The Increasingly Steep Climb to Regulatory Closure for Contaminated Sites

by Keith B. Walker*

Keith B. Walker

Two recent key developments will significantly impact the way prospective purchasers and landowners identify and address the presence of contamination. First, the U.S. Environmental Protection Agency has adopted a new environmental due diligence standard that requires a new focus on soil vapor. The second development is a noticeable shift by federal and state environmental agencies with respect to evaluating human health risks resulting from contaminated soil vapor off-gassing from soil and groundwater which may then enter indoor air (*i.e.*, "soil vapor intrusion"). The collective impact of these developments requires (1) more precisely defining the extent of subsurface impacts in multiple environmental media; and (2) more extensive evaluation to determine whether there is a potentially complete exposure pathway for soil vapor intrusion.

These changes have significant impacts for both landowners and prospective purchasers by further complicating purchase and sale negotiations, especially in regard to responsibility for completing the investigation and remediation processes. They also introduce significant uncertainties in regard to the time it will take and the costs that will need to be incurred with respect to achieving regulatory closure. Consequently, sellers may frequently be forced to either take on significant post-closing obligations or cut purchase prices. For their part, buyers may have to accept deed restrictions that prohibit the unfettered use of the property and/or require maintenance of human health risk mitigation measures in perpetuity, which may greatly inhibit their ability to re-sell the property. In addition, new emphasis on indoor air quality, which may or may not be related to the subsurface contamination giving rise to the initial regulatory requirements, introduces a wild card into the equation. When confronted with these changes to the environmental due diligence process and the regulatory environment, the engagement of highly qualified consultants and experienced, specialized environmental counsel is essential for structuring an approach that (i) achieves regulatory closure on a timely and cost-effective basis; (ii) minimizes the potential for significant toxic tort liability; and (iii) avoids undue restrictions on the use and marketability of the property at issue.

ADOPTION OF ASTM E 1527-13 BRINGS POTENTIAL SOIL VAPOR CONCERNS INTO THE LIGHT

The first development arises from U.S. EPA publishing its final rule adopting the American Society of Testing and Materials ("ASTM") standard E 1527-13 as the standard for satisfying the "all appropriate inquiries" ("AAI") standard.[1] By satisfying AAI, prospective purchasers can assert the "*bona fide* prospective purchaser" defense to liability under the federal Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA").[2] Essentially, the default path for satisfying AAI is to engage an environmental consultant to perform a Phase I Environmental Site Assessment pursuant to the applicable ASTM standard, the results of which are set forth in a "Phase I Report."

In its final rule, EPA recommended that Phase I Environmental Site Assessments begin to follow the standards set forth in ASTM E 1527-13. EPA then issued another final rule establishing that compliance with ASTM E 1527-05 will no longer be deemed acceptable as of the effective date of ASTM E 1527-13 (October 6, 2015).[3]

ASTM E 1527-13 initiates significant changes in the way soil vapor is evaluated, bringing the potential for soil vapor impacts into the discussion and, as a result, drastically affecting purchase and sale negotiations. Under the old standard, environmental impacts to soil vapor were typically considered an indoor air quality issue that was outside of the standard's focus. Pursuant to ASTM E 1527-13, however, soil vapor impacts must be evaluated in the very same way that soil and groundwater impacts have been evaluated.[4] The practical implication is that many conditions that may not have been identified as "recognized environmental conditions" ("RECs") by the "Environmental Professional" under ASTM E 1527-05 will be identified as RECs under the new standard. The new RECs will increase the likelihood of recommendations for performance of a "Phase II" subsurface investigation, which may identify contamination that may have otherwise gone undetected.

