

**SUMMARY**  
**KOPPERS FEASIBILITY STUDY TECHNICAL WORKING GROUP**  
**MEETING OF JANUARY 27 AND 28, 2010**  
**(JOINT MEETING #7)**

**PREPARED BY:**  
**CITY OF GAINESVILLE, GAINESVILLE REGIONAL UTILITIES, ALACHUA**  
**COUNTY ENVIRONMENTAL PROTECTION DEPARTMENT**  
**DATED: FEBRUARY 17, 2010**

*Headings are copied from EPA's meeting agenda*

CONCEPTUAL SITE MODEL

GeoTrans considers DNAPL to be mobile only where it flows into wells. GRU and FDEP disagree with GeoTrans' position. GRU remains very concerned regarding the vertical mobility of creosote DNAPL. EPA states that DNAPL may exist at the site that is immobile under existing conditions, but can become mobilized if conditions change.

EPA believes that a groundwater concentration of 10% of effective solubility of a creosote constituent is a more reliable indicator of the presence of nearby creosote than 1% of effective solubility.

Beazer expects that injecting ISBS solution in the Surficial Aquifer will treat the Upper Hawthorn because Beazer believes that the ISBS solution will follow the same pathways as the creosote DNAPL and will displace DNAPL in the UHG clay. GRU disagrees and believes that relying on migration of ISBS solution through the UHG clay to affect treatment of the Upper Hawthorn will be very ineffective, because many of the pathways are likely occupied by DNAPL, and the ISBS will not displace DNAPL.

Beazer expressed concern about injecting ISBS into the UHG since it would require penetration of the first HG clay layer and stated that each clay layer provides some level of protection to underlying units, and that we do not want to do anything that will make the situation worse.

Beazer believes that inactivation and filling of the North and South Lagoons has removed the driving head for vertical DNAPL mobility. Additionally, immobilization of DNAPL in the surficial aquifer will remove much of the remaining driving head for DNAPL movement. GRU agrees that the elevated water levels in the lagoons has been removed but that the vertical head of the creosote "ladder" is not affected by that action.

EPA believes that GRU's proposed revisions to text in the FS describing the conceptual model is reasonable and appropriately acknowledges the technical uncertainties. GeoTrans expressed indicated they were amenable in concept to GRU's proposed revisions, subject to additional review reservation.

## DELINEATION MONITORING

### FS

- The FS can be completed and remedy selected prior to full delineation of the vertical and horizontal extent of contamination.
- The FS should include text that states delineation will be completed during remedial design.
- Leachability of contaminants from surface soils was not explicitly addressed in the draft FS. The final FS will address soil leachability. The approach will likely include comparison of on-site soil concentrations with Screening of concentrations against leachability criteria for screening. In addition data from surficial wells will be used to and use of data from existing wells may identify if any actions are needed for soils outside the source area where this pathway would not be addressed by the cap. This analysis and actions to address this pathway if needed should be included in the FS.

FDEP noted that groundwater concentrations north of the South Lagoon and downgradient of the Surficial extraction system suggest source areas not yet identified.

GeoTrans acknowledged that we will not be able to treat all DNAPL, but will attempt to get the majority of mass. It is not feasible to get all stringers; that the selected remedy will be containment with source treatment.

EPA believes that a groundwater concentration of 10% of effective solubility of a creosote constituent is a reliable indicator of the presence of nearby creosote. Concentrations on the order 1% of effective are indicative that DNAPL is on-site, but does not reliably indicate DNAPL in the proximity of the constituent detection location. Participants discussed the meaning of “source”, consensus is that visual, olfactory, and groundwater concentration (10% of effective solubility?) will be used to identify source area boundaries.

## FLORIDAN AQUIFER CONTAINMENT

Per EPA and Beazer, the goal of the Floridan IRM is to keep the contaminant plume in the Floridan Aquifer on-site, and for it to remain stable or shrinking. Additionally, the pumping near FW-22B is intended to capture contamination that has left the site in that area. GRU wants to make sure that Floridan containment is robust and captures all contaminated water leaving the site. GRU suggested that Floridan extraction wells closer to the source areas - than at the property boundary - could be more cost-effective than wells at the property boundary. EPA and FDEP do not agree with GRU that the best place to install Floridan containment wells is at the source areas.

FDEP’s position is that all offsite contaminants exceeding action levels must be remediated and the plume must be pulled back onsite. FDEP wants to see a stable or shrinking plume at the property boundary and to avoid O&M (P&T) in perpetuity.

GRU & ACEPD expressed concern that FW-16B continues to show contamination leaving the site. EPA's intent is that if the low rate Floridan pumping does not successfully stop off-site migration at this location then additional action will be required. EPA pointed out that Federal Regulations, policy, and precedent do not allow MCL exceedances anywhere onsite or offsite outside the area where waste is managed (contained or treated). Any such exceedances must be dealt with. An extraction well downgradient of FW-21B (Former Drip Track) will not wait for remediation to start.

