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June 24, 2013

Richard Kapuscinski
Office of Solid Waste and Emergency Response
Office of Superfund Remediation and
Technology Information
United States Environmental Protection Agency

Re: RE: Comments on Draft OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air (April 11, 2013); Docket EPA-HQ-RCRA-2002-0033

Dear Mr. Kapuscinski:

Introduction--Summary

We appreciate the decision by EPA's Office of Solid Waste and Emergency Response ("OSWER") to post for public comment draft "final" guidance documents for conducting vapor intrusion evaluations. We sincerely believe, as we stated in our December 6, 2012, submission to this docket, that allowing meaningful input from community and responsible party representatives is crucial to achieving final guidance that is both protective and implementable.

These comments focus on OSWER's *Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air* ("Guidance"). The comments are those of the authors identified. They are not submitted as an official submission of Fox Rothschild LLP or on behalf of any client of our firm.

Overall, the revised Guidance does a thorough job of incorporating many of the technical nuances, developments and lessons learned from the last 10 years of investigations. In addition,

the Guidance and the associated documents establish a comprehensive framework for evaluating vapor intrusion under CERCLA and RCRA. Once issued as final guidance, this should help make the "rules" for conducting evaluations more consistent, especially among EPA regional offices.

However, it is our view that in the process of thoroughly addressing technical developments, focused on creating conservative guidelines to address the variation inherent in VI sampling results, EPA has created an approach that is in many ways impractical. Unless reasonable thresholds, flexibility, and endpoints are incorporated into the Guidance in response to public comment, this approach will pull many more sites into long, detailed and intrusive vapor intrusion studies, even where there is little to no risk of vapor intrusion. This Guidance, as written, will undermine the reasonable certainty that has been achieved in the past (and should be achievable in the future) that any particular vapor intrusion investigation is sufficient and complete. Because of this uncertainty, as drafted, the Guidance may hinder brownfield redevelopment.

In addition, this Guidance will exacerbate and does nothing to address a significant issue that already confronts building owners, employers and occupants, as well as responsible parties. Vapor intrusion guidance, including this draft, directs the search for low and otherwise unregulated levels of chemicals that commonly exist in indoor and outdoor air and identifies them as potentially cancer causing or otherwise harmful to people. The Guidance should do more to acknowledge and address the broader implications and challenges that predictably arise from the development of screening values and action levels for indoor air and the push to gather data at ever lower levels.

Our hope is that in response to public comments, EPA will step back and fully evaluate the real world implications of its current draft and revise the Guidance by including more flexibility, clearer endpoints, and a more practical approach that is consistent with the science and the uncertainties inherent in it.

Some of the challenges that we have seen arise in our experiences with vapor intrusion investigations include:

A. Evaluating the risks associated with the low levels of chemicals detected in breathing air in the course of vapor intrusion investigations.

B. Communicating appropriately about the pathway, detections and the risk.

C. Determining what properties merit VI investigation.

D. Gaining access to properties to sample for and/or mitigate vapor intrusion.

E. Determining how much testing is enough, especially in the face of the communication and access issues highlighted above.

F. Needing legal mechanisms to be put in place in conjunction with most vapor mitigation steps.

G. Ever-evolving guidelines and changing rules.

Here is what we see in the General Guidance related to these challenges.

A. Understanding the risks

Chemicals exist in our outdoor ambient air and in the indoor air of homes and workplaces regardless of whether the property overlies soil or groundwater contamination. Chemicals in indoor air may originate from chemical-containing products, from outdoor ambient air, and from other sources. Vapor intrusion guidance flags as potentially harmful levels of chemicals in the indoor air that are otherwise not regulated or, where they are regulated, are considered acceptable.

1. Comment: We urge EPA to clarify, expressly, that the vapor intrusion pathway may be deemed incomplete even without indoor air sampling, under appropriate circumstances, and to develop specific thresholds for determining when indoor air sampling will be required. Requiring indoor air sampling in all cases will lead to many false positive results due to various sources of chemicals in indoor air other than subsurface chemicals.