The results of the Phase II subsurface investigation may then give rise to the need to perform a human

health risk assessment ("HHRA"). The purpose of the HHRA is to determine the extent to which subsurface contamination in soil, soil vapor and/or groundwater may be affecting the health of occupants in structures overlying the contamination sources. The default HHRA standard methodology includes the analytical theories of Johnson and Ettinger (1991) for contaminant partitioning and subsurface vapor transport into buildings (the "J&E Model").[5] Multiple rounds of risk assessment, however, may be required in order to account for seasonal pressure, temperature and other variations that affect intrusion and diffusion rates. Once completed, the HHRA may indicate the need for active remediation to address the contamination source. Alternatively, the HHRA may conclude that mitigation measures such as soil vapor barriers and subsurface depressurization systems, discussed below, could adequately address identified human health risks, subject to the approval of a regulatory agency, if applicable.

For sellers of real property, the switch to ASTM E 1527-13 likely means that pre-acquisition environmental due diligence conducted by prospective purchasers will become far more extensive in scope, with a heightened focus on soil vapor. It also likely means additional ambiguity regarding the environmental and human health risks at issue and, consequently, far more heated negotiations over price. Further, as the extent of recommended Phase II subsurface investigation increases, the likelihood of discovering additional previously-undiscovered environmental impacts increases. Cumulatively, these developments will greatly complicate purchase and sale discussions regarding responsibility for remediation and/or mitigation measures – potentially putting the seller between a rock and a hard spot: (1) taking on extensive residual post-closing obligations or (2) accepting a significant decrease in the purchase price. With these added layers of complexity, it is essential to engage experienced, highly-qualified and astute environmental counsel and environmental consultants.

On the other side of the table, prospective purchasers must engage in far more sophisticated pre-acquisition environmental due diligence, with an increased focus on soil vapor impacts and the potential for vapor intrusion and toxic tort liability. Prospective purchasers must also realize that deed restrictions may be imposed on the property, which may include requirements to maintain human health risk mitigation measures or prohibitions on disturbing residual impacts in soil. Such deed restrictions may result in costly work required over a number of years, which in turn could have serious repercussions on the property's marketability. In addition, as discussed in detail below, the process of conferring regulatory closure will likely become lengthier and more expensive.

THE PATH TO REGULATORY CLOSURE IS CHANGING UNDERFOOT

Once the contamination has been characterized and the human health risks evaluated, the process of addressing the contamination begins. Historically, governmental agencies would grant regulatory closure following the completion of remediation to address the source of the contamination. In the traditional scenario, agencies would issue regulatory closure only once cleanup levels had been reached. Closure typically came in the form of a letter issued by the applicable regulatory agency stating that "No Further Action" was necessary in regard to the contamination. The default agencies with respect to obtaining regulatory closure used to be the state agencies under the California Environmental Protection Agency's umbrella, namely the California Department of Toxic Substances Control ("DTSC") or one of the California Regional Water Quality Control Boards.

In addition, however, pursuant to the California Health and Safety Code, local agencies, referred to as Certified Unified Program Agencies – or "CUPAs," were authorized to provide regulatory oversight for certain types of contamination cases and to issue regulatory closure following the completion of investigation and remediation work.[6] The CUPAs now issue regulatory closure for hundreds of sites throughout California. Because of their smaller caseloads, CUPAs are often more responsive with respect to reviewing and approving workplans and related documentation. As a result, regulatory closure can frequently be obtained much more quickly from a CUPA than from a state agency. This is especially true for properties where the contamination does not reach groundwater or where the overall environmental impacts are not especially severe. When the contamination is more extensive or where groundwater impacts are discovered (whether early in the process or even towards what appeared to be the end of the process of obtaining regulatory closure), the CUPA may refer the case to one of the state agencies. A referral to the state agency will likely result in significant delays as new personnel get up to speed on the facts and determine the requirements that will apply, which may be enhanced.

