MEETING MINUTES

US EPA Region 4
BVSPC Project 48623.0212
Koppers Superfund Site

December 1, 2008

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Remedial Alternative Evaluation Meeting Minutes (Rev 1)

Prepared by: Amy Callaway; revised by Adrian Gonzalez

The fifth Joint Feasibility Study (FS) Group meeting took place on November 13 and November 14, 2008, at the Omni Hotel in Atlanta, GA. The meeting was attended by Scott Miller, EPA Work Assignment Manager (WAM); Bill O'Steen, EPA (November 14 only); Ed Bates, EPA; Ralph Ludwig, EPA (November 13 only); Kelsey Helton, FDEP; Adrian Gonzalez, Black & Veatch Project Engineer; Amy Callaway, Black & Veatch Project Geologist/Scientist; Mitchell Brourman, Beazer East, Inc.; Mike Slenska, Beazer East, Inc.; Greg Council, GeoTrans for Beazer East, Inc.; Jim Erickson, GeoTrans for Beazer East, Inc.; Jennifer Abrahams, GeoTrans for Beazer East, Inc.; Dale Foster, Key Environmental for Beazer East, Inc.; Ian Hutchison, SES for Beazer East, Inc.; Tom Sale, Colorado State University for Beazer East, Inc.; and Jim Muller, Adventus Americas for Beazer East, Inc.

Thursday November 13, 2008

Introduction and Purpose

Meeting started with introductions from Mitchell Brourman (Beazer East) and Scott Miller (EPA).

Meeting Objectives and Agenda Overview

Greg Council, GeoTrans, reviewed the ultimate goals for the Joint FS Group to accomplish during this fifth meeting.

- Briefly present and discuss two new Remedial Alternatives (RAs) and review the RAs previously developed by the Group.
- Complete the evaluation and qualitative rating of the RAs' strengths and weaknesses.

The Group decided to address comments on minutes of prior Joint FS Group meetings through emails and to use this fifth Joint FS Group meeting to focus on evaluating the RAs.

Summary of Remedial Action Objectives and Potential Exposure Pathways
Ian Hutchison, SES, reviewed the RAOs and the potential exposure pathways that were drafted during the committee's first meeting and were included in the minutes of the first Joint FS Group meeting. The RAOs include reduction of DNAPL Toxicity, Mobility and Volume to the extent practicable (consistent with CERCLA FS requirements) and with a preference for treatment.

Summary Description of Remedial Alternatives
Greg Council reviewed each of the RAs. Two new alternatives have been added: Alternative 5D and Alternative 5D(a), based on group discussions during the fourth Joint FS Group meeting. Furthermore, the Group decided that Alternative 5B was not implementable, and that it should be removed from further consideration.

Alternative Evaluation Framework and Meeting 4 Results
During the fourth Group meeting, the Group discussed and ranked four of the balancing criteria. After a brief group exercise in which four subgroups of Group members each ranked the four CERCLA balancing criteria, it was found that all four subgroups ranked the four criteria in the following order:

I. Long-term Effectiveness and Permanence was considered by the Group to be the most important of the four CERCLA FS balancing criteria. It was assigned a weight of 35%.
II. Implementability was considered an important criterion for this site because of potential difficulty in implementing a remedy due to Site-specific geology. Risks of ineffective or unsuccessful implementation were judged by Group members to be significant and critical. Reduction of toxicity, mobility, or volume can not be addressed without implementability considerations. It was assigned a relative weight of 30%.
III. Reduction of Toxicity, Mobility, or Volume through Treatment was judged to be more important to successful remediation than short-term effectiveness. DNAPL mobility was discussed and judged to be a critical issue at the Site. It was assigned a weight of 20%.
IV. Short-term Effectiveness was judged to be the least important of the four criteria. No imminent short-term issues could be identified by the Group that could not be managed during remedy construction/implementation. The one exception was the large-scale excavation alternatives. This criterion was assigned a relative weight of 15%.

Alternative Details/Maps/Discussion

Schematic
Tom Sale, Colorado State University, helped create a new Conceptual Block Diagram for the Koppers site. Tom Sale went through the details of the newly designed diagram, based on discussions during the fourth Joint FS Group meeting.