The FS will state that Floridan containment will be implemented in order to contain the Floridan plume within the site boundaries and to ensure that the plume is stable or shrinking. It will describe the current IRM and will state that if it is not effective, then additional measures including additional pumping wells, as appropriate, will be taken.

#### ADDITIONAL ALTERNATIVES TO EVALUATE

GRU and ACEPD proposed that the FS evaluate three additional remedies. GeoTrans believes that ChemOx is not feasible in the Lower Hawthorn and Beazer is very concerned about additional penetrations of clay units – especially the Middle Hawthorn clay. GRU asked how ChemOx could be considered a contingency technology for the Lower Hawthorn if it is not feasible to implement in that unit – Beazer clarified that it would be used to treat hot spots only. Hot spot treatment would be initiated were exceedances are observed in Floridan groundwater or where very high concentrations are observed in the Lower Hawthorn. GRU observed that concentrations greater than 10% of the solubility limit are already reported in the LHG.

The group agreed to evaluate three additional alternatives:

- 5E—Surficial – slurry wall and ISS/S, Upper Hawthorn – Slurry wall and ISS/S, Floridan - containment
- 5F—Surficial – slurry wall and ISS/S, Upper Hawthorn – Slurry wall and ISBS, Floridan - containment
- 5G—Surficial – slurry wall ISBS, Upper Hawthorn – Slurry wall and ISBS, Floridan – containment

GRU expressed concern that active remediation of the Lower Hawthorn is not contemplated in any of the three additional alternatives. The alternatives proposed by GRU and ACEPD each addressed the Lower Hawthorn.

EPA's position is that alternatives having a recovery or treatment component should be given priority over containment strategies. EPA views DNAPL as a Principal Threat Waste that must be addressed regardless of the quantity present – regardless of the geologic unit in which it is encountered. EPA suggested using the existing LHG wells that exhibit high COC concentrations to inject reactant to treat known hot-spots. GRU noted that additional LHG monitoring wells

would be required to characterize the LHG zone and to evaluate effectiveness of the hot-spot treatment. EPA agreed.

### RECONSIDERATION OF ALTERNATIVE EVALUATIONS/SCORES

There is no requirement that an FS identify a final remedy and EPA is leaning in that direction.

FDEP, GRU, and ACEPD expressed concern over the implementability and long-term effectiveness of ISBS and the ability of application of ISBS in the Surficial aquifer to affect remediation in the Upper Hawthorn.

ACEPD stated that in their opinion ISS/SISSS is a preferable technology to ISBS for treating the source areas due to its likely being a more robust and longer lasting treatment.

ACEPD stated that the FS need more detail regarding what is going to happen offsite; the public needs more information. EPA will expand on the 4 options available to affected residents – various voluntary agreements between residents and Beazer. The FS will not predetermine a remedy for individual offsite properties.

EPA is concerned that we are nearing year 2011 and we are still working on 2006 5-Year Review items. EPA would prefer pre-programmed items with a schedule and dates if we envision a phased approach.

EPA pointed out that Federal Regulations, policy, and precedent do not allow MCL exceedances anywhere onsite or offsite outside the area where waste is managed (contained or treated). Any such exceedances must be dealt with. An extraction well downgradient of FW-21B (Former Drip Track) will not wait for remediation to start.

EPA has no expectation that remedial actions in the Surficial or the UHG will result in improvement in the LHG but that it is impracticable to “poke a bunch more holes through the LHG Clay”.

GRU noted that Beazer needs to maintain the existing Hawthorn and Floridan wells to the extent possible. Beazer stated that some parts of the cap will be approximately 12 ft above existing grade to promote stormwater drainage.

Group consensus was that the FS should more clearly discuss why excavation with off-Site disposal was screened out and is not addressed as an alternative.

### MISCELLANEOUS COMMENTS/RECOMMENDATIONS

Beazer committed to Floridan containment. GRU wants to make sure that Floridan containment is robust and captures all contaminated water leaving the site. GRU suggested that Floridan extraction wells closer to the source areas than the property boundary could be more cost-

effective than wells at the property boundary. GRU also noted that offsite contaminant migration is occurring at FW-16B (Former Drip Track). FDEP's position is that all offsite contaminants exceeding action levels must be remediated and the plume must be pulled back onsite.

FDEP wants to see a stable or shrinking plume at the property boundary and to avoid O&M (P&T) in perpetuity.

### RISK-ASSESSMENT ITEMS

Concerning the offsite soil contamination, Beazer stated they will not agree to forgo any alternative open to them. They will pursue a Probabilistic Risk Assessment for both on-site and off-site soils.

Beazer noted that:

- The FDEP ARAR is  $10^{-6}$  risk, not 7 ppt
- The latest EPA Interim Preliminary PRG for Dioxin is 72 ppt (EPA is seeking comment on potential residential PRG of 3.7 ng/kg associated with risk of  $10^{-6}$ .)

FDEP noted that probabilistic RAs are allowed by Florida law; however, they see very few on residential sites. If a probabilistic risk assessment is proposed for the offsite properties, FDEP stated that they would need to determine if the assumptions and criteria to be used would be acceptable and meet the state's guidelines.