A. The Traditional Path: Closure Following Completion of Remediation

The approach to remediation and obtaining regulatory closure depended largely on the environmental media affected. For example, contamination in soil vapor could often be addressed via soil vapor extraction ("SVE"). SVE entails reducing contaminant concentrations in soil through essentially what amount to high-powered vacuums. With respect to soil, contamination that

has not impacted groundwater can be addressed through a variety of remedial methods. Acceptable methods included excavating the contaminated soil and disposing of it at a licensed disposal facility, performing SVE, and/or injecting chemical reagents or bioremediation compounds into the contamination source area.

Alternatively, if the soil impacts did not pose a significant risk of impacting groundwater, regulatory agencies sometimes allowed the contamination to remain in place and naturally attenuate over time, with routine sampling to check progress. This process is referred to as "Monitored Natural Attenuation." Groundwater remediation methods typically involved injecting chemical reagents or bioremediation compounds into the groundwater or pumping the groundwater up from the aquifer, treating it on-site, and discharging it into the sanitary sewer system pursuant to a permit (or combinations of various treatment methods). Contaminants removed from the groundwater would then be disposed of at a licensed off-site disposal facility.

B. The Alternative Path: "Risk-Based" Regulatory Closure Without Remediation

With the development and acceptance of the analysis in HHRAs, environmental agencies became willing to issue regulatory closure based on the findings of the HHRA – even if cleanup levels had not actually been achieved. This risk-based approach was available when an applicant could show that both carcinogenic and non-carcinogenic risks were below standards that are generally considered acceptable to the scientific community. Specifically, closure was typically available when the results of an HHRA showed an "Individual Lifetime Excess Cancer Risk" at or below 1 in 1 million for residential use or 1 in 100,000 for commercial/industrial use, paired with a non-carcinogenic "Hazard Index" of 1.0 or lower.

These findings need to be memorialized in an HHRA, which then has to be reviewed and approved by the applicable governmental agency. Such review and approval, as well as the initial HHRA preparation, necessitates the involvement of a toxicologist certified as a Diplomate of the American Board of Toxicology. Although DTSC has certified toxicologists on staff, it is very rare for any CUPAs to have staff toxicologists, and neither do any of the Regional Water Quality Control Boards. Therefore, in these instances, a Regional Board or a CUPA must submit the HHRA to the state of California Office of Environmental Health Hazard Assessment ("OEHHA") for review and approval. The timing for obtaining approval from OEHHA varies widely and may range from as few as three weeks in unique circumstances to as many as eight weeks, depending on the agency's backlog. Further, if the HHRA has incorporated unreasonable assumptions, or conclusions that are not squarely backed by relevant scientific evidence, OEHHA will return comments that then need to be specifically addressed in detail. The comment and response process could add several weeks to the schedule.

A variation of this type of risk-dependent regulatory closure approach has even been formally adopted by the State of California. In August of 2012, the State of California Water Resources Control Board established the Low-Threat Closure Policy primarily to conserve state resources that are used for mitigating contamination (*i.e.*, "judicious application of available resources").[7] The policy, however, applies only to petroleum underground storage tank sites subject to Chapter 6.7 of Division 20 of the Health and Safety Code and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations Essentially, the low-threat closure policy allows regulatory closure to be issued for sites with petroleum hydrocarbon contamination above traditional cleanup levels based on satisfaction of media-specific criteria applicable to soil, soil vapor, and groundwater and satisfaction of related requirements such as development of a conceptual site model and evaluation of soil vapor intrusion concerns.

HUMAN HEALTH RISK MITIGATION MEASURES AS A WAY OF ADDRESSING RESIDUAL CONTAMINATION

Traditionally, the regulatory agencies' emphasis was on mandating the cleanup of soil and groundwater. Human health risks arising from subsurface contamination were evaluated in the context of dermal and ingestion exposure pathways (*i.e.*, absorption of chemicals through the skin or by being ingested). Over the last ten to fifteen years, though, the scientific and regulatory communities began to realize that soil and groundwater contamination can off-gas, migrate upwards in soil vapor into indoor air in overlying structures, and be inhaled by building occupants. As a result, remediation of soil vapor contamination became essential, and the required inclusion of SVE as part of the overall remediation became typical. In addition to the remedial aspect, human health risk mitigation measures were developed as an additional protection against soil vapor intruding into indoor air. In certain situations, mitigation measures – such as soil vapor barriers – were allowed to alleviate the need for soil vapor remediation completely. The success of human health risk mitigation measures, however, varies widely and can be difficult to monitor. Further, mitigation measures do not address the underlying contamination source. Therefore, any failure of the

