Memorandum

Gradient

Date: June 22, 2012

To: Timothy V. Potter, Esq., Reynolds, Potter, Ragan & Vandivort, PLC
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From: David E. Jackson, P.G., P.H.
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Matter: Natural Resources Defense Counsel, Inc. *et al.*, v. County of Dickson, Tennessee, *et al.*, No.: 3:03-cv-00229
Consent Order Entered December 9, 2011

Subject: Expert Panel Communication No. 4

Recommendation No. 4, Vapor Intrusion Potential Evaluation

Section VI.10.(d) of the Consent Order directs the Expert Panel to consider:

> Studies and, if appropriate, response actions to address vapor intrusion or potential vapor intrusion associated with Chlorinated Solvents that have emanated or may emanate from the Landfill.

We have received and reviewed the following two documents regarding vapor intrusion in the Expanded Environmental Risk Area (EERA), both of which were prepared by EnSafe:

- November 3, 2011 letter to Chris Lagan, Tennessee Department of Environment and Conservation (TDEC), regarding Implementation of Sampling and Analysis Plan for Bruce Spring, Dickson County, Tennessee
- November 4, 2011 EnSafe letter to Chris Lagan of TDEC regarding Update on Sullivan Spring Access and Sampling and Analysis Plan for Sullivan Property, Dickson County, Tennessee

We note that we did not receive (nor did we request) the study plans for the Bruce Spring study, but the study results document (the November 3, 2011 letter) provided sufficient information for the purposes of our evaluation.

Bruce Spring (November 3, 2011 letter)
We find that the study methods were reasonable for the study purposes and generally concur with the conclusions described in the letter, including the recommendations for continued periodic water sampling and the performance of an additional air monitoring event in the spring or summer. We expect to be revisiting the surface water monitoring frequency in a subsequent recommendation.

We also note, however, that since the time when EnSafe prepared the November 3, 2011 letter, the U.S. Environmental Protection Agency reduced its Residential Screening Level (RSL) for TCE vapor

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concentration from the value of 1.2 μg/m^3 cited in the November 3, 2011 letter to 0.43 μg/m^3 (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/pdf/master_sl_table_run_MAY2012.pdf accessed June 8, 2011). The measured TCE vapor concentrations inside the Walker residence were 0.54 μg/m^3 and 0.53 μg/m^3, well below the prior TCE RSL, but above the current TCE RSL. The RSL values are conservative and are intended to screen out situations that do not require any further investigation rather than to confirm the presence of unacceptable risk. Given the presence of TCE vapor concentrations above the current RSL values, however, we believe that additional air concentration monitoring both inside and outside the [redacted] residence, as recommended in the November 3, 2011 letter, is warranted to assess whether TCE vapor concentrations constitute a potential risk.

Sullivan Spring

We find the study proposal to be generally appropriate for the study purposes, with the following exception:

We believe that at least one and possibly two additional air sampling locations generally between Sullivan Spring and the DCL are warranted. We recognize that the depth to groundwater increases significantly along the traverse from Sullivan Spring toward the DCL, but also feel the need to recognize the presence of and evaluate potential impacts to the Laurel Hill subdivision, which is located generally between Sullivan Spring and the DCL. For this purpose, we suggest that a measurement method designed to assess either vapor concentrations in the near surface soil (*e.g.*, using a buried passive carbon collector) or vapor flux across the soil surface (*e.g.*, a flux chamber) would be appropriate. Each of these methods has advantages and disadvantage. A flux chamber would produce more directly useable results, but is more costly and may present logistical challenges. We further suggest that the sampling locations be selected generally in the wedge-shaped zone delineated by lines connecting Sullivan spring with the approximate northeast and western DCL boundaries.

We also offer the following comments on the sample collection methods described in the November 4, 2011 letter:

The section labeled "Surface Water Sampling and Analysis" includes the following description of the sample collection method, "Samples will be collected directly into 40-milliliter VOC vials at a point in the approximate middle of the stream and spring." We do not take issue with what is described in that sentence, but are not clear whether the term "middle" refers to the stream or spring in both plan view and section view or just plan view. We believe that the vials should be held in a manner that the water entering the vials is not from the water surface, but is rather drawn from at least a few inches depth below the surface. If that was already the intent, then we think the language need to be clarified. If that was not the intent, we suggest that the sampling protocol be modified in accordance with our suggestion.

The section labeled "Sediment Sampling and Analysis" includes an alternate method described as follows, "An alternate method may entail collection using a pre-cleaned, stainless steel scoop or spoon, and scooping the sample along the bottom of the surface water body in the upstream direction. Using this method, samples will be placed using the scoop or spoon directly into the laboratory approved containers." We recognize that there may be some situations in which the primary method cannot be used, but are concerned that this alternate method may lead to significant loss of fine-grained sediments in the process of bringing the scoop up through the water column. We therefore suggest that use of this alternate method be minimized and that any samples collected using the alternate method should be labeled and noted as having been collected using the alternate method.

We request that EnSafe prepare a modified sampling plan for the Sullivan Spring area incorporating these comments and submit that modified plan to the Expert Panel for review. We would also welcome the

opportunity to answer any questions that EnSafe may have as they address these comments. It may also be appropriate for EnSafe to submit an initial recommendation addressing only the additional air sampling addressed above prior to submitting a complete revised plan.

These comments on sample collection methods should be considered as applicable to any other sampling in and around the EERA that is performed in relationship to evaluating potential releases from the DCL.

We recognize that TDEC may also have comments on the plan and request that any TDEC comments also be addressed prior to resubmittal for Expert Panel review. Please let us know if any TDEC comments contradict or otherwise conflict with any of our comments.