EXPERT PANEL
for
THE DICKSON COUNTY LANDFILL
DICKSON, TENNESSEE

Memorandum

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 Council, Inc., *et al*., v. County of Dickson, Tennessee, *et al*., No.: 3:08-cv-00229
Consent Order Entered December 9, 2011

DATE: April 15, 2015

SUBJECT: Expert Panel Communication Number 10,
Preliminary Evaluation and Recommendations Related to Bruce Spring

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Based on our review of the revised draft report on vapor quality in the Bruce Spring area[1] the Expert Panel for the Dickson County Landfill (DCL), Dickson County, Tennessee (EP) offers the following observations and recommendations regarding air quality in the Bruce Spring area.

Background

In very brief summary, the study of air and surface water quality in the Bruce Spring area has indicated that trichloroethylene (TCE), and to a lesser extent cis-1,2-dichloroethylene (cis-1,2-DCE) are being released into the air (offgassing) from the water that flows through Bruce Spring. Further, these vapors appear to be migrating to at least one nearby residence in sufficient quantity to create breathing zone concentrations above local background concentrations and above regional screening levels (RSLs) established by the US EPA for residential occupancy[2]. Several other chemicals were also detected in air samples taken during the recent study of Bruce Spring area air quality, but none of the other chemicals appear to be associated with offgassing from either Bruce Spring or area groundwater, and thus can reasonably be considered to be related to sources other than the DCL. Further, neither TCE nor cis-1,2-DCE were detected in soil vapors, indicating that they are not offgassing from groundwater at rates that could create

[1] EnSafe. 2015. Bruce Spring Area Work Plan Results. prepared for the Expert Panel for the Dickson County Landfill, Dickson County, Tennessee. Revised draft dated Feburary 25, 2015.
[2] See http://www.epa.gov/region9/superfund/prg/

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any cause for concern. Based on the studies to date, therefore, the only air quality issue in the Bruce Spring area of potential concern that may be associated with releases from the DCL is offgassing of TCE and cis-1,2-DCE. US EPA has not, however, established an RSL for cis-1,2-DCE, so the primary potential issue for Dickson County is offgassing of TCE.

Of the six residences in the Bruce Spring area that were studied, indoor air concentrations above the RSL for TCE were measured in two, the [redacted] residence at [redacted] and the [redacted] residence at [redacted]. RSLs are established for the purpose of screening out situations that do not warrant further consideration, they are not concentrations that indicate the creation of a health hazard. According to US EPA[3], "Chemical concentrations above the SL [screening level] would not automatically designate a site as "dirty" or trigger a response action; however, exceeding a SL suggests that further evaluation of the potential risks by site contaminants is appropriate." Accordingly, the [redacted] and [redacted] residences are the only two residences that need to be considered further.

At the [redacted] residence, TCE was detected above the RSL in indoor air, but was not detected in either soil vapors or outdoor air, indicating the likelihood that the source for the TCE in the indoor air was internal to the house. The draft study report states that a rifle was cleaned in the house during the study. Further, the detected indoor air concentration, despite being above the RSL, is within the range of background[4] concentrations reported by US EPA, though below the apparent local outdoor ambient background based on the study results.

At the [redacted] residence, TCE was detected above the RSL in both indoor air and outdoor air near the residence, but was not detected in soil vapors. These results, combined with the tests that showed elevated TCE concentrations in the air above Bruce Spring and its outlet, indicate the likelihood that the TCE in both indoor and outdoor air at the [redacted] residence is at least in substantial part related to offgassing from Bruce Spring. TCE concentrations at the [redacted] residence are within the range of background[5] concentrations reported by US EPA, but above the apparent local outdoor ambient background based on the study results, and are most likely associated with released from the DCL.

Recommendations

Though the study report is not yet final, the EP has sufficient information to make the following recommendations:

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[3] See http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/faq.htm#FAQ2 accessed 10 April 2015.

[4] Background in this context means that there are no known localized sources external to the structure from which the sample was taken. An example localized source would be contaminate shallow groundwater underneath a structure.

[5] Background in this context means that there are no known localized sources external to the structure from which the sample was taken. An example localized source would be contaminate shallow groundwater underneath a structure.

- The County should offer to relocate the [redacted] family on a temporary basis until further studies have been completed. In making this recommendation, the EP is not suggesting that it believes the residents of this house have suffered any adverse health effects due to TCE offgassing from Bruce Spring. RSLs are highly conservative and designed to be broadly protective of human health. The EP is rather making this recommendation out of an abundance of caution and in consideration of concerns raised by [redacted] that have been brought to our attention[6]. This relocation should be considered temporary, until a long-term solution to the offgassing from Bruce Spring has been selected and implemented.
- The County should request their consultant to perform a follow-up study of the [redacted] residence. In this follow-up study, the residence should be screened carefully for possible TCE sources and any such sources that are found should be removed from the house for at least three days prior to resampling. The resampling should include the following sample locations, using the same sampling and chemical analysis protocols as used for September-October 2014 study.
    - Three indoor air samples at various locations within the residence
    - Four outdoor air samples at locations spaced evenly around the residence (ideally at the compass points, but adjusted as needed for local conditions)
    - Two soil gas samples at locations other than the location sampled during the September-October 2014 study.
    - If reasonably feasible, a soil gas sample from below the soil underneath the house footprint.
- The County should request their consultant to evaluate the feasibility of developing controls for the offgassing from Bruce Spring. This evaluation should include consideration of alternative technologies and development of conceptual level designs and cost estimates.
- Since the preliminary results for Sullivan Spring indicate that offgassing may be an issue there also, the consultant should perform the same type of feasibility study for Sullivan spring.

The consultant performing the studies described above ([redacted] residence resampling and Bruce and Sullivan Springs offgassing control feasibility study) should be instructed to provide work plans to the EP for review and comment prior to performing the studies.

We will make recommendations for further actions when the results of these additional studies are available.

[6] Letter from [redacted] to Reynolds, Potter, Ragan and Vandivort dated March 3, 2015.