Georgia Department of Natural Resources

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Mark Williams, Commissioner
Environmental Protection Division
Judson H. Turner, Director
Land Protection Branch
Mark Smith, Branch Chief

Reply To:
Response and Remediation Program
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April 12, 2012

COPY

VIA E-MAIL AND REGULAR MAIL

Mohawk Industries, Inc.
c/o Denise Wood
405 Virgil Drive
Dalton, Georgia 30722

Re: Voluntary Investigation and Remediation Plan and Application, December 14, 2011
Diamond Rug and Carpet Mills-Eton Plant Property, HSI Site No. 10534
4140 Highway 411, Eton, Murray County, Georgia
Tax Parcel 0064A 090

Dear Ms. Wood:

The Georgia Environmental Protection Division (EPD) has reviewed the Voluntary Investigation and Remediation Plan (VIRP) dated December 14, 2011 submitted by GaiaTech for the subject tax parcel (the "Property") pursuant to the Georgia Voluntary Remediation Program Act (the Act). EPD offers the following comments:

VIRP Application Checklist

1. Tax parcel identification numbers are not shown on the tax plat provided in Appendix C or any other VIRP figures for the qualifying or abutting properties as required by Item 3 of the Application Checklist. Please note that the Murray County tax plat identifies the parcel ID number for the subject property as 0064A 090 rather than 0064A. Please ensure that future report figures are appropriately scaled to show property boundaries and tax parcel ID numbers as appropriate.

2. The VIRP did not include an itemization of the professional geologist's time invoiced with a description of the services provided as required by Item 6 of the Application Checklist. A summary of all work completed by a professional geologist or engineer should be included in the next semiannual report and updated in each subsequent report.

Conceptual Site Model

3. Pursuant to Section 12-8-108 of the Act, the conceptual site model must include all potential human health and ecological receptors and the complete and incomplete exposure pathways that may exist at the site. Each exposure pathway should have supporting documentation and/ or adequate justification to demonstrate whether it is complete or incomplete. The following is a summary of the VIRP's discussion of each pathway:

   - Section 6.1 of the VIRP concludes that ingestion, inhalation, and contact risks are minimal for soil exposure. Based on available information, EPD cannot confirm the status of the soil exposure pathway (see Comment 4).

   - Section 5.1 of the VIRP proposes additional investigation, a receptor survey, and fate and transport modeling to evaluate the groundwater pathway.

- The surface water pathway will be re-evaluated after deep aquifer assessment as stated in Section 5.2. of the VIRP.

Investigation and Remediation Plan

4. Sections 2.0, 4.1, and 6.1 of the VIRP indicate that the concentrations of remaining soil contamination do not exceed the notification concentrations found in Appendix I of the Rules for Hazardous Site Response (Rules) or Type 1 risk reduction standards (RRS). EPD cannot concur with this determination, as boring BH-5 had VOC contamination in soil (580 µg/kg tetrachloroethene) that does not meet any type RRS and has not been remediated or further investigated. Until the status of boring BH-5 is determined, EPD cannot concur with Mohawk Industries, Inc.'s (Mohawk Industries) determination that soil meets residential RRS.

5. Section 5.4.2 designates groundwater remediation criteria as the Type I RRS. As groundwater concentrations exceed Type I RRS (e.g. MW-8D), it is not clear whether Mohawk Industries will remediate groundwater to meet the Type I RRS or certify using point of demonstration monitoring to demonstrate concentrations are protective of any established down gradient point of exposure (see Comment 6). Effective February 10, 2012, EPA updated toxicity values for tetrachloroethene (PCE) in IRIS. The changes indicate a lower cancer risk, but a higher non-cancer hazard than previously associated with PCE. The changes result in higher Type 2 (0.019 mg/L) and 4 RRS (0.098 mg/L) for PCE in groundwater, which are approved for use at the subject qualifying property. Please clarify the standards to be used to certify compliance for the qualifying property following the completion of the proposed investigation.

6. A point of demonstration well and point of exposure should be designated for groundwater if the qualifying property is certified using point of demonstration monitoring pursuant to Section 12-8-108(4) of the Act. The point of demonstration well should be located between the source and point of exposure, which is (1) the nearest existing down gradient drinking water supply well, (2) the likely nearest future location of a drinking supply well, or (3) a hypothetical point of drinking water exposure located 1,000 feet of the delineated site contamination. Note that if a surface water body is closer than the alternatives, it should be considered as the point of exposure.

7. EPD cannot concur with the statement in Section 6.2 that analytical data demonstrates that groundwater impacts are not migrating offsite. The status of the plume should be determined through additional sample collection and fate and transport modeling as proposed.

8. As discussed in our meeting on August 25, 2011, EPD is concerned that metals may have mobilized following the permanganate injections conducted at the site from May 2002 through June 2004. Therefore, please analyze groundwater samples per EPA Method 6010B for the following metals during the next scheduled sampling event: iron, arsenic, lead, barium, selenium, cadmium, chromium, manganese, and copper. In addition, please ensure that the full suite of EPA Method 8260B constituents are analyzed and reported for all groundwater samples rather than reporting a select group of substances.

9. The hydraulic conductivity presented in section 6.2 of the VIRP are based on slug tests that used incorrect values for saturated thickness and anisotropy ratio in their calculations to determine hydraulic conductivity using the Bouwer and Rice Method. These tests were run using a saturated thickness of 6 and 5 feet and an anisotropy ratio of 1. As is the case for this site, the saturated thickness of the unconfined aquifer is currently unknown. An anisotropic ratio 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. Please reevaluate the hydraulic conductivity at the site using more recent, site-specific data where possible.

10. Section 6.2 of the VIRP states that an effective porosity of 0.40 is used to calculate the linear velocity of the site. Please note that 0.40 is more typical of a total porosity value for clays and a much lower value should be used for effective porosity. Please reevaluate the effective porosity values and provide references on how the value was obtained.

11. The hydraulic gradient of 0.10 ft/ft is acceptable for use at the site, but should be updated based on current potentiometric surface data.

12. Table 3 should be defined as both the site delineation concentration criteria and Type I RRS. Please note that the correct Type I RRS for cis-1,2-dichloroethene in groundwater is 0.070 mg/L.

13. Based on the sample data provided in the March 2011 Limited Site Investigation, it appears that soil samples collected for volatile organic compound (VOC) analysis were not evaluated for percent moisture to correct the sample to a dry weight. Please evaluate percent moisture for all future VOC soil samples collected per Method 5035 in accordance with Section 3.2.4 of EPA Region 4's *Soil Sampling Procedures* (SESDPROC-300-R2), and report soil concentrations on a dry weight basis.

Proposed Schedule

14. The schedule provided in Section 8.0 proposes annual groundwater sampling; however, samples should be collected on a semiannual basis, at a minimum, to establish concentration trends and to provide data for the purpose of modeling migration of the plume. Note that, depending on monitoring and modeling results, monitoring may not be necessary post delisting.

Mohawk Industries 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 Mohawk Industries. However, failure of EPD to respond to a submittal within any timeframe does not relieve Mohawk Industries 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,

David Brownlee
Acting Program Manager
Response and Remediation Program

c: Aladdin Manufacturing c/o Ernst Young, LLP
GAIA Tech, David Buchalter, P.E.

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