mitigation systems can result in immediate exposure to the underlying contamination, trigger the need to re-open a case with a regulatory agency, and expose the landowner to significant potential toxic tort liability. As discussed below, the available human health risk mitigation measures depend on whether construction has been completed.

A. Human Health Risk Mitigation at Properties with Existing Construction

For existing buildings, "subslab depressurization" systems may be installed. This mitigation measure involves placing piping placed below building foundations, ideally in gravel. The purpose of depressurization is to create a negative pressure pathway so that there is a path of least resistance for the vapors to be vented out from beneath the buildings rather than migrating upwards through the building slab and into indoor air. Passive venting systems are often sufficient for preventing soil vapor intrusion. Depending on the magnitude of contamination, however, active venting (*i.e.*, the use of fans to create the negative pressure environment) is occasionally necessary.

Regulatory agencies have also sometimes required that a sealant be applied to the top of the concrete slab within the occupied spaces. With varying degrees of success, the sealant may inhibit or block vapors from intruding into indoor air. Another mitigation measure is "HVAC optimization" or building "over-pressurization," which involves using the heating, ventilation and air conditioning systems to create higher pressure within the occupied space than exists below the foundation so that the vapors are ostensibly blocked from entering. This method is only effective when the HVAC systems are running extensively, the result of which may greatly increase electrical costs over time. Further, over-pressurization and sealant measures are typically accepted only when implemented in connection with other mitigation measures and are rarely considered sufficient on their own. The success of any of these mitigation measures can typically only be confirmed via indoor air sampling. As discussed below, indoor air sampling comes with its own set of uncertainties.

B. Human Health Risk Mitigation on a Pre-Construction Basis

For buildings yet to be constructed, the default human health risk mitigation measure is the installation of soil vapor barriers. Vapor barriers consist of impermeable materials that are typically spray-applied, over a bed of gravel, usually to a thickness of approximately eight inches or more. Building foundations are then subsequently poured over the vapor barrier. Frequently, subslab piping is installed in gravel placed beneath the foundation in order to prevent accumulation of vapors beneath the soil vapor barrier. This secondary measure is particularly important to account for instances where the vapor barriers fail. In order to test the efficacy of the vapor barriers, the soil vapor barriers are "smoke tested" prior to the building foundations being poured, which means channeling significant amounts of smoke or colored gas beneath the vapor barrier, finding locations where smoke leaks indicate that the vapor barrier lacks integrity, and then sealing those locations. Between the time of the smoke test and the pouring of the foundation, however, additional construction work may take place, such as utility installation-related activities, which may pierce the vapor barrier. In other circumstances, in connection with pouring the foundation, additional ruptures of the vapor barrier may occur.

Ruptures to vapor barriers are especially problematic because there may be absolutely no awareness that the vapor barrier has been compromised. Consequently, vapor barriers may be failing for years – allowing hazardous substances in soil vapor to intrude into indoor air – before the lack of integrity is realized. Deficiencies in the vapor barrier are usually only discovered as a result of indoor air testing, which the regulatory agencies have not typically required at buildings that have vapor barriers. Even if the deficiency is discovered, though, it may be extremely difficult and in certain instances impossible to locate and/or address the location(s) at which the vapor barriers are failing. In this event, a blower may need to be added to the subslab venting system (if one was installed) to convert the venting system from a passive system to an active one. In addition, sealant may need to be applied (or re-applied) on top of the foundation, HVAC systems may need to be optimized to increase pressure within tenant spaces and to increase the air exchange rate, and other agency-specified measures may need to be implemented. These requirements may need to be memorialized through a deed restriction recorded on title to the property.

