

October 22, 2008

Mr. Scott Miller  
Remedial Project Manager  
United States Environmental Protection Agency  
Region IV, Superfund North Florida Section  
61 Forsyth Street, SW  
Atlanta, GA 30303

RE: GRU Comments to Surficial Aquifer Interim Remedial Measure (IRM) and Soil Solidification/Stabilization Pilot Test Work Plan (September 25, 2008)

Dear Mr. Miller:

Attached are GRU's comments to the Surficial Aquifer Interim Remedial Measure (IRM) and Soil Solidification/Stabilization Pilot Test Work Plan (September 25, 2008)

Thank you very much for your on-going effort in addressing the Cabot/Koppers Superfund site. If you need additional information, please contact me at 352-393-1218.

Sincerely,



Rick Hutton, P.E.  
Supervising Utility Engineer

xc: John Mousa (ACEPD)  
Kelsey Helton (FDEP)  
Mitchell Brouman (Beazer East, Inc.)  
John Herbert, Brett Goodman (Jones Edmunds)  
David Richardson, Ron Herget (GRU)  
Correspondence

# MEMORANDUM

**TO:** Rick Hutton

**FROM:** DNAPL Team

**SUBJECT:** Review of the Surficial Aquifer Interim Remedial Measure (IRM) and Soil Solidification/Stabilization Pilot Test Work Plan

**DATE:** October 22, 2008

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## **PURPOSE:**

The GRU DNAPL Team has reviewed the Surficial Aquifer Interim Remedial Measure (IRM) and Soil Solidification/Stabilization Pilot Test Work Plan submitted by GeoTrans on September 25. We offer the following comments:

## SURFICIAL AQUIFER EXTRACTION SYSTEM MODIFICATIONS

### General Comments

1. The GRU DNAPL Team commented on the Surficial Aquifer Redevelopment & Sampling Report on February 12th, 2008. At that time we provided figures documenting that DNAPL had spread beneath the railroad tracks from Koppers and had reached M-3B and M-25B by 1984 and ITW-21 by 1985. We provided additional information to EPA on August 28 regarding our belief that the extent of DNAPL source zones in the Surficial – and other aquifer units – is underestimated and is still to be determined. Along with the comments that we are sending you today we are providing two figures that convey some of that information.
2. We believe that the capture zones predicted for the extraction drains are overestimated. We doubt that the extraction drains will capture contaminants released into the bottom of the surficial aquifer throughout the source area. Note that:
  - the aquifer is described by Beazer as low yield – less than 4 gpm per extraction well
  - extraction drains are positioned 400 feet to 500 feet downgradient of the far-side of the Process Area and the Former Drip Track source areas (using source area boundaries presented on figures in the Work Plan).
3. We request that GeoTrans identify the hydraulic properties used to determine capture zones presented in the Work Plan and provide the particle tracks showing capture of particles released at the base of the surficial aquifer (where DNAPL is present).
4. We understand that implementation of the Interim Remedial Measures proposed in this work plan will be followed by implementation of Final Remedies that will be identified by

the Feasibility Study and that the Final Remedies will address DNAPL in the source areas and the continuing sources of groundwater contamination.