Conceptual Layout
The source areas as depicted on the plan views are based on the 2004 *Data Report for Additional Investigation of Hawthorn Group DNAPL Source Evaluation for the Koppers Industries Property*, submitted by GeoTrans. The FS will discuss the conceptual site model in detail, and will include a definition of source areas and "hot" spots. During the design phase, the source areas for soil will be

further delineated to ensure that remedy implementation criteria will be met. Newly created draft plan view diagrams of each RA were discussed by the Group. Each of the draft plan view diagrams indicate that the areas will be capped with engineered surface cover. The area of the surface cover will be determined based on results of the human health risk assessment process.

The structure of the remedial alternatives assumes that the primary remedial actions will be implemented during the initial remediation/construction phase. This will be followed by a period of groundwater monitored natural attenuation (MNA) for the Lower Hawthorn Group and Upper Floridan Aquifers. If the active remedy technologies and/or MNA do not address groundwater contamination to an acceptable degree, contingency groundwater remedial plans will be implemented. Recommendations for the criteria that will trigger implementation of MNA and contingency remedies will be presented in the FS.

Surface Grading and Covers

For purposes of assessing risk to human health, the site was subdivided into eight exposure areas. The need for engineered surface cover is being determined by risk assessment for human receptors exposed to specific areas of contaminated soil (by ingestion, direct dermal contact or dust inhalation). The surface cover is to be engineered with varying permeability characteristics; it will have low permeability where necessary to protect against soil-to-groundwater leaching of contaminants.

Offsite Potential DNAPL

Any potential offsite DNAPL will be addressed under contingency plans outlined in the FS. Clean-up target levels (tentatively presumed to be Florida's Groundwater Clean-up Target Levels; GCTLs) will be finalized and incorporated into the FS for offsite contamination. Permanent points of compliance (POCs) will be defined along the eastern site property boundary. If any contamination is found offsite (e.g., at temporary POCs further east of the site property boundary), it will be addressed until clean-up target levels are met at the permanent POCs.

Upper Floridan Aquifer Hydraulic Containment

Jim Erickson, GeoTrans, presented several scenarios for implementing hydraulic containment in the Upper Floridan Aquifer. Three scenarios included pumping groundwater from the upper transmissive zone (UTZ) and three scenarios included pumping groundwater from the lower transmissive zone (LTZ). Scenarios for pumping the LTZ indicated that pumping rates would need to be considerably greater than the pumping rates for the UTZ scenarios. However, pumping from the LTZ did not provide any additional benefits in addressing groundwater contamination in the UTZ.

Beazer is in the process of submitting plans to pump from FW-6 and FW-21B to determine if the pumping has benefits specifically for FW-12B and FW-20B.

Currently Upper Floridan containment is listed as a contingency for all of the remedial alternatives. Beazer feels that it is more important to address source areas and cut off migration to the Upper Floridan as a primary action. This will be reflected in the final RA descriptions in the FS. Remedial alternatives associated with the Upper Floridan Aquifer will be described and evaluated in a separate section of the FS report.

State of Florida regulations allow a property boundary to be used as a POC. The Group discussed the possibility of installing one or more Upper Floridan Aquifer monitoring wells between the northern property boundary and the existing transect wells to support the proposed remedy/MNA and to better define contamination in that area of the Site.

The Group agreed that the trigger criteria for implementing any contingency action in the Upper Floridan need to be clearly defined in the FS report.

Monitored Natural Attenuation Parameters
Jim Muller, Adventus, lead a discussion on the MNA parameters expected to be monitored. The details of the MNA monitoring are preliminary and will be refined. Three general locations were identified to be monitored: 1) Up-gradient of the plume, 2) Within the plume, and 3) downgradient of the plume.

The preliminary critical parameters identified for monitoring were the contaminants of interest, total organic carbon, EH, pH, DO, temperature, and conductivity. Other parameters to be monitored included total and dissolved cations (Ca, Mg, K, Fe, Mn, P), nitrate/nitrite, ammonia-N, and sulfate.

In order for MNA to be considered a primary remedial action, there must be evidence that indicates degradation is occurring at the Site and that the dissolved-phase plume(s) has/have been stabilized by natural attenuation. Site specific naphthalene degradation rates have been previously calculated. A discussion of the current evidence supporting MNA will be presented in the FS report.

Friday November 14, 2008

Overview of Day One Activities
Greg Council, GeoTrans, reviewed the Group's evaluation of long-term effectiveness completed during the fourth Joint FS Group meeting. The Group planned to complete the ranking of the other criteria qualitatively, then to reevaluate all four criteria quantitatively. While reviewing the evaluation of the long-term effectiveness criterion, the two new RAs were evaluated by the group.