There are hundreds of sites throughout California alone where vapor barriers have served as the basis for regulatory closure, so the possible extent of vapor barrier failures has yet to be determined. As regulatory agencies transition to requiring that indoor air sampling be completed as a condition to obtaining regulatory closure (discussed below), it is expected that the results will show that vapor barriers at numerous sites are failing and resulting in elevated human health risks. The results of this discovery will likely include: (1) landowners incurring significant costs to address failed vapor barriers (*e.g.*, by incorporating alternative human health risk mitigation measures); (2) extreme strains to landlord-tenant relationships, which may include the Landlord's breach of hazardous material-

and human health risk-related provisions of the lease agreement(s), which may give rise to liability exposure for considerable damages; (3) renewed involvement on the part of regulatory agencies, which agencies may re-open the regulatory case for the property and trigger numerous additional sampling requirements; and (4) significant toxic tort litigation. Separately and in concert, these factors may result in an economic and public relations nightmare for landowners and landlords.

INCORPORATING INDOOR AIR SAMPLING AS PART OF HUMAN HEALTH RISK ASSESSMENT ALSO INCREASES UNCERTAINTY AND DELAYS THE NFA LETTER

Currently, for sites with contaminated soil vapor and a vapor intrusion pathway into air within existing buildings, the results of an HHRA may indicate that mitigation measures are necessary in order to reduce the Incremental Lifetime Excess Cancer Risk to levels deemed acceptable by the scientific community, which range from 1 in 1 million for residential use to 1 in 100,000 for commercial use. Alternatively, the HHRA may confirm that risks are sufficiently low that no mitigation is necessary and that no further assessment is necessary to further define the extent of environmental impacts.

As stated above, the default HHRA standard methodology includes analysis embodied in the J&E Model. Since 1991, the J&E Model has been revised and new analyses have been incorporated. Nevertheless, the regulatory environment has not typically required actual sampling of indoor air as part of the HHRA. Instead, an evaluation of subslab soil vapor has generally been considered adequate. There are strong indications, however, that this is about to change and that regulatory agencies may soon require that the HHRA consider the results of indoor air sampling as a condition to granting regulatory closure, not as the exception. When this occurs, it will likely no longer be possible to achieve regulatory closure without analyzing and addressing contaminant levels in indoor air.

The predominant driving force for the change is the United States Environmental Protection Agency's pending finalization of its Draft Subsurface Vapor Intrusion Guidance. EPA issued its first draft twelve years ago, in 2002, to govern the investigation of vapor intrusion at Resource Conservation and Recovery Act corrective action sites, Comprehensive Environmental Response, Compensation and Liability Act sites, and "Brownfield" sites where the remediation would leave residual contaminant concentrations in soil vapor.[8] In April of 2013, EPA issued revised draft guidance for external review, indicating that the final draft is imminent.[9] Based on discussions with various regulators and numerous environmental professionals, the current projection is that the final version of the Guidance may be issued as soon as the third quarter of 2015, but that timing projection is still subject to much uncertainty.

In connection with issuing the final version of the Guidance, EPA is requiring five-year reviews of the protectiveness of previously-completed remedial or removal actions.[10] As part of its review, EPA is gathering data on existing and potential vapor intrusion pathways, evaluating the effectiveness of selected remedies with respect to the potential exposure pathways at issue, and documenting the issues in follow-up recommendations and actions. The result will likely be EPA reconsidering the sufficiency of remedial actions previously deemed to be protective and, in some instances, re-opening cases that had been closed in the past based on the results of the HHRA. Based on communications between the EPA and environmental consulting firms, this process appears to have already started.

