



11190 Sunrise Valley Drive
Suite 300
Reston, VA 20191
Main: 703 709 6500
www.wspgroup.com/usa

VIA OVERNIGHT MAIL

July 23, 2015

Tim Hornosky, P.G.
State Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

RECEIVED

JUL 24 2015

SITE ASSESSMENT,
REMEDICATION &
REVITALIZATION

Re: Request to Update Human Health Risk Assessment
Wix Filtration Corp LLC Plant, Dillon, SC
Voluntary Cleanup Contract No. 13-5996-RP

Dear Mr. Hornosky:

WSP USA Corp., on behalf of its client Wix Filtration Corp LLC (Wix), is requesting approval from the South Carolina Department of Health and Environmental Control (SCDHEC) to update the human health risk assessment (HHRA) for the Wix facility in Dillon, South Carolina which was presented in the August 21 2014, Remedial Investigation (RI) Report. The revised HHRA would incorporate newly governing technical information from the recently issued U.S. Environmental Protection Agency (EPA) vapor intrusion guidance document, and also would include additional sub-slab vapor data collected as part of the April 2015 supplemental investigation activities at the site. In June of 2015, the EPA issued its new guidance document for vapor intrusion: "OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air" ("Technical Guide").¹

2014 HHRA and Recent EPA Vapor Intrusion Guidance

The 2014 HHRA for the Wix facility was prepared to estimate the nature and probability of adverse health effects in humans who may be exposed to toluene and other volatile organic compounds (VOCs) in affected environmental media at the site under current and potential future land use scenarios. The HHRA was based on a series of health-protective assumptions about exposure characteristics. The assumptions used in the HHRA to assess the vapor intrusion pathway were intentionally conservative under the EPA's old guidance document, the November 2002 "Office of Solid Waste and Emergency Response (OSWER) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils" ("Draft VI Guidance").

The 2014 HHRA assessed the potential effects of exposure to affected soil, groundwater, and sub-slab vapor at the site. The HHRA identified unacceptable risk for utility/construction workers potentially exposed to VOCs in shallow groundwater and in trench air while conducting sub-grade work in the toluene-impacted area. In addition, based on the Draft VI Guidance, the HHRA identified unacceptable risk for facility workers potentially exposed to the hypothetical concentration of VOCs in indoor air as a result of vapor intrusion into the manufacturing building. The indoor air concentrations were estimated

¹ U.S. Environmental Protection Agency. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air. OSWER Publication 9200.2-154. June 2015.

from sub-slab vapor concentrations based on a vapor attenuation factor of 0.1, a factor suggested by the Draft VI Guidance. The attenuation factor is the ratio of indoor air concentration to sub-slab vapor concentration and can be used to estimate a potential upper-bound indoor air concentration. Sub-slab vapor data can be used to assess the potential for the vapor intrusion pathway to pose a health concern, but only if assessed under current relevant technical guidance.

The new Technical Guide suggests that the assumptions under the old Draft VI Guidance overestimated the calculated non-cancer and theoretical excess cancer risks for the Wix site. Given that the Technical Guide is intended to *"supersede and replace the Draft VI Guidance"* (page xiii), the Technical Guide now mandates a default vapor attenuation factor of 0.03, instead of the 0.1 factor that had been recommended under the now outdated 2002 Draft VI Guidance, when estimating the indoor air concentration from a sub-slab soil gas concentration under residential and non-residential buildings. EPA selected the 0.03 vapor attenuation factor based on their theoretical analysis and technical information presented in EPA's 2012, "Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings." The Technical Guide explains that: *"Since the Draft VI Guidance was released in 2002, EPA's knowledge of and experience with assessment and mitigation of the vapor intrusion pathway has increased considerably, leading to an improved understanding of and enhanced approaches for evaluating and managing vapor intrusion."* (page xiii, Technical Guide). In sum, EPA's thirteen years of experience from 2002 to 2015 led it to replace the 2002 Draft VI Guidance, with its old vapor attenuation factor of 0.1, with the 2015 Technical Guide and its new vapor attenuation factor of 0.03. As such, the HHRA for the Wix facility should be revised to incorporate EPA's recommended and technically supported default attenuation factor of 0.03.