Alternative Ranking/Rating Exercise
In the fourth Joint FS Group meeting, the CERCLA FS criteria were reviewed by the Group. Based on those discussions, it was decided that the two threshold criteria (overall protection of human health and the environment and compliance with ARARs) should be met by any RA that was considered viable for the Site. Secondly, the two modifying criteria (Acceptance by State and Support Agencies and Community Acceptance) are typically addressed after publication of the Proposed Plan. Thus, these two criteria were not discussed by the Group at this meeting. Lastly, one of the five balancing criteria (cost) required engineering parameters and data that were not available for the Group to evaluate during the meeting. Consequently, the Group agreed (1) to leave the evaluation of cost for the FS document, and (2) to use the meeting time to evaluate the RAs based on the remaining four CERCLA FS balancing criteria: long-term effectiveness and permanence, reduction of toxicity, mobility, and volume through treatment, short-term effectiveness, and implementability.

The Group discussed the optimal method for evaluating the ten RAs against these four EPA criteria required for the remedy selection process. Members of the Group provided their various experiences with methods for rating "degrees of success" at achieving criteria, some based on numeric scales and other based on narrative descriptors. The Group agreed to evaluate the RAs with qualitative descriptors, and it eventually settled upon a general rating scale for likely "degree of success" at achieving criteria. The scale included these descriptions: Very High, High, Good, OK, Low, Lower and NA. Modifiers (e.g., + or -) were sometimes used to differentiate among closely rated criteria. Differences in Group members' definitions of some of these descriptors were discussed until consensus was reached regarding a particular rating for a particular criterion.

Descriptions of the four CERCLA balancing criteria in various EPA guidance documents present each criterion with a number of sub-criteria that define different aspects of the main criterion. Sub-criteria defined by EPA for the four CERCLA balancing criteria are listed below.

Balancing Criterion	Sub-criteria used to define the Balancing Criterion
Long-Term Effectiveness and Permanence	(1) **Magnitude of Residual Risk** (risk remaining after implementing the primary remedy and any long-term actions) (2) **Adequacy and Reliability of Controls** (what is the likelihood of receptors being exposed to contamination if the remedy, and any planned contingencies, fails)
Reduction of Toxicity, Mobility, and Volume through Treatment	(1) **Treatment Process used and Materials Treated** (to what degree does the alternative rely on treatment technologies versus containment versus natural attenuation) (2) **Volume of Materials Destroyed or Treated** (How effective is the remedy at destroying or treating contaminated material? Quantify.) (3) **Degree of Expected Reductions** (How efficient is(are) the remedy's treatment process(es)? Describe in terms of % remaining or removed, or mass on basis) (4) **Degree to Which Treatment is Irreversible** (How likely will the treatment process rebound or will be rendered ineffective by a competing process or site characteristic? (5) **Type and Quantity of Residuals Remaining** (Amount and characteristics of waste residuals generated by treatment processes.
Short-Term Effectiveness	(1) **Protection of Community during Remediation** (What is the level of hazard/risk to surrounding community by the implementation of the remedy) (2) **Protection of Workers during Remediation** (What is the level of hazard/risk to remediation personnel during construction/implementation of the remedy?) (3) **Environmental Impacts** (What is the level of hazard/risk to ecological receptors and other environmental entities created by constructing/implementing the remedy?) (4) **Time until Remedial Action Objectives are Achieved** (How long will it take for the remedy to be constructed? AND How long will it take for the remedy to be effective to the degree that it is designed to be effective?
Implementability	(1) **Ability to Construct and Operate Technologies in the Remedy** (2) **Reliability of the Technologies in the Remedy** (3) **Ease of Undertaking Additional Remedial Actions (do they hinder future actions?)** (4) **Ability to Monitor Effectiveness of Remedy** (5) **Ability to Coordinate and Obtain Approvals from Other Agencies** (6) **Availability of Services and Materials**

The Group modified the sub-criteria slightly to reflect site specific concerns and requirements before proceeding with qualitatively ranking/rating the RAs.

The group rated each Alternative using these 18 sub-criteria (using the general rating scale described above) and notes were taken regarding the groups rationale for those ratings. The rationale and

results of those qualitative evaluations will be presented in the Site's FS report. The results also will be converted to quantitative scores to help analyze the differences and trade-offs between Alternatives.