In light of the potential for EPA to re-open previously-closed sites, and statements from EPA's "Review of the Draft 2002 Subsurface Vapor Intrusion Guidance" (August 2010), which emphasized the value of more rapid and direct assessment of indoor air quality, California regulators also appear poised to institute major changes to their HHRA-related requirements. Discussions with DTSC and the California Regional Water Quality Control Boards indicate that state agencies would readily follow EPA requirements to sample and analyze indoor air, and also that the HHRA model would need to change in order to incorporate the results of indoor air sampling – such that contaminant concentrations in indoor air may prevent regulatory closure at certain sites.

In fact, the DTSC has already required indoor air sampling at various sites in California, regardless of the findings of the HHRA. Instances of such requirements include sites where PCE has been released to soil and/or groundwater and is off-gassing into soil vapor. As of yet, there appear to be no cases where DTSC has taken the next step and required that the air sampling results actually be incorporated into the HHRA. The bigger issue, however, is that regulatory closure without satisfying DTSC's requirements, in the form of air sampling, has been barred under certain circumstances. This is likely a harbinger of pending significant shifts in the requirements for achieving regulatory closure at a large number of sites.

For parties that have become accustomed to obtaining No Further Action status based on risk-based soil and groundwater closure, this shift is a game-changer. First, for sites that might have otherwise sailed through

the regulatory closure process with no requirements for investigation and analysis beyond the soil vapor sampling/HHRA phase, indoor air sampling may soon be required. The results of indoor air sampling could indicate that the site is ineligible for regulatory closure without significant mitigation measures and/or active remediation. Second, indoor air sampling results may indicate that the extent of required mitigation measures is far higher than previously anticipated. Third, for sites previously granted risk-based closure, the regulatory agency may require that the pre-existing HHRA be revised to incorporate the results of indoor air sampling. Especially for sites that barely achieved risk-based regulatory closure based on soil vapor sampling results, a new HHRA could show that mitigation measures and/or remediation is necessary. Consequently, the regulatory agency could re-open the case and require extensive investigation, mitigation, remediation and, effectively, the expenditure of vast amounts of money.

This development also raises many additional questions. For example, will the bar change with respect to achieving regulatory closure at an undeveloped site, where indoor air cannot yet be sampled? Further, assuming identical contaminant concentrations in soil vapor at an undeveloped site and one with existing buildings, could the bar to achieving regulatory closure for the latter be higher, based on the results of indoor air sampling? Also, for an undeveloped site, will indoor air sampling be required on a post-construction basis, so that the regulatory agency would then evaluate whether to re-open the case? Although the preceding questions cannot yet be answered, there seems to be certainty regarding their impact: the road to regulatory closure will become longer, more fraught with multiple new obstacles, and more expensive to travel.

INDOOR AIR SAMPLING CAN LEAD TO FALSE POSITIVES THAT AFFECT THE EXTENT OF REMEDIATION REQUIRED FOR OBTAINING REGULATORY CLOSURE

The particularly problematic element in the regulatory responses anticipated above is the disconnect between (i) the effects of soil, soil vapor and groundwater contamination on indoor air and (ii) the contaminant levels that are actually detected in indoor air. Specifically, all kinds of chemicals may be present in indoor air as the result of sources completely unrelated to the subsurface contamination. This is especially true for new construction, where construction materials (*e.g.*, carpet adhesives, paints, varnishes, etc.) are still off-gassing and potentially impacting indoor air quality to a significant degree. As an example, consider a former industrial site where historical releases of the degreasing agent trichloroethylene (referred to commonly as "TCE") have impacted soil vapor. Whether or not TCE-impacted soil vapor is intruding into indoor air at elevated concentrations, the results of indoor air sampling may indicate high levels of TCE in air because TCE concentrations may be emanating from other sources. TCE is present in certain brake cleaners, liquid wrench lubricants, spray polish, spot removers, and various adhesives. Clay sealants may also contain high concentrations of TCE, and other sources may be even more innocuous. For example, standard dishwashing liquids may contain significant concentrations of volatile organic compounds that include 1,4-Dioxane, naphthalene, ethanol, and benzene. Shaving cream may contain VOCs such as carbon disulfide, n-hexane, benzene, and petroleum hydrocarbons.