In the course of a vapor intrusion investigation, trace amounts of chemicals are detected in the indoor breathing air of homes or offices at levels that EPA guidance suggests put people at risk of cancer. In many cases, no further investigation or response will be required by EPA. Why? Because, as EPA acknowledges, chemicals detected in the indoor air often are caused by the cars that stream by on the nearby highway (benzene), or the dry cleaning hanging in the closet (PCE), or the correction fluid in the desk drawer (TCE), *not* by vapors from pollution in the subsurface. Where the chemicals detected in indoor air are determined to be from sources other than vapor intrusion, building owners and occupants are left in the position of having data that indicates that EPA considers their buildings potentially unhealthy, but with no applicable

legal standards that require that these conditions be corrected, if that is even possible. The proposed Guidance acknowledges the "background" issue, but EPA seems to have completely abandoned the wariness of the 2002 Draft Guidance about rushing to gather indoor air data where that may be unnecessary for sound decision-making related to vapor intrusion. To the contrary, the Guidance repeatedly urges indoor air sampling without any significant threshold considerations. For example, EPA even suggests that indoor air sampling might be helpful in such preliminary stages as determining which buildings should be considered "near" a groundwater plume. See Section 6.2.1. The real world interests of building owners and occupants who cooperate in vapor investigations warrant more thoughtful criteria for determining when sampling of indoor air is appropriate.

2. Comment: We urge EPA to include within the revised Guidance a paragraph that discusses radon vapor intrusion and the risks that EPA has identified associated with it.

In the course of a vapor intrusion investigation, a consultant concludes that vapor intrusion is likely occurring: harmful vapors from the subsurface are intruding into a home through cracks in the basement floor. No response may be required. Why? Because the air testing may show that chemical vapor intrusion, which EPA regulates to avoid allowing more than one additional cancer among a million people (1×10^{-6}), is not occurring. Vapors containing radon, according to EPA the second leading cause of lung cancer, are very likely migrating into the home (and many homes, schools, offices over a broad geographic area) due to regional geology. Vapor intrusion investigations don't typically test for radon. In addition, EPA does not seek to protect people from radon-caused cancers to the degree it seeks to protect people from vapor-intrusion related chemical cancer risks. By its own calculation, EPA's recommended "action" level for radon (4 pCi/L) is designed to avoid more than seven additional cancers among a thousand people (7×10^{-3}). The draft Guidance mentions radon vapor intrusion several times, but nowhere does it highlight the fact that by EPA's own measures, radon vapor intrusion represents a vastly greater health threat than the chemical vapor intrusion that the proposed Guidance seeks to identify and eliminate. While we understand that OSWER lacks authority to require investigation and mitigation of naturally occurring radon, it seems inappropriate for EPA to issue such a comprehensive guidance on the vapor intrusion pathway and to not more directly address what EPA has identified as the far greater human health risk posed by radon vapor intrusion.

3. Comment: We urge EPA to specifically acknowledge OSHA permissible exposure levels and the discrepancy between EPA's VISLs and action levels and PELs.

The average TCE concentration in a workplace's breathing air is 500,000 µg/m^3. No response may be required by EPA. Why? Though EPA now calculates that workers are exposed to unacceptable cancer risks at levels above 3 µg/m^3 over years of exposure – and some EPA regions have concluded that developing fetuses are at risk of heart malformations if pregnant women are exposed above 5 µg/m^3 for even 24 hours **and would evacuate workers from workplaces at 15 µg/m^3 –** TCE is used in this workplace, and workers have access to a Material Safety Data Sheet explaining its risks under OSHA rules. In the 2002 Draft Guidance, EPA acknowledged and discussed the overlap of OSHA limits and standards and EPA's vapor intrusion screening levels. In the current proposed Guidance, EPA simply asserts jurisdiction over indoor air quality in workplaces to the extent air quality is affected by subsurface contamination, without addressing the challenges employers and employees face now that EPA has declared "safe" levels far lower than OSHA permissible exposure limits. At minimum, the Guidance should acknowledge the OSHA standards expressly and provide some guidance on how the discrepancies can be understood by employers and employees.