Description of Remedial Alternatives for the Koppers Site
(5b-old was eliminated from further consideration by the Group during meeting discussions)

1	No Action [Required by Statute]
2	Continue Current Actions (Surficial Aquifer Hydraulic Containment and UHG Passive DNAPL Recovery)
3a	Excavation (to Upper Clay Unit), Treat, Bury Onsite, Surface Cover; In situ options for deep zones; spot excavate ditch sediment
3b	Extensive Excavation (to Middle Clay Unit), Treat, Bury Onsite, Surface Cover; In situ options for deep zones; relocate drainage ditch
4a	In Situ Treatment: ISSS to Middle Clay Unit; In situ options for deep zones; spot excavate ditch sediment
4b	In Situ Treatment: Surficial Aquifer ISSS, UHG zone ISBS; In situ options for deep zones; spot excavate ditch sediment
5a	Containment Remedy: Slurry Walls and continue Passive DNAPL Recovery; In situ options for deep zones; spot excavate ditch sediment
5b	Hybrid Remedy: Spot excavate soil and sediment; Slurry Walls and Surface Cover; UHG zone ISBS and Passive DNAPL Recovery; In situ options for deep zones
5c	Hybrid Remedy: Spot excavate soil and sediment; Slurry Walls and Surface Cover; Surficial Aquifer ISBS; UHG zone Passive DNAPL Recovery; In situ options for deep zones
5d	Hybrid Remedy: Spot excavate soil and sediment; Slurry Walls and Surface Cover; ISSS from surface to Surficial Aquifer; In situ options for deep zones
5b (old)	Hybrid Remedy: Surficial Aquifer Hydraulic Containment and UHG Passive DNAPL Recovery; Surface Cover; In situ options for deep zones

Table 3-1
Summary of Components in Site-Wide Remedial Alternatives
Cabot Carbon/Koppers Superfund Site
Gainesville, Alachua County, Florida