### Specific Comments

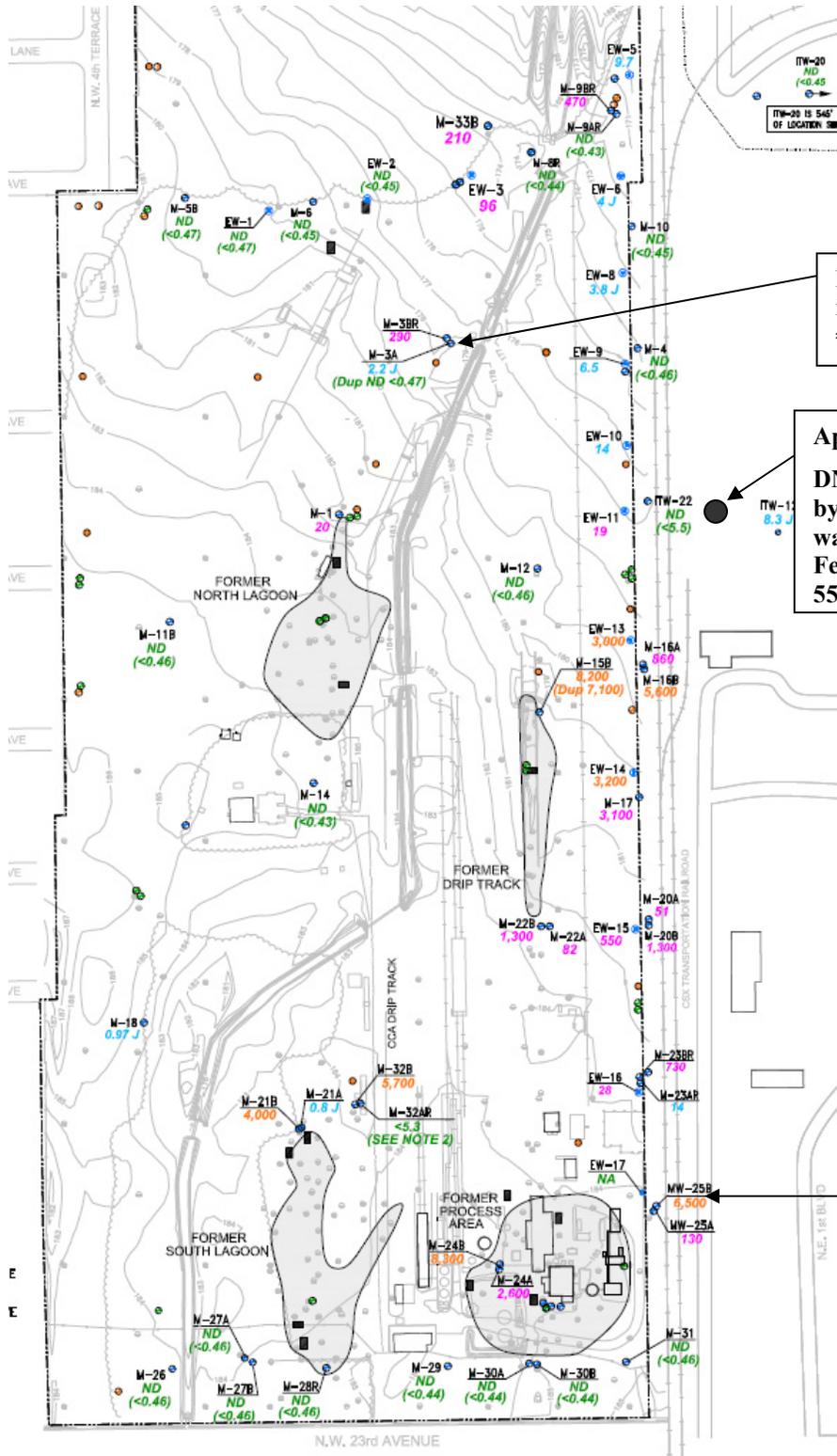
1. The plan does not clearly identify the following:
  - a) The drawdown or pumping level that will be the target for operation of the trenches.
  - b) Whether or where groundwater elevations will be measured around the trenches to confirm drawdown and areal extent of capture zones.
  - c) Criteria for terminating pumping of the perimeter extraction wells (the criteria provided are indistinct). The numbered headings below refer to the criteria discussed on p. 5 of the work plan.
    - 1) The plan states that capture zones will be mapped but there is no proposal for groundwater elevations to be monitored except at site perimeter wells. Groundwater monitoring should be performed with data loggers to document temporal fluctuations and allow determination of true average conditions.
    - 2) Simply the appearance of decreasing trends at the perimeter extraction wells after startup of the trenches does not necessarily mean that the trenches effectively contain the source zones. The startup must reduce the mass flux migrating to the site boundary and concentrations should begin to decline. However, concentrations will eventually stabilize at some lower level even if there is source material beyond the capture zone of the trenches.
    - 3) There is no plan to monitor any wells between the trenches and the site perimeter (with the exception of M-3BR). In addition, the assessment of the target level after which natural attenuation may be acceptable has not been defined and will likely be very difficult to define. The most direct and protective criterion (with regard to lateral off-site migration) for cessation of the perimeter extraction wells would be to operate them until they reach GCTLs, then monitor semi-annually for several years to ensure they stay below GCTLs.
2. The plan states that “The effectiveness of the Surficial Aquifer groundwater IRM will be evaluated using groundwater head and concentration data. The comprehensive groundwater monitoring sampling and analysis plan (FTS and GeoTrans, 2008 (in preparation)) specifies semi-annual sampling of monitoring wells M-9BR, M-16B, M-17, M-20B, M-23BR, M-25B, M-33B, and ITW-22. Well M-3BR and all Site extraction wells will be added to the list for monitoring IRM effectiveness.” We believe that frequent monitoring of heads - at locations much closer to the extraction drains than the perimeter wells - will be required to properly evaluate effectiveness of the system. See comment C-1 above.
3. Beazer should install three or four new monitoring wells normal to each interceptor drain so that the head and groundwater quality can be monitored between the drain and the perimeter wells. This would help confirm the effectiveness of the interceptor drains in preventing further off-site migration of contaminants.