4. Comment: We urge EPA to fully evaluate the potential economic disruption and fear that its approach to short term action levels may generate, to consider the substantial uncertainty in the science that underlies the development of short-term action levels and the most recent IRIS reference concentration for TCE, and to develop an approach to short-term levels that is consistent with the science and reasonable. At a minimum EPA should allow for the use of site specific risk assessments to demonstrate that the levels present do not pose an unacceptable short-term risk under the specific building and other conditions.

A potentially significant underlying issue to be considered in review of the Guidance is the recent move by certain EPA regions to impose short-term, non-cancer risk-based action levels for TCE, orders of magnitude lower than the ATSDR numbers that had been used previously in VI investigations, to evaluate short term risks. In fact, there are significant signs in the Guidance that OSWER is moving toward the approaches taken by these regions. For example, a sub-section that was added to the draft since November 2012, Section 7.5.2, consolidates a framework for the adoption of "health protective concentration levels" based on non-cancer endpoints over short exposure durations. Another example added since November is an additional bullet in Section 8.2.1, identifying "evacuation, which may include temporary re-location," as a potential temporary measure for existing buildings. The implications of implementing these low action levels for TCE are far reaching and could potentially lead to the raising of significant fear and disruption in homes and workplaces that may have low levels of TCE in indoor air. EPA's approach seems to be to compound the most conservative assumptions one on top of another without building into the Guidance the flexibility that may be justified by

the weaknesses of the underlying science or the potentially disruptive nature of this course for people and businesses. We would urge EPA to consider that at some point following the most conservative path that can be supported leads to an unreasonable result and may be a disservice to those the agency seeks to protect.

B. Communicating about the Pathway, Detections and Risk

1. Comment: To substantively assist the parties that will need to communicate, as well as the parties affected by the investigations and results, we urge EPA to develop as part of this Guidance a list of the most difficult issues and questions that it knows will arise, and the best responses that EPA has at this point to them. These would include, for example, "Why are OSHA permissible exposure limits orders of magnitude higher than levels that EPA considers unhealthy over the short and long term?" "What do I do if the ambient outdoor air in my community exceeds levels that EPA has identified as an unacceptable cancer risk?" We hope that a rigorous review of these difficult questions might lead EPA to seek a better balance in the substantive requirements of the Guidance. In any event, offering answers to such questions would provide a better basis for the open communications and trust that EPA acknowledges in the Guidance are so crucial to these investigations.

Throughout the Guidance, EPA stresses the need for effective communications related to vapor intrusion investigations with parties affected by investigations. However, because of some of the issues raised above, and inherent sensitivity of building occupants regarding the quality of the air they breathe, communications about vapor intrusion investigations are difficult.

2. Comment: We urge EPA to review the Guidance to eliminate unsupported statements and any language that overstates the public health risk from vapor intrusion.

In its current form, the Guidance likely overstates the threat to public health that chemical vapor intrusion represents. For example, without a supporting citation, the Guidance broadly states, "Vapor intrusion is widely recognized as a potentially significant cause of human exposure to 'volatile' (i.e., vapor-forming) hazardous chemicals in indoor air." Overstatement of the problem in the relevant guidance is not a good basis for effective communications later.

3. Comment: We urge EPA to eliminate the recommendations that sampling be conducted under atypical building operation conditions and instead include the recommendation that buildings be sampled under normal building operating conditions.