Remedy Components		Alternative SWA-1	Alternative SWA-2	Alternative SWA-3A	Alternative SWA-3B	Alternative SWA-4A	Alternative SWA-4B	Alternative SWA-5A	Alternative SWA-5B	Alternative SWA-5C	Alternative SWA-5D
		No Action [Required by Statute]	Continue Current Actions (Surficial Aquifer Hydraulic Containment and UHG Passive DNAPL Recovery)	Excavation (to Upper Clay Unit), Treat, Bury Onsite, Surface Cover; In situ options for deep zones; spot excavate ditch sediment	Extensive Excavation (to Middle Clay Unit), Treat, Bury Onsite, Surface Cover; In situ options for deep zones; relocate drainage ditch	In Situ Treatment: ISSS to Middle Clay Unit; In situ options for deep zones; spot excavate ditch sediment	In Situ Treatment: Surficial Aquifer ISSS, UHG zone ISBS; In situ options for deep zones; spot excavate ditch sediment	Containment Remedy: Slurry Walls and continue Passive DNAPL Recovery; In situ options for deep zones; spot excavate ditch sediment	Hybrid Remedy: Spot excavate soil and sediment; Slurry Walls and Surface Cover; UHG zone ISBS and Passive DNAPL Recovery; In situ options for deep zones	Hybrid Remedy: Spot excavate soil and sediment; Slurry Walls and Surface Cover; Surficial Aquifer ISBS; UHG zone Passive DNAPL Recovery; In situ options for deep zones	Hybrid Remedy: Spot excavate soil and sediment; Slurry Walls and Surface Cover; ISSS from surface to Surficial Aquifer; In situ options for deep zones
Primary Remedial Actions in site Zones and Media											
Surface & Shallow Subsurface Soil		No Action	No Action + Contingency (Surface Cover)	Excavation w/Retaining Wall + Surface Cover	Excavation w/Sloped Sides + Surface Cover	ISSS + Surface Cover	ISSS + Surface Cover	Surface Cover	Localized Excavation + Surface Cover	Localized Excavation + Surface Cover	Localized Excavation + ISSS + Surface Cover
Surficial Aquifer	**DNAPL**	No Action	Hydraulic Containment (Indirect)	Excavation w/Retaining Wall + Dewater Excavation Pit	Excavation w/Sloped Sides + Dewater Excavation Pit	ISSS	ISSS	Slurry Walls	Slurry Walls	Slurry Walls + **ISBS**	Slurry Walls + **ISSS**
Surficial Aquifer	**Source zone GW**	No Action [Discontinue Current Action]	Optimized Hydraulic Containment	Retention Walls + Dewater Excavation Pit	Dewater Excavation Pit	ISSS	ISSS	Slurry Walls + Phase-out Hydraulic Containment	Slurry Walls + Phase-out Hydraulic Containment	Slurry Walls + **ISBS** + Phase-out Hydraulic Containment	Slurry Walls + **ISSS** + Phase-out Hydraulic Containment
Surficial Aquifer	**Non-source zone GW**		Optimize Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA	Phase-out Hydraulic Containment + MNA
Upper Hawthorn Group (UHG)	**DNAPL**	No Action [Discontinue Current Action]	Passive DNAPL Recovery	Subsurface Slurry Wall + Dewater Containment Zone	Excavation w/Sloped Sides + Dewater Excavation Pit	ISSS	**ISBS**	Slurry Walls + Passive DNAPL Recovery	Slurry Walls + **ISBS** + Passive DNAPL Recovery	Slurry Walls + Passive DNAPL Recovery	Slurry Walls
Upper Hawthorn Group (UHG)	**Source zone GW**	No Action [Discontinue Current Action]	MNA + Contingency (ISCO)	Slurry Walls + Dewater Containment Zone	Dewater Excavation Pit	ISSS	**ISBS**	Slurry Walls	Slurry Walls + **ISBS**	Slurry Walls	Slurry Walls
Upper Hawthorn Group (UHG)	**Non-source zone GW**			MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)
Lower Hawthorn Group (LHG)	**DNAPL**	No Action	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)	Monitoring + Contingency (ISCO)
Lower Hawthorn Group (LHG)	**GW**	No Action [Discontinue Current Action]	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)	MNA + Contingency (ISCO)
Surface Water		No Action	No Action	Addressed under Surface and Shallow Subsurface Action(s)	Drainage Ditch Relocation	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)
Ditch Sediment		No Action	No Action	Addressed under Surface and Shallow Subsurface Action(s)	Drainage Ditch Relocation	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)	Addressed under Surface and Shallow Subsurface Action(s)
Remedy Options Specific to Upper Floridan Aquifer (UFA)											
Options for Upper Floridan	**Option 1**	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Options for Upper Floridan	**Option 2**		MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA
Options for Upper Floridan	**Option 3**		Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)	Hydraulic Containment + Contingency (Expand Pumping)
Remedy Support Activities (Actions are independent of zones or media)											
Final Disposition	**Solid Waste**	No Action	Off-site disposal of GW treatment residuals	Treated Solids Reused as Fill Material and Surface Cover; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Fill Material and Surface Cover; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Surface Cover Material; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Surface Cover Material; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Surface Cover Material; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Surface Cover Material; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Surface Cover Material; Disposal spent groundwater treatment residuals offsite	Treated Solids Reused as Surface Cover Material; Disposal spent groundwater treatment residuals offsite
Final Disposition	**Liquid Waste**	No Action	Optimize existing GW Treatment; Post-treatment POTW disposal	Optimize existing GW Treatment; Construct temporary treatment plant for dewatering liquid; Post-treatment POTW disposal	Optimize existing GW Treatment; Construct temporary treatment plant for dewatering liquid; Post-treatment POTW disposal	Optimize existing GW Treatment; Post-treatment POTW disposal	Optimize existing GW Treatment; Post-treatment POTW disposal	Optimize existing GW Treatment; Post-treatment POTW disposal	Optimize existing GW Treatment; Post-treatment POTW disposal	Optimize existing GW Treatment; Post-treatment POTW disposal	Optimize existing GW Treatment; Post-treatment POTW disposal
Final Disposition	**Collected DNAPL**	No Action	Dispose DNAPL at off-site Hazardous Waste Facility	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Dispose DNAPL at off-site Hazardous Waste Facility	Dispose DNAPL at off-site Hazardous Waste Facility	Dispose DNAPL at off-site Hazardous Waste Facility	Not Applicable
Generic Support Operations		Five-Year Reviews	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)	Storm Water Management Decommission / Demobilize Site Restoration Five-Year Reviews (if needed)
Institutional Controls	**Government Controls**	No Action	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls	Site zoned industrial; continue existing groundwater controls
Institutional Controls	**Proprietary Instruments**	No Action	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite	Private ownership restricts exposure to groundwater or soil onsite
Institutional Controls	**Enforcement & Permits**	No Action	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance	Chemical injection, construction, and disposal activities require permit compliance
Institutional Controls	**Public Information**	No Action	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders	Regular communications with community stakeholders

