at all times and all places onsite and offsite.” Or b)- “In the surficial aquifer the gw remedial goal consists of the Florida GCTLs at the POC defined as the Koppers property boundary with alternative cleanup target levels for contaminants onsite such that offsite migration above GCTLs does not occur.”
 - 3) Such assumptions driving the alternative evaluation and cost should be clear in the FS for the surficial aquifer, the Upper and Lower Hawthorn Group (HG) and Floridan aquifer under each alternative.
2. Many alternatives for specific media or aquifers refer to “monitoring to demonstrate that the plume is not expanding” and “monitored plume stability” as the goal- this is not sufficient in defining the remedial goal and the points of compliance. It should be clear if the remedial goal is to ultimately reach GCTLs throughout the current plume footprint, or to apply alternative cleanup levels with a POC and where these goals will be applied.
3. Institutional controls (IC)- For each alternative and each media, the need for onsite or offsite ICs should be explicit (see #1,2 above). Onsite or offsite areas where engineering controls are necessary and/or where soils or gw will remain above Florida GCTLs or above SCTLs for

unrestricted use as the final remedy must be addressed by institutional controls in the form of a restrictive covenant. Where offsite ICs are required to insure the effectiveness/protectiveness of the alternative, written confirmation from offsite property owner(s) that ICs on offsite properties are implementable must be obtained prior to selection of the remedy.

4. Active remediation- Each alternative should clearly identify the goal of active remediation for each media or aquifer. In particular- most of the alternatives include continuance of the existing hydraulic containment system in the surficial aquifer “until the plume is stabilized”. The basis for discontinuance of the system should be more specific and identify the POC where GCTLs will be met. The same applies to the HG and Floridan. For example- “Active GW remediation in the Upper HG using (technology) will continue until (active remedial goal such as NADCs) are met, followed by MNA until GCTLs are met @ (POC).”
5. Many of the alternatives for specific media or aquifers refer to contingency or secondary actions which may be implemented. The trigger precipitating these actions should be more explicitly stated. In particular, the triggers for initiation of action are not clear in the following- a) Lower HG DNAPL, under most alternatives. Nor does the contingency action refer to any specific technology. b) Upper HG GW, alternatives 4A, 4B, and 5A. c) Floridan aquifer, most alternatives (see #6)
6. Floridan Aquifer GW-Remedial goals and points of compliance are particularly lacking for this aquifer under each alternative. DEP recommends that at least 2 options be presented under each alternative in the FS- a) remediation of Floridan aquifer gw to GCTLs throughout the site, and b) a containment remedy such that gw in the Floridan meets GCTLs at some specified POC.- either the Koppers property boundary or other POC(s) closer to the source areas onsite. Each option should be evaluated in the FS. Each option should be clear regarding the specific technology proposed to accomplish its remedial goal and the trigger if contingent or secondary action is included (see #5).
1. “Monitored plume stability”- In particular this approach is proposed in many alternatives for the Upper and Lower Hawthorn and the Floridan aquifer. This appears to represent the equivalent of monitored natural attenuation (MNA). This approach is allowed by Chapter 62-780 under the following conditions- the source has been addressed, the plume is not migrating, and there has been a demonstration that MNA is or will occur at the site. DEP has natural attenuation default criteria (NADCs) which are default groundwater contaminant concentrations below which *active* gw remediation is not required as long as above conditions are met. As previously discussed, MNA is not a “presumptive remedy”- the effectiveness of MNA must be evaluated to support its application at a site even where NADCs have been met. A review of groundwater contaminant data in the surficial, Hawthorn and Floridan indicate that GW concentrations *above* NADCs likely exist in those areas where MNA is being considered. Unless it can be demonstrated that attenuation will occur over a reasonable timeframe in areas with higher concentrations and that the above MNA conditions will be met, *active* gw remediation should be included to address those areas with gw contaminant concentrations above NADCs. Plume delineation to GCTLs and groundwater monitoring (including analysis of geochemical parameters) to demonstrate that site conditions are favorable to MNA and that MNA conditions are met should be completed *prior to remedy selection*. The goal of MNA is the decline of contaminant concentrations over time, with a decrease in plume area. The final

remedial goal of MNA such as GCTLs and the corresponding POC should be identified under each alternative and aquifer or Group where MNA is proposed.