## SOIL SOLIDIFICATION/STABILIZATION PILOT TEST

1. Figure 5 of the Work Plan indicates that of the 1,200 feet of trench proposed only approximately 100 feet of the trench at the Process Area will actually be excavated within the boundary of a source area (as currently identified). (The trench at the Former North Lagoon is essentially tangential to the boundary of that source area.) The effect of the proposed positioning of the trenches is that only about 8% of the soil that will be excavated and treated in the pilot test will contain the concentration of organic contaminants that would ultimately be treated – assuming that S/S is selected and implemented as a final source-area remedy. We believe that information derived from the pilot test will not reflect the performance that would be expected from S/S of soil excavated from the heart of the source areas.
2. Although cement S/S may cause chemical fixation of metals by precipitation as less-soluble compounds, we would not expect equivalent chemical fixation of SVOCs and VOCs. The leachability of SVOCs and VOCs may be reduced, but it will be primarily due to pore-scale and macro-scale physical entrapment or encapsulation. The effectiveness of S/S by this mechanism may be highly dependent on the soil physical properties and operational dynamics of the mixing.
3. Have bench or pilot tests been conducted to assess leachability? No tests are proposed in this plan. We suspect that the high pH of the SS soil will enhance the solubility/mobility of some organics. We believe this is likely for phenolics at least and that increased solubility/mobility may reduce the benefit of decreasing hydraulic conductivity. We believe that leachability tests should be performed for each of the five or more mixes that will be tested (see Section 3.1 of the plan for a description of the tests proposed).

## TREATMENT PLANT IMPROVEMENTS

1. We believe that the proposed Treatment Plant improvements underestimate the volume of water that will need treatment. Table 1, which lists the ‘Design Extraction Rates,’ contains errors in the two subtotals that presumably add to 46.7 gpm. The current perimeter extraction system produces approximately 30 gpm and needs to be maintained to recover contamination that has already migrated off site (see above). Adding 30 gpm to the 35.4 gpm from the four extraction drains will require more than the 56 gpm proposed in the Work Plan.



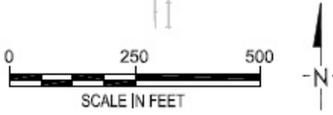
DNAPL was here in 1984 as indicated by Naphthalene at M-3 = 4100 ug/L at that time.

Approximate position of ITW-21. DNAPL was here in 1985 as indicated by naphthalene = 1320 ug/L. ITW-21 was plugged & abandoned in February 2004 when naphthalene = 5570 ug/L.