Within the recommended sampling protocols (e.g., in 6.3.3), the Guidance calls for steps, for example, turning the heating, ventilation and air conditioning ("HVAC") systems off during sampling, that artificially heighten the potential that chemicals will be detected at levels that EPA deems unacceptable. Building owners who cooperate and bear the inconvenience of having their HVAC systems turned off during sampling may end up having their buildings unnecessarily stigmatized (and potentially burdened with long term "mitigation") where sampling under typical building occupancy conditions, such as with the HVAC on, would indicate that the indoor air meets the EPA standards.

C. Determining the Sites and Properties to Investigate

1. Comment: We urge EPA to incorporate into the Guidance some specific threshold levels of groundwater data and/or soil gas data that need to be exceeded before any "detailed vapor intrusion investigation" is required. Without this approach the Guidance is likely to hinder brownfield redevelopment.

The Guidance sets very broad criteria for determining what sites and buildings need detailed vapor intrusion evaluations and will encompass sites that pose little to no vapor intrusion risk. Section 3 of the Guidance contains a flow diagram for the process to determine if a detailed vapor intrusion investigation is warranted. Under the Guidance, all that is needed to require a detailed vapor intrusion investigation is information that indicates a potential for vapor forming chemicals to be present in the subsurface and the actual or potential future presence of buildings nearby. Section 3.2, Figure 3–1. Once this thin line is crossed, "multiple lines of evidence" are required to support a decision that no further assessment or response action is necessary.

2. Comment: We urge EPA to incorporate into the Guidance a statement that EPA presumes, with appropriate exceptions, that buildings beyond 100 feet from the source do not require vapor intrusion investigation. The lack of bright lines will make real estate transactions more difficult and will likely hinder brownfield redevelopment.

In Section 6 of the Guidance, EPA calls for "site specific" determinations of whether existing and potential future buildings are "near" sources of volatile contaminants, such as groundwater plumes. The often-used delineation guideline of 100 feet vertically or horizontally from the source is acknowledged, but is not adopted. By eliminating even presumed bright lines in favor of layers of site specific data, EPA will make it very difficult for parties to quickly screen out any properties or buildings where there is little to no risk of vapor intrusion.

3. Comment: We urge EPA to reconsider the proposed screening levels to be used to determine if a full vapor intrusion study is warranted. It is unclear how groundwater that meets Drinking Water Standards poses an unacceptable risk of vapor intrusion requiring a detailed vapor intrusion study.

In defining the boundaries of plumes that would be used to delineate the scope of the "source area," the Guidance at Section 6.2.1 recommends use of the values generated in the Vapor Intrusion Screening Level calculator. By way of example, through this approach a TCE plume source area would be delineated by the concentration of 1.1 µg/L, below even the maximum contaminant level for TCE in drinking water of 5 µg/L. Consider that the MCL defines the level of TCE that would be permitted to be delivered to the shower heads and other faucets within the home over a lifetime. Use of 1.1 µg/L is extremely conservative, and it will expand areas of investigation greatly -- well beyond levels that, in our experience, are warranted.

4. Comment: We urge EPA to incorporate into the Guidance reasonable guidelines for vapor intrusion study areas and that EPA encourage decision makers to rely on phasing of studies out from the areas of highest levels of contamination unless there are site specific reasons identified as to why that is not appropriate. Anecdotal anomalies from other geographic and geologic settings should not guide investigations or undermine sound decision making.

The Guidance's recommendation in Section 6.2.2 of phasing an investigation from the highest levels of source contamination outward is a good one, which we have seen serve as a reasonable and efficient means to set a reasonable scope for the investigation (as well as limiting the number of building owners and occupants that need to be disrupted by indoor air sampling). But even in the discussion of phasing, the Guidance emphasizes potential for variability. "Therefore, it may be difficult to identify a priori a 'representative' or 'reasonable worse case' building or group of buildings, when it is determined that sampling all buildings is not possible." This mindset in the Guidance that more data gathering is always better, even in the face of a reasonable basis to determine that vapor intrusion is not occurring or is a very low risk, may undermine reasonable decision making in the field.