Further, the new vapor attenuation factor of 0.03 is based on information from residential buildings but, as recommended by EPA, is also applicable to non-residential buildings. In addition, page A-8 of the Technical Guide states the following:

"There are theoretical considerations to support expectations that larger nonresidential buildings that are constructed on thick slabs will have lower attenuation factors than residential buildings [and, thus, result in a lower indoor air concentration]. These considerations include:

- *Given that the size (e.g., interior height and footprint area) and air exchange rate tend to be larger for many nonresidential buildings, it is expected that building ventilation rates for many nonresidential buildings would be higher than those for residential buildings. A higher ventilation rate is expected to result in greater overall vapor dilution as vapors migrate from a subsurface vapor source into a building.*
- *Comparing buildings with slab-on-grade construction, nonresidential buildings tend to have thicker slabs than residential buildings. With thicker slabs, a given amount of differential settling would be expected to lead to less cracking in the slab and would be less likely to create cracks that extend across the entire slab thickness. Buildings with thicker slabs would, therefore, be expected to exhibit lower soil gas entry rates, all else being equal."*

Because EPA's default vapor attenuation factor of 0.03 is based on information from residential buildings, the application of this attenuation factor to the Wix facility is a conservative assumption. The Wix building is likely to have a larger air exchange rate and a thicker slab than a residential building, which would result in lower indoor air concentrations. Therefore, the conservative nature of the 0.03 attenuation factor is additional support for that factor's application at the Wix site.

Finally, application of the new vapor attention factor of 0.03 is also called for where a guidance document such as the Technical Guide is explicitly intended to correct what EPA acknowledges is an outdated and inadequate prior guidance document, that being the 2002 Draft VI Guidance. It is worth citing again the EPA's admission of the antiquated nature of the Draft VI Guidance: "*Since the Draft VI Guidance was released in 2002, EPA's knowledge of and experience with assessment and mitigation of the vapor intrusion pathway has increased considerably, leading to an improved understanding of and enhanced approaches for evaluating and managing vapor intrusion.*" (page xiii, Technical Guide). Under both general principles of administrative law and the S.C. Administrative Procedures Act (SC Code Ann. §1-23-310 et seq.), where new guidance is intended to replace old guidance that is admittedly flawed in its overly strict nature, and where the new guidance is more lenient as to the regulated entity, an agency is required by equity to apply the new guidance retroactively to regulatory scenarios (such as remediation projects) that are either nascent or mid-stream. (If, in contrast, the new guidance were stricter than the old guidance, an argument could be made that the new guidance should be only prospective in application. That, however, is not the present fact pattern). Due to this bedrock equity principle that underlies the need for retroactive applicability of new favorable guidance in the administrative law context, SCDHEC is required to apply the new guidance, and the new attenuation factor, to the Wix vapor intrusion analysis.

As an aside, also note that the new Technical Guide has broad applicability in virtually all remediation contexts. (page xiii, Technical Guide). EPA's Technical Guide is intended for use at any site being evaluated by EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) corrective action program, and also is intended for use by state agencies acting pursuant to CERCLA or an authorized RCRA corrective action program where vapor intrusion may be of potential concern. (page xiii, Technical Guide). It is applicable to both residential and non-residential settings.

April 2015 Sub-slab Vapor Sampling

On a related aspect, please note that the identification of data needs for an HHRA is an iterative process. As field data are collected and reviewed and the conceptual site model is refined, additional data needs may be identified to further evaluate potential human health risks. For the Wix-Dillon site, evaluation of the vapor intrusion pathway in the 2014 HHRA was based on only three sub-slab vapor samples. Given the results of this limited set of sub-slab vapor samples, a data gap existed to adequately assess the potential vapor intrusion exposure pathway for the site. In April 2015, ten additional sub-slab vapor data were collected to further characterize the extent of VOCs in sub-slab vapor underneath the building and allow for a more refined analysis of the vapor intrusion pathway. Using all sample data provides for a more technically sound assessment of the risks, rather than using a subset of the data. Therefore, the HHRA should be amended to include the April 2015 sub-slab vapor data, in addition to the April 2014 sample results.

Based on the information discussed above, we are requesting that the HHRA for the Wix facility be updated to be consistent with EPA's most recent vapor intrusion guidance document, and to include all sub-slab vapor data collected at the site.



Mr. Tim Hornosky, P.G.
July 23, 2015

Sincerely yours,

A handwritten signature in black ink that reads "Robert E. Johnson". The signature is fluid and cursive, with the first name "Robert" being more prominent.

Robert E. Johnson, PhD, P.G.
Senior Technical Manager - Environmental

REJ:kjb

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cc: Dave Sturgess, Esq., Affinia Group Inc.
Keith Clark, Affinia Group Inc.
Kenny McCutcheon, Wix Filtration Corp LLC
Paul Caulford, Wix Filtration Corp LLC
Jim Hiller, ERM
Weston Adams, III, Nelson Mullins Riley & Scarborough LLP