

Georgia Department of Natural Resources
Environmental Protection Division

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May 1, 2015

VIA EMAIL & REGULAR MAIL

Rich Schoeck, PE, PMP
Division Director of Engineering & Construction
Gwinnett County Department of Water Resources
684 Winder Highway
Lawrenceville, GA 30045

Re: HSI Site Number: 10844
North Berkeley Lake Road Site
Tax Parcel ID #6-267-028
Gwinnett County Fire Station No. 19
3275 North Berkeley Lake Road
Duluth, Gwinnett County, GA

Dear Mr. Schoeck:

The Georgia Environmental Protection Division (EPD) has received the Voluntary Remediation Program (VRP) 1st Semi-Annual Progress Report for the above referenced site, which included the March 17, 2015, Technical Memorandums for the "Soil Electron Microscope Analyses" and "Relative Bioavailability (RBA) Risk Reduction Standards (RRS)." After completing a review of the above referenced Progress Report/Technical Memorandums, EPD has prepared the following comments:

- 1) EPD acknowledges that Gwinnett County will not propose to use an alternate background concentration for arsenic at this time.
- 2) Please update the groundwater potentiometric map for the site as additional data becomes available from the soil and groundwater investigations being conducted on the neighboring properties that are part of the North Berkeley Lake Road Site #10844.
- 3) In support of addressing the delineation requirements included in Section 12-8-108 of the Act, please ensure that the final VRP Compliance Status Report includes a table that indicates the site specific delineation criteria that was used at the site, and accompanying text/figures to illustrate how the delineation criteria has been applied to the soil and groundwater pathways.
- 4) The following comment pertains to the reproducibility and repeatability of the In Vitro Bioaccessibility (IVBA) Testing. For the RBA estimation, it appears the information presented in Table 1 was not conducted by nor has been validated by an EPA-accredited laboratory. Section 3 (Page 2) of the *Technical Memorandum: RBA and RRS* report states, "IVBA analyses were performed by Dr. John Drexler at the University of Colorado in Boulder, Colorado." While the correct methodologies (e.g., swine-based regression model was accurately applied to the *in vitro* solubility assay data) were used to compute the IVBA and RBA percentages, the input data as reported in Table 1 cannot be supported or accepted. In other words, it cannot be confirmed whether or not the results would be reproducible if methods were implemented or repeated in another EPA-approved laboratory. For instance, processed soil arsenic

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measurements could differ substantially from those reported in Table 1. For this reason, EPD cannot accept the findings in Table 1 for cleanup decisions at the site.

Additionally, EPD has been in consultation with Region 4 EPA toxicologists who recognize the current on-going efforts in evaluating the relative bioavailability of arsenic (RBA) in soil, but for similar reasons described above has adopted the position to not accept alternative arsenic bioaccessibility methods that have not been reviewed and approved by U.S. EPA Headquarters. According to U.S. EPA, currently available research information suggests that the relative bioavailability of arsenic in soil can be expected to be less than 100% and that the upper percentile of U.S. data results in default RBA arsenic in soil equal to 60%¹. Therefore, due to the potential concerns described above and Region 4 EPA's current stance on the issue, the default RBA of 0.6 (two-times the determined site-specific RBA) may be used to adjust the oral toxicity values in the quantification of risk, recognizing that the default value is an estimate that is not likely to be exceeded at most sites and is preferable to the assumption of an RBA equal to 100%. It should also be noted that while EPA Region 4 does not recommend use of any assumed default RBA for arsenic (i.e., 100% RBA) in risk assessments, EPD recognizes that the U.S. EPA's Superfund Regional Screening Level for ingestion of arsenic in soil was calculated with the default RBA of 0.6. For this reason along with the supporting information (i.e., EMP analyses) on the suspected species of arsenic present in site soil as supported by Attachment B and the photomicrographs in the *Technical Memorandum: Soil EMP Analyses*, EPD finds the default RBA of 0.6 to be applicable for the site.

- 5) Please note that when deriving the volatilization factor (VF) for residential exposures (i.e., Type 2 soil RRS for child and adult residents), the exposure interval, T, should be modified to reflect residential exposure duration. The value of 7.9E+08 seconds applies to non-residential scenarios only (i.e., 25-year exposure duration). Please revise the exposure interval to 9.5E+08 seconds reflective of residential 30-year exposure duration. Please note that this does not significantly impact the overall inhalation intake values.
- 6) For the Type 5 trespasser soil RRS, both adult and child trespassers were evaluated assuming the same exposure conditions of that of a child and adult resident. EPD, consistent with Region 4 EPA, recommends assessing the trespasser as an adolescent aged 7-16 years of age (10-year exposure duration) with a body weight of 45 kg as representative of this age range. The trespasser exposure frequency should consider site-specific factors such as distance from the site to residences and the attractiveness of the site to the youth trespasser. Typically, EPD recommends assuming an exposure frequency of 100 days/year for this receptor group. Additionally, a soil ingestion rate of 100 mg/day is recommended. To account for an exposure time of 2 hours per day, EPD recommends including a conversion factor in the calculation in lieu of adjusting the inhalation and soil ingestion rates. For example, use of a conversion factor of 0.0833 (2/24) in the equation. Based on these recommendations, please revise the trespasser Type 5 soil RRS for arsenic and update the exposure assumption summary table for this receptor. All impacted text and equations should also be revised accordingly.

¹ U.S. EPA (2012) Recommendations for Default Value for Relative Bioavailability of Arsenic in Soil. OSWER Directive 9200.1-113. Available online at: <http://www.epa.gov/superfund/bioavailability/pdfs/Arsenic%20Bioavailability%20POLICY%20Memorandum%2012-20-12.pdf>

- 7) For the Type 5 construction worker soil RRS, please note that because of greater soil exposure to construction/excavation workers, an industrial use scenario is not necessarily protective of these receptors exposures to soil. Therefore, the 50 mg/day soil ingestion rate listed in Appendix III, Table 3 of the HSRA Rules should not be considered appropriate for construction workers as it is intended to address soil exposure to indoor industrial/commercial workers and not construction/excavation workers engaged in highly intrusive soil activities. The Type 5 soil RRS is a site-specific, non-residential cleanup standard that should take into account site-specific exposure assumptions based on the current or anticipated non-residential receptor identified for the site. EPD recommends use of a soil ingestion rate of 330 mg/day for the construction worker consistent with recommendations from Region 4 EPA2 and U.S. EPA *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (EPA, 2002). Please revise the soil ingestion rate for this receptor group and re-calculate the Type 5 soil RRS accordingly. The site-specific exposure frequency of 174 days/year and exposure duration of 1 year is acceptable for use at the site. All impacted text should be revised.

Please ensure that the above listed comments are addressed to EPD's satisfaction in order to demonstrate compliance with the provisions, purposes, standards and policies of the Act. Please note that EPD recommends that the RRS related comments be addressed prior to the completion of any planned soil corrective actions at the site. Should you have any additional questions or concerns please contact Mr. Kevin Collins of the Response and Remediation Program at (404) 657-8660.

Sincerely,



David Brownlee
Unit Coordinator
Response and Remediation Program

cc: Tom Duffey, CDM Smith

File: VRP – North Berkeley Lake Road Site #10844, Gwinnett Fire Station