5. Comment: At minimum, we urge EPA to reconcile inconsistent definitions of when the pathway is deemed complete, and we urge in favor of requiring all of the elements of a complete exposure pathway.

The Guidance is also very quick to declare a "complete" vapor intrusion pathway. In Section 2.0, EPA states that the vapor intrusion pathway is complete if: 1) a source of hazardous vapors

is present in the soil or groundwater underneath or near a building; 2) vapors form and have a pathway along which to migrate toward the building; 3) entry routes exist for vapors to enter the building, and driving forces exist to draw the vapors into the buildings. Note that by this definition the pathway is deemed "complete" even if hazardous vapors have *not* migrated into the building and even if the building, or an area within the building into which the vapors may migrate, is not occupied. This approach appears at odds with the recently issued EPA guidance for *Assessing Protectiveness at Sites for Vapor Intrusion, Supplement to the "Comprehensive Five-Year Review Guidance"* OSWER Directive 9200.2-84 ("Five Year Review Guidance") which states in the Overview, "having a complete vapor intrusion pathway means that humans are exposed to vapor originating from site contamination."

6. Comment: We urge EPA to include in the Guidance a statement that EPA does not intend that the Guidance establish "all appropriate inquiries" obligations for landowner liability protections under CERCLA.

Worth noting in this discussion of the scope of the vapor intrusion area is that EPA includes a recommendation in Section 1.3 that the Guidance be used at "brownfield properties." In Section 5, the Guidance includes a recommendation for the gathering and consideration of information similar to that which would be gathered and reviewed as part of an environmental site assessment for the purposes of satisfying all appropriate inquiries under CERCLA and ASTM E-1527-05. It is unclear what EPA intends by this "recommendation" of the application of the Guidance to brownfield sites (perhaps only for EPA brownfield grantees?) and whether it believes that it has identified the information and analysis that would be expected to satisfy all appropriate inquiries as to sources of potential vapor intrusion. Assuming this is not EPA's intent, we would urge that it say so in the revised Guidance. Already, there is significant concern and confusion about how vapor intrusion should be considered or accounted for in the performance of Phase I property assessments.

7. Comment: We urge EPA to include in the Guidance a statement of how it foresees use of the Guidance in the Hazard Ranking process after determining the impact that this would have on the number of sites to be included on the NPL.

Finally, the implications of EPA's intended application of this Guidance in the process of determining which sites qualify for the National Priorities List needs to be considered now. The expectation is that the Hazard Ranking System will be amended in the near future to require consideration of vapor intrusion exposures. It was clear in the November 2012 leaked draft that EPA intends to use the Guidance in the Hazard Ranking process. Given the conservative

approach taken by the Guidance to identify areas subject to detailed vapor intrusion studies, many additional sites may qualify for the National Properties List when that process is finally amended.

D. Gaining Access to Properties to Sample for and/or Mitigate Vapor Intrusion

1. Comment: We urge EPA to thoroughly review the Guidance against its own and the regulated community's experiences with regard to gaining access, and in light of the interests of the occupants and owners, and provide a more certain, less potentially disruptive approach where possible in light of these interests.

A very practical problem with many vapor intrusion investigations is gaining access to the indoor spaces to conduct sampling. Even where a responsible party owns and operates a building, it can be disruptive to that party's employees to confront a sampling device in their immediate work areas. For locations where the responsible party no longer owns the site, or where the contamination has migrated in the groundwater plume off-site, access challenges for conducting sampling and taking any mitigative steps are compounded greatly. In our experience, access negotiations can be challenging and delay investigations. Access is very often denied by building owners who fear the stigma on their property and disruption to their business or daily activities. Owners may not permit HVAC systems to be turned off but the Guidance has a strong preference for sampling under these conditions.

