Georgia Department of Natural Resources

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Mark Williams, Commissioner
Environmental Protection Division
Judson H. Turner, Director
Land Protection Branch
Keith M. Bentley, Chief

Reply To:
Response and Remediation Program
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May 3, 2012

COPY

VIA E-MAIL AND REGULAR MAIL

Hull Real Estate, LLC
c/o Charles H. MacPherson, Jr.
Peachtree Environmental, Inc.
5384 Chaversham Lane
1201 West Peachtree Street
Norcross, Georgia 30092

Re: Voluntary Investigation and Remediation Plan and Application, November 7, 2011
Groundwater Corrective Action Plan Addendum, October 2010
The Loef Company Property, HSI Site No. 10376
590 Old Hull Road, Athens, Clark County, Georgia
Tax Parcels 221 00C, 221 001, and 162 037

Dear Mr. MacPherson:

The Georgia Environmental Protection Division (EPD) has reviewed the Voluntary Investigation and Remediation Plan (VIRP) dated November 7, 2011 submitted by Peachtree Environmental, Inc. for the subject tax parcels (the "Property") pursuant to the Georgia Voluntary Remediation Program Act (the Act). As part of the VIRP review, EPD also reviewed applicable sections of the October 2010 Groundwater Corrective Action Plan (CAP) Addendum. EPD offers the following comments:

VIRP Application Checklist

1. The warranty deed was not provided for tax parcel 162 037 located at 305 Athena Drive in Athens, Clarke County, Georgia. Please provide the deed by May 30, 2012, as it is required by Item #1 of the VIRP Application Checklist.

2. Section 12-8-107(a) of the Act requires a VIRP to be prepared and submitted by a professional engineer or geologist who is registered with the State Board of Registration for Professional Engineers and Land Surveyors or the State Board of Registration for Professional Geologists. According to the Georgia Secretary of State website, License Number PG001255 has lapsed and expired on December 31, 2009. Please provide documentation regarding the status of the license by May 30, 2012 and/ or provide a letter from a currently registered professional engineer or geologist who will oversee the implementation of the subject VIRP. Otherwise, EPD may terminate the enrollment of the subject application in the Voluntary Remediation Program.

Investigation and Remediation Plan

3. According to Section 2.1 of the VIRP, The Loef Company, Inc. site was listed on the hazardous site inventory on June 9, 1995 based on a reportable quantities screening method (RQSM) onsite exposure pathway score of 55.56 and groundwater pathway score of 4.88. Please note that the site was rescored in July 1997 based on information provided to EPD in a letter dated March 8, 1995. The groundwater pathway score was amended to 14.63.

4. The VIRP proposes a certification of compliance based on the use of plume concentration analytical data, aquifer slug testing, and BIOCHLOR modeling to demonstrate that the contaminant plume at MW-2A will not migrate beyond the point of demonstration (POD) well (MW-9A) or past the downgradient property boundary. In accordance with Section 12-8-107(h) of the Act, a uniform environmental covenant (UEC) is required for the subject source property and each property impacted by the plume along the downgradient path to the POD. A model UEC is available at http://www.gaepd.org/Documents/uec.html.

5. EPD approves the proposed Type 1 groundwater delineation standards provided in the table in Section 4.2.2 of the VIRP. Please note that cis-1,2-dichloroethene (DCE) should be included in Section 4.1.6 as a constituent that was detected at concentrations exceeding the Type 1 standards.

6. Section 3.6.6 designates MW-9A as the POD well for the subject VIRP site. However, based on Figure 8 and water levels from August 2011, it appears that groundwater may be flowing in a slightly more easterly direction than shown on the figure. This indicates that MW-9A may not be the only POD well necessary for the site. Therefore, EPD recommends the designation of another POD well at a location east of MW-4A *after* the horizontal extent of the plume has been defined. Please reevaluate the groundwater flow direction, specifically between wells MW-4A and MW-6. Additionally, there is not enough water level information to the southwest of MW-2A to infer potentiometric surface contours. Please remove the inferred lines until the contours have been more accurately defined.

7. EPD accepts the locations proposed in Figure 12 for site horizontal delineation purposes, although these locations may not be best suited to aid in characterizing the extent of the plume or provide realistic model inputs such as plume width and contaminant flow direction. Please note some of the wells presented in Figure 12 may not be needed after receipt of sampling results from the wells recommended in Comment 14. Additionally, future vertical delineation should be completed immediately downgradient of MW-2A to assess if volatile organic compounds have impacted bedrock.