7. Soil remedy- Soil alternatives must address both human exposure and leachability (vadose zone). Based on review of the October 2007 Soil Sampling Report it appears that there are probably offsite contaminated soils, particularly east of the former process and drip track areas which are likely acting as ongoing sources of groundwater contamination. The extent of this contamination should be determined and addressed in the final soil remedy. Soil leachability criteria may be based on Chapter 62-777 default leachability criteria or may be developed site specifically using the SPLP protocol identified in Chapter 62-780.
8. Soils- Surface cover must consist of 2' thick "clean" fill to effectively mitigate human exposure to underlying contaminated soils. Backfill must be confirmed "clean" via sampling and analysis of fill prior to use at the site.
9. DNAPL- The FS should clearly state on what basis the extent of DNAPL is defined as it applies to the remedial alternatives. DEP considers DNAPL to represent a *source* of groundwater contamination, whether it is mobile or residual DNAPL. Recognizing the challenge of DNAPL delineation based on limited borings, alternative methods such as inferring its presence based on observed gw concentrations should be considered.
10. Passive DNAPL Recovery- This technology is proposed under several alternatives to address the Upper Hawthorn Group. Beazer recently indicated that the results of the Hawthorn DNAPL recovery pilot was discouraging. What technology is proposed to supplement or replace passive DNAPL recovery, particularly under Alt 5B? Is the proposed DNAPL recovery system restricted to use of the existing MWs as implied? Is DNAPL recovery anticipated inside or outside the slurry wall proposed under Alt 5A?
11. ISBS- Alternative 4B proposes ISBS in the *bottom of the Upper HG* to prevent vertical migration. What remedy is proposed to prevent *lateral* migration of DNAPL, inferred by elevated levels of naphthalene in the UHG east of the site?
12. In situ and/or exsitu solidification/stabilization (ISSS, S/S)- FS should specify performance criteria including unconfined compressive strength, permeability and leachability criteria (TCLP, SPLP, and long term leachability testing such as ANS 16.1).
13. Monitored plume stability criteria for Upper HG and Lower HG should include mitigation of both lateral and vertical plume migration.
14. Plume delineation- A review of current groundwater monitoring data indicates that additional delineation is warranted in the following area(s) to support MNA and final evaluation and ranking of remedial alternatives- a) UHG- east and down gradient of the recently installed MWs UHG 20S and 26S with offsite contamination observed significantly above GCTLs, particularly naphthalene. In addition, we recommend b) LHG- immediately east of former process area to ascertain presence and extent of DNAPL or concentrated gw contamination likely in that area.
15. Alternative (5B)- Asphalt is not considered an impermeable cover adequate to address leachable soils. Modifications to the surficial containment system should address vertical migration of both DNAPL and dissolved GW contamination. As presented, this alternative is weak in addressing DNAPL and its lateral or vertical migration in the UHG and LHG.
16. Alternatives with a Slurry wall to encircle source areas and higher concentration gw areas as the DNAPL remedy should be more specific on what criteria define "higher concentrations".

17. The FS evaluation of alternatives should include mitigation of *vertical* migration of DNAPL and contaminated gw as a component of “effectiveness”.
18. The purpose of the upcoming August FS team meeting is to develop and apply a ranking system to the existing FS alternatives to support evaluation and selection of the final Koppers site remedy. The final results of the ISBS pilot have not been provided as yet nor completion of the UHG groundwater contaminant delineation/monitoring and MNA evaluation. How these unknowns are to be factored into the ranking at this time is unclear. Obviously these must be incorporated into the final FS and selection of the site remedy.

Thank you for the opportunity to participate and comment on the ongoing FS development. Look forward to our August meeting and further discussion of the above.

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