Notes: DNAPL = dense, non-aqueous phase liquid GW = groundwater ISCO = In situ chemical oxidation MNA = monitored natural attenuation POTW = publicly owned treatment works

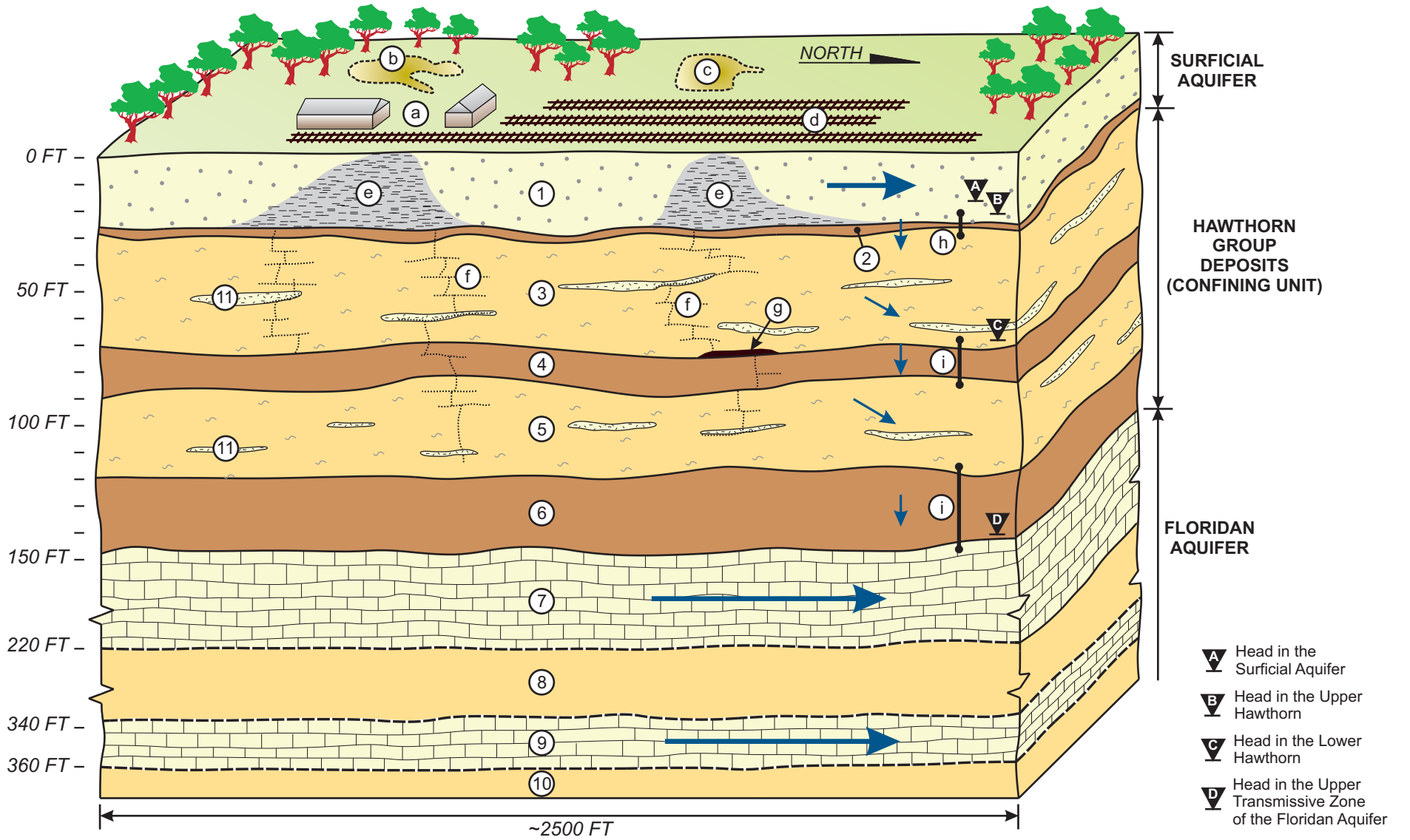

Figure 4.
Conceptual Block Diagram
Cabot Carbon/Koppers Superfund Site, Gainesville, Florida