8. Section 3.4 states that slug tests were performed in June 2010 to evaluate site-specific hydrogeologic characteristics. The June 2010 slug tests were provided in the October 2010 Groundwater CAP Addendum. After reviewing the slug tests, EPD does not accept the methods used to determine the hydraulic conductivity based on the following observations:

   a. The anisotropic ratio (Kz/Kr) should be conservatively set at 0.1 rather than 1 as indicated in the data sheets for wells MW-2A, MW-4A, and MW-9A. A value of 1 infers the vertical and horizontal hydraulic conductivities are equivalent. Typically Kr is greater than Kz, resulting in an anisotropy ratio value of 0.1.

   b. The initial static water level for MW-9A is incorrect, provided that the static water column information from monitoring well purging and sampling information form for well MW-9 is the same well used for the slug test.

   c. The estimate provided for saturated aquifer thickness for the slug tests is too small for the site. Section 5.3 of the October 2010 Groundwater CAP Addendum states that the aquifer thickness is estimated to be 50 feet. Based on the information provided in the August 1997 Revised CSR, the former production well is 320 feet deep with a 6-inch casing to 84 feet. Provided the deepest water level below the top of casing is approximately 23 feet, a more accurate estimate for saturated thickness would be approximately 60 feet. If the aquifer thickness estimate is imprecise, then a sensitivity

analysis for a given range of values should be evaluated. Installation of a deep monitoring well in the future can validate the estimate used for the model.

d. The effective porosity of the gravel pack and the total porosity of the aquifer are the same. Please provide justification for the use of these values.

e. A casing radius of 10.8 inches (0.9 feet) was used for the slug tests. EPD noted that the slug tests were performed on 2-inch diameter wells.

f. A well bore radius of 6.72 inches (0.56 feet) was used in the calculation of the slug tests values. The well logs indicate a 7.25-inch diameter hollow stem auger was used to drill the well.

g. Some of the observation data for the slug test for well MW-2A is missing form the CAP Addendum.

In order to determine appropriate hydraulic conductivity for the site, slug tests should be rerun using site-specific values. Please run additional slug tests and provide justification for all input parameters.

9. The hydraulic gradient at the site was determined to be 0.0145 ft/ft. This value was calculated using values between monitoring wells MW-2A and MW-8A. Although this value is acceptable for use at this site, future horizontal gradients should be calculated perpendicular to potentiometric surface lines in the direction or directions of groundwater flow, if multiple groundwater flow directions exist.

10. Section 4.1.2 of the VIRP indicates that MW-1 was sampled during the 2011 investigation activities, but documentation was not provided on the sampling field logs or the data tables. Please explain this discrepancy, as the figures show the well status as 'destroyed'.

11. Section 4.1.3 of the report states that groundwater sampling was conducted in accordance with the procedures outlined in SESD Operating Procedures for groundwater sampling (SESDPROC-301-R1). Please note that this document was revised in October 2011 (SESDPROC-301-R2). Please use the most current version of this guidance document for future sampling activities.

12. The SESDPROC-301-R2 discourages the use of bailers for sampling groundwater. Please note that it is acceptable procedure to collect a sample directly from the Teflon tubing of the submersible pump.

13. Please add depth of submersible pump information to the monitoring well purging and sampling information sheets. This information is used to determine if sampling was conducted in accordance with standard operating procedures.

Fate and Transport Model

14. Site groundwater has not been adequately investigated and historical temporary well data indicates that the source area in groundwater may not have been completely identified or that there may be multiple source areas. In order to better characterize the plume, groundwater flow direction, and overall site conditions for modeling purposes, EPD recommends placing additional wells in the following areas:

- The former shredder area and location of MW-2A in Figure 1 of the September 29, 2000 *Report of Additional Groundwater Monitoring*;

- The location of TW-2 shown on Figure 5 of the July 2006 *Groundwater Assessment Report*, where contamination was detected in the May 4, 2006 sampling event. This point is upgradient of the source area and may indicate another source;
- Approximately 120 feet west of the former location of TW-2;
- The former location of TW-4 where contamination was detected in the May 4, 2006 sampling event (Figure 5 of the July 2006 *Groundwater Assessment Report*); and
- Approximately 120 feet northwest of MW-4A along the property line.