Overall, the lack of thresholds for screening properties out of the detailed investigation process, the Guidance's repeated emphasis on obtaining indoor air and sub-slab data at multiple locations at each building and across sites, requirements for repeated rounds of sampling, the direction to take samples with HVAC systems off, the framework for potentially requiring immediate and potentially disruptive actions upon receipt of sample results, and other aspects of the new Guidance will likely compound the already difficult problem of gaining access. EPA notes its authority to order access in footnote 8, but in our experience EPA is reluctant to order individuals to grant access. Gaining access and implementing mitigation of buildings owned by others can be significant challenges that are not reflected in EPA's overall approach, and warrant additional discussion in the Guidance.

2. Comment: We urge that, if disproportionate impact information is to be gathered in these investigations, EPA include a full explanation of how the data is to be gathered from building owners and tenants and how it will be used by EPA.

The Guidance calls for the EPA to consider the characteristics of the populations potentially exposed to vapor-forming chemicals in the indoor air of non-residential buildings, including whether "minority, low-income, or indigenous populations are or may be present under current conditions who may experience disproportionate impacts." See Section 4.0. The Guidance does not explain how this information would be used to make decisions about access, sampling or mitigation.

E. Determining How Much Testing is Sufficient

1. Comment: We urge that EPA incorporate into the Guidance an approach to quickly screen out properties that pose little or no risk based on reasonable screening values. This approach is consistent with EPA's support for brownfield redevelopment.

Key concepts in the Guidance – the significance and use of vapor intrusion screening values ("VISLs") – lack clarity. The guidance recommends the use of VISLs in delineating source groundwater plumes, as well as soil gas plumes. See Section 6.2.1 and footnote 48. However, the traditional concept of a "screening value" is lost in EPA's insistence on multiple lines of evidence and the Guidance lacks clear statements that if data are gathered and compared to VISLs *and the VISLs are not exceeded*, the vapor intrusion pathway is deemed incomplete and no further investigation or remediation step is required.

In fact, the Overview of Vapor Intrusion Assessment and Mitigation in Figure 3-1 does not identify detections below VISLs as a way out of the detailed investigation process. The Overview of Planning, Scoping, and Conducting Vapor Intrusion Investigations lists "Compare Sample Concentrations to Health Based Screening Levels (Section 6.5.4 (note error in reference which should be 6.5.3))" as merely the first of four steps in data evaluation. Section 6.5.1 states, "Comparison of sample concentrations to the VISLs is only one factor used in determining the need for a response action at a site." Similarly, Section 6.5.3 states "Generally, if all sample concentrations for a given building or area are less than the respective medium-specific screening level, then vapor intrusion is less likely to pose an unacceptable health risk top building occupants." The Guidance acknowledges the conservative derivation of the VISLs. It should be revised to eliminate the unclear language and allow comparison of sampling data to the VISLs to be used to end the evaluation process. Otherwise, the Guidance will leave project managers and responsible parties without any clear basis for declaring the process complete.

2. Comment: The Guidance should be revised to acknowledge that sound decision making can often be made on existing data and on something less than a "detailed vapor intrusion investigation" encompassing multiple lines of evidence.

EPA's emphasis on the variability of results over space, time and building use leads to a process that will be very difficult to ever satisfy. More flexibility and common sense approaches are needed in the Guidance. Regulators and the regulated community should have the ability to assess the actual risk presented by the actual conditions at the site and reasonably anticipated future uses to determine if, and to what extent, vapor intrusion should be investigated. For example, the Guidance should acknowledge that judgments often can be made based upon existing soil and groundwater data, depth to groundwater, site geology, etc., without a full blown study of soil gas, and indoor air samples taken on multiple occasions and multiple sample locations. In addition, the Guidance should acknowledge that in some instances, a single round of samples may be enough to conclude that VI is unlikely and that no further action is warranted.