ACEPD and the City stated they prefer that default FDEP Residential Clean-up criteria be used for offsite soils and that it will cause a high degree of concern on the part of citizens in the area if a less stringent standard is applied.

ACEPD noted that the Community needs to know soon how the northern area hot spots will be addressed. EPA stated that this will be addressed in the RA and the FS.

Ecological Risk Assessment - Beazer noted that comparison of the concentrations and Dioxin congeners observed in Springstead Creek to those observed in the Fenholloway River suggest no ecological risk to fish, birds, or mammals. Beazer used a similar approach for evaluating PAHs (comparing Koppers data to data from other sites). FDEP submitted comments disagreeing with that approach for PAHs.

FDEP stated that the eco-risk may be the greatest risk in the offsite sediments in the Creek. FDEP stated that the eco-risk is still being evaluated by FDEP. ACEPD stated that they are still waiting for the final human health risk evaluation from FDEP and the Florida Health Department.

Dust – FDEP has not seen dust as an issue when sites are cleaned up to Commercial/Industrial standards. Attic dust is not seen as an issue by FDEP, Beazer, or EPA.

FDEP noted that the size of exposure units must be resolved.

The City of Gainesville made the following observations and requests:

- The FS should include a comment that delineation of the extent of contamination will be completed as we progress through the design and implementation phase – it is not required prior to complete the FS.
- The area of onsite surface soils (impacted media outside the DNAPL source areas) that require action to meet commercial/industrial criteria can be defined in several ways. The City requested that the area/volume alternatives include the following:
  - An alternative to address all surface soils that exceed FDEP default commercial industrial SCTLs (as included on 62-777).
  - An option to average over various exposure units could be included, but it should not be a site-wide average. The previously defined EUs could be used or alternative EUs proposed. Request that the area of soils to be addressed in each EU be defined using FDEP guidelines.
- The FS may also define the soil areas to be addressed to meet commercial industrial criteria based use of probabilistic risk assessment, but this should not be based on a sitewide average. Comments can be provided on the risk assessment approach and exposure units if proposed.
- The FS should include removal as a potential action for impacted surface soils outside the DNAPL source area.
  - Modify the discussion of the General Response Actions for soils (Sections 2.3.1.1 Removal) since this is feasible and has been used at other locations where only surficial contamination is present (note the reference cited relates to areas with DNAPLs, which is not applicable for these soil areas).
  - Consider consolidation of these soils beneath the source area cap.
  - Direct contact risks can be eliminated by cover/cap as was inferred in the draft FS. These costs may also be included. However,
    - In the absence of a specific development plan, there are greater benefits for long-term effectiveness and permanence and reduction of TMV for these areas for the removal option.
    - If a specific development were proposed, capping could be effectively integrated into the plan and may help to accelerate redevelopment.
- Offsite soil for residential areas should be addressed as follows:
  - Include a discussion of both the FDEP SCTL of 7 ng/kg for dioxins, and also a risk assessment approach.
  - AMEC stated the specific offsite area requiring remedial action will not be shown in the FS. Since delineation and risk assessment will not be completed.

- Although an alternate risk based value might not be developed prior to completing the FS, it should be identified prior to the proposed plan/ROD. It is not sufficient to state that cleanup will meet 1E-6 without specifically defining the assumptions made in the calculation.
- The FS could be completed without an ecological risk assessment.
  - Offsite sediments are not addressed in the FS. Risk may be low, but no final decision on this is needed to complete the FS.
  - The FS can state that runoff is a potential migration pathway for contaminants and that sediment concentrations above ecological screening criteria have been identified.
  - Most importantly, additional surface soil actions and changes to stormwater drainage will address this pathway.
- The FDEP stated that if surface soils concentrations above SCTLs are addressed, contaminant migration via dust would no longer be an issue.
- EPA supported the use of the 50<sup>th</sup> percentile (rather than the 95<sup>th</sup> percentile recommended for decision making in EPA guidance) for comparison with the target risk level of 1E-6 in the draft FS, and may consider this in the future. The City requests that risk managers be fully informed as to the implication this precedent.

## ALTERNATIVE EVALUATION AND SCORING

Bill Osteen stated the following:

1. EPA noted that The Cost-Benefit Analysis can include only long-term effectiveness; reduction of toxicity-mobility-volume, and short-term effectiveness. Implementability cannot be used as a Primary Balancing Criteria because it is not a “benefit”.
2. The draft FS understates the need to clean up groundwater in the HG. DNAPL is a principal threat waste.
3. LHG contamination should be treated to the extent practical. He does not favor area-wide treatment due to the number of perforations in the middle HG clay required, but does favor Chemox addition via LHG wells where significant DNAPL contamination is detected.

GRU & ACEPD’s primary concerns regarding the scoring system in the Draft FS are:

1. It does not adequately address the uncertainty of ISBS compared to ISS/S;
2. It does not consider the need or benefit of reducing vertical mobility of creosote in the HG;
3. It is based on continued operation of the Koppers site.

Rescoring of some alternatives is needed, particularly since Koppers will no longer be operating.