15. EPD has reviewed the BioChlor model submitted on behalf of Hull Real Estate, LLC by Peachtree Environmental, Inc. and has the following comments:
    a. The hydraulic conductivity value used for the model does not match the hydraulic conductivity value discussed in Section 4.3.1 of the VIRP. Although a more conservative value may be used for modeling purposes, a reference must be given for the selection of that parameter. In future submittals of the model please provide a reference for the selection of the hydraulic conductivity value and any other parameter used for the model runs.
    b. A discussion of how dispersion values were determined was not provided in the text. BioChlor states that simple estimation techniques can be used based on the length of the plume, however, currently there is not enough information provided in the VIRP to estimate a plume length. This value must be estimated once the plume has been completely delineated horizontally on and off property.
    c. The partition coefficient values used in the model are incorrect. Please use the current values from the EPA Region 3 screening level tables, accessible at the EPA website: http://www.epa.gov/reg3hscd/risk/human/rb-concentration_table/Generic_Tables/index.htm.
    d. EPD was unable to determine how the first order decay coefficients were determined. Please provide justification for their use. Additionally, half-life values are not the same as the yield. The yield value is used as a conversion factor for the degradation of the parent compound. These values are unacceptable for use as half-lives in the model.
    e. A source thickness in the saturated zone of 25 feet was used in the model. BioChlor states that this value is usually determined by evaluating groundwater data from wells near the source area screened at different depths. If this information is not available, then the depth of the aquifer can be used as a conservative estimate. Additional bedrock wells are needed before this parameter can be determined. In the absence of site-specific information, a conservative value of 60 feet as suggested in Comment 7.c. can be used for modeling purposes.
    f. Source data concentrations for DCE should include the combination of 1,1-DCE, cis-1,2-DCE, and trans-1,2-DCE since they are all daughter products of trichloroethene. Please correct this for future model runs.

    Based on the observations listed above, the model presented in the VIRP application is unacceptable for use at this time. Please collect additional data, provide justification for their use, and resubmit the model in a future report.

General

16. Section 2.2 of the VIRP states that soil removal activities were conducted where soils were impacted above Type 3 RRS. These areas are not depicted in the cross-sections presented on Figures 6A and 6B. Please provide site stratagraphic features on the cross-sections including the fill areas from previous excavation activities. Additionally, please revise Figure

7 to demarcate the portions previously excavated within each impacted source area and indicate those areas that have been covered with concrete to prevent impacts to storm water runoff.

17. There are inconsistencies with some of the monitoring wells depicted in VIRP figures. In Figure 1 of the September 2000 Report, MW-2A was located in the shredder area. In subsequent reports, MW-2A has been shown its current location. Additionally, it was noted on Table 2 of the VIRP that MW-2A was over drilled and replaced on March 18, 2011. Also, wells MW-7A and MW-9A are reversed when compared to Figure 5 in the October 2010 Groundwater CAP Addendum and historical reports. If the well locations from Figure 2A of the VIRP are correct, using the 2010 water level data from Table 1 of the VIRP, would result in a significant change in groundwater flow direction between MW-4A and MW-9A. Please provide an explanation for the discrepancies from previous reports. Also, please note that if a well is replaced, an alternate name is typically given to the replacement well to differentiate it from the previous well.

18. In future reports please use the legends to define all features of figures. For instance, please define the yellow and orange diagonal lines shown on Figures 10 and 11.

19. Please provide a figure that identifies the tax parcel ID numbers rather than acreage for all qualifying and impacted properties and any properties where the proposed offsite wells are installed.

20. Please do not tabulate constituents that are not regulated substances listed in Appendix I of the Rules for Hazardous Site Response in future reports.

Hull Real Estate, LLC must address these comments to EPD's satisfaction in order to demonstrate compliance with the provisions, purposes, standards and policies of the Act. EPD may, at its sole discretion, review and comment on documents submitted by Hull Real Estate, LLC. However, failure of EPD to respond to a submittal within any timeframe does not relieve Hull Real Estate, LLC from complying with the provisions, purposes, standards and policies of the Act.

If you have any questions regarding this matter, please contact Ms. Antonia Beavers of the Response and Remediation Program at (404) 657-0487.

Sincerely,

on behalf of

David Brownlee
Acting Program Manager
Response and Remediation Program

c: ✓ Omnisource Athens Division, LLC, David Campbell
✓ Peachtree Environmental, Inc., William H. Lucas, III, P.G.

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