3. Comment: EPA should conduct an evaluation of the full scope and impact of the provisions of this Guidance on existing and future sites before the Guidance is issued as final. EPA should include in its consideration the impact that may be created by the adoption of the Guidance or the approach in it by states, and conflict with various existing state vapor intrusion programs.

The Guidance, along with the separate five-year review guidance, creates a significant potential for five-year review processes to generate the reopening of the remedies for many sites. Under the Five Year Review Guidance if *new information* raises the potential for a complete vapor pathway, the five-year review process may offer an appropriate opportunity to identify issues, review data, make recommendations, and develop a protectiveness determination for vapor intrusion. The Five Year Review Guidance also indicates that to determine if the exposure assumptions, toxicity data, cleanup levels, and Remedial Action Objectives used at the time of the remedy selection are still valid, an evaluation of available data and *the collection of additional data* should be undertaken. Given the focus in the Guidance to collect multiple samples from multiple locations and to develop multiple lines of evidence, it may be unlikely that any site will have sufficient data to develop a protectiveness determination for vapor intrusion during its five-year review. It is difficult to estimate the number of closed sites that may become subject to the requirement to conduct a comprehensive vapor intrusion investigation under the Guidance. And there may be conflict with state programs, since many state programs allow that once a site receives a "no further action" determination the site is closed and unlikely to be reopened.

F. Ability to Put Legal Constraints in Place.

1. Comment: The Guidance should acknowledge that long-term legal mechanisms, and detailed follow-up monitoring programs, are often unwanted by property owners and unnecessary to protect building occupants. Requirements and recommendations of the Guidance should be evaluated against the long term burdens that they will create for property owners and others.

The Guidance notes that institutional controls such as legal covenants and restrictions will be required where mechanisms are employed to mitigate vapor intrusion. See, especially, Section 8.6. The Guidance includes detailed criteria for continued operation and maintenance of engineered controls that may go on for years. Likewise, the Guidance's insistence on sampling with HVAC systems off and the presumed need for engineered controls to address these unrealistic conditions will increase the likelihood that legal mechanisms will be needed. Where the responsible party owns the property at issue, mitigation and an accompanying legal restriction or covenant can be an efficient and effective approach to eliminate concern about vapor intrusion. However, in many instances the properties at issue are not owned by the responsible party, and that party will have no ability as a legal matter to put the covenant or restriction that the agency requires in place.

G. Ever-Changing and Conflicting Guidelines.

1. Comment: The Guidance should be revised to insure that it is a practical tool for decision makers, with defined endpoints; otherwise, the consistency in approach that property owners and regulated entities need will be illusory.

The relevant vapor intrusion guidance and the toxicity values of key vapor intrusion chemicals have changed dramatically over the last 10 years. At one site, we have completed a vapor intrusion evaluation three times using different evaluation methods and toxicity values. The evaluation methods were: 1) comparing groundwater values to agency groundwater-to-indoor air screening levels; 2) evaluation of groundwater-to-indoor air screening values and soil gas sampling; and 3) evaluation of groundwater, soil gas and indoor air sampling. Each evaluation, when it was concluded, received the relevant agency approvals. Even while individual vapor intrusion studies were proceeding, regulatory agencies have altered their guidelines and action levels in those studies.

The Guidance offers a detailed and comprehensive approach that should provide more consistency and therefore certainty for responsible parties and others with a stake in their investigations. This is needed not only in the context of RCRA and CERCLA projects, but in evaluating properties for transaction, redevelopment and other purposes.

Conclusion

The draft Guidance appears to take a significant step toward establishing a comprehensive and consistent approach to vapor intrusion investigations. However, the overly conservative approach throughout the Guidance will exacerbate existing challenges for vapor intrusion investigations and burden property owners, communities, and responsible parties with vapor intrusion studies that may not be warranted and may cause unnecessary alarm. We urge EPA to generate a more balanced approach.

Respectfully submitted

Christopher M. Roe Karen H. Davis Adam H. Cutler