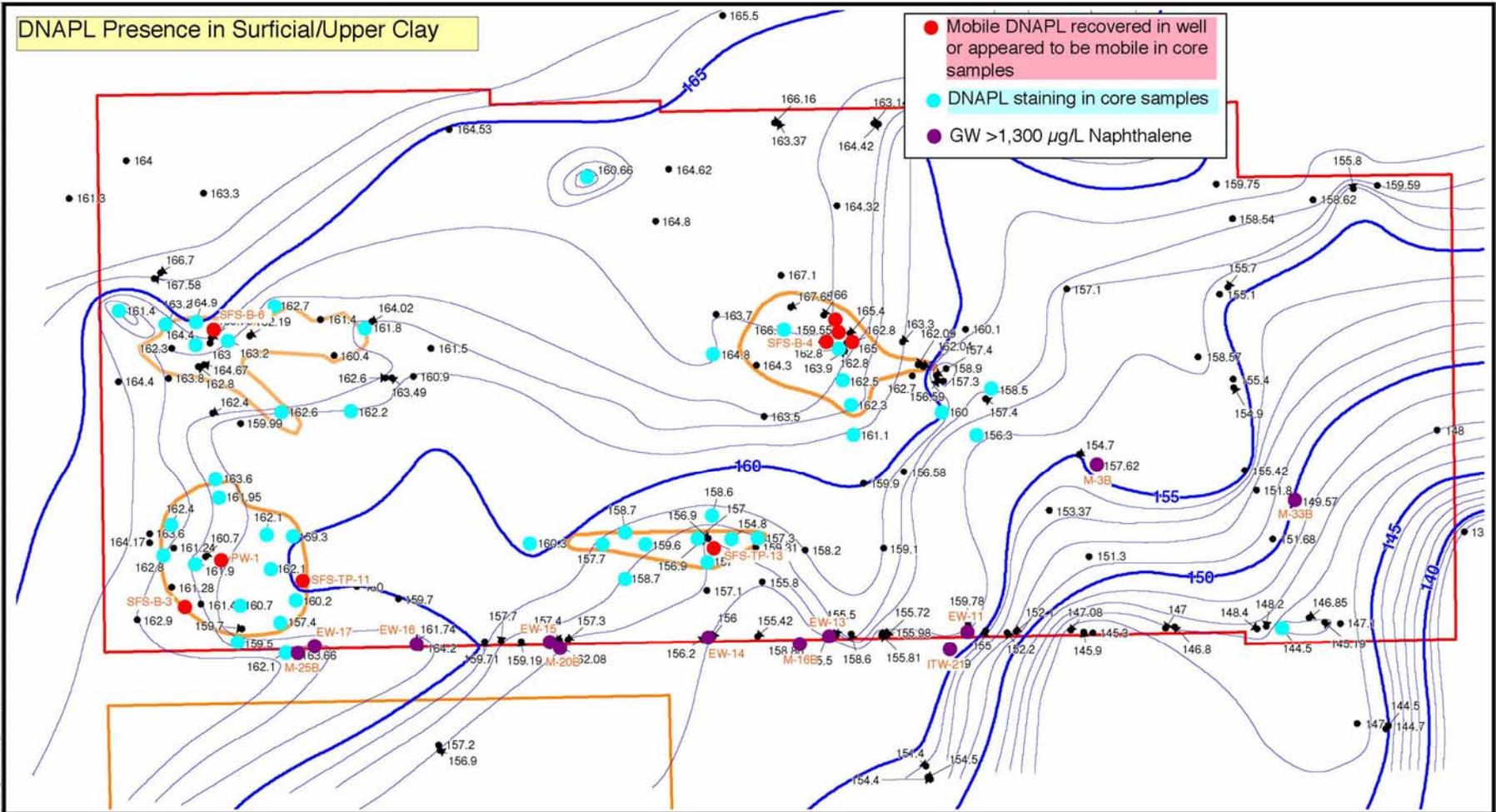
All these identified 'source zones' as identified on this map underestimate the true extent of DNAPL migration. The true extent in all aquifer zones needs to be determined before final remedies are selected.

DNAPL was here in 1984. M-25B had naphthalene = 15,000 ug/L in 1984 + PCP = 4500 ug/L.

- NOTE:
1. EXTRACTION WELL SAMPLES COLLECTED DECEMBER 12, 2007. ALL OTHER SAMPLES COLLECTED AUGUST 6-9, 2007.
  2. TRACE DETECTED ON M-32AR SAMPLE AND IN LAB METHOD BLANK.



TITLE: SURFICIAL AQUIFER NAPHTHALENE CONCENTRATIONS



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**Explanation**

- 160.3 Well location with clay unit elevation, in feet above msl
- 160~ Clay surface contour elevation, in feet
- Former Source Area

0      215      430  
SCALE IN FEET

TITLE: Elevation Contours for Top of Hawthorn Group Deposits -- Upper Clay Unit

LOCATION: Gainesville, Florida

CHECKED	JRB	FIGURE
DRAFTED	KDO	
FILE	14C_TopContours.mxd	
DATE	2/20/2008	

**2**

Potentially mobile DNAPL present  
Source Zones larger than depicted by Beazer

Modified from Figure 2, GeoTrans, Inc. 147.2, 2008.  
Response to Recommendation 6.