In a regulatory closure scenario, unless the responsible party can demonstrate to the regulatory agency the causal gap between subsurface chemical impacts and elevated chemical concentrations in indoor air, the owner of the site (or other responsibility party, as the case may be) may end up incurring significant expenses to investigate and address the elevated chemical concentrations in indoor air regardless of whether subsurface conditions have any significant role in causing them – at a cost that could amount to hundreds of thousands of dollars. Convincing the regulatory agency that no further assessment, remediation and/or mitigation is necessary to address the chemical concentrations in indoor air will likely be a highly technical, uphill battle.

Also, returning to the example of TCE, the regulatory agency could take the position that even if the TCE contamination is not the *predominant* cause of the elevated concentrations of TCE in indoor air, remediation of the subsurface impacts should be performed because it would reduce TCE concentrations in indoor air below regulatory guidance levels (*e.g.*, United States Regional Screening Levels). This is akin to the tail wagging the dog. Further, even if the regulatory agency is in fact persuaded that no further action is necessary regarding subsurface impacts, the process is unlikely to end there because now the agency is aware of elevated TCE concentrations in indoor air that need to be addressed, regardless of the source. Highly experienced and specialized environmental counsel and environmental consultants can make a huge difference when it comes to navigating what appears bound to be a very arcane regulatory process that could result in significant expenditures.

RE-CONSIDERATION OF RISK-BASED CLOSURE

Once the results of indoor air sampling are required to be included within an HHRA, landowners and developers should be aware of the distinct potential that California regulatory agencies will be aggressively re-evaluating previously-closed cases (especially

recently-closed sites) and re-opening any sites that were a close call with respect to achieving no further action status. This implicates a huge uncertainty in regard to required response actions because of the potential disconnect between subsurface conditions and contaminant levels in indoor air. Further, for sites that were already developed with buildings with no vapor barriers, it raises crucial questions regarding what could be required in lieu of vapor barriers.

THE NET EFFECT

The adoption of the ASTM E 1527-13 standard and pending changes in policy at EPA (and, subsequently, DTSC and the Regional Water Quality Control Boards) mean that much more stringent requirements for evaluating potential soil vapor impacts are pending. As the road to achieving regulatory closure changes underfoot, the need to engage highly-qualified environmental consultants and skillful, experienced environmental counsel becomes more acute than ever before.

Of particular importance is being able to demonstrate to the regulatory agencies the quantifiable separation between impacts from subsurface conditions and those in indoor air. Although the regulatory response is uncertain, including with respect to the mitigation that could be required regardless of proving that distinction, experienced counsel and consultants can make the difference between a regulatory closure process that lags, flags and continues – and obtaining a No Further Action letter with timing and costs that enable your project to pencil out. The amount of analysis necessary to arrive at that conclusion, however, will increase at least proportionately with the regulatory standards for granting regulatory closure. And the climb to regulatory closure will become much steeper.

ENDNOTES

* Keith Walker is an environmental attorney at Cox, Castle & Nicholson LLP. He specializes in brownfield redevelopment, regulatory compliance for environmentally-impacted sites, environmental business transactions, negotiation of environmental insurance policies and other environmental risk mitigation mechanisms, and cost recovery litigation.

1. 40 CFR 312 *et seq*.
2. 42 U.S.C. § 107(r).
3. Amendment to Standards and Practices for All Appropriate Inquiries, 79 Fed. Reg. 60087 (October 6, 2014).
4. American Society of Testing and Materials E 1527-13 § 3.2.56 (see also Note 4) (2013).
5. Johnson-Ettinger Model (Johnson and Ettinger, 1991).
6. Cal. Health & Safety Code §§ 25404-25404.9, 101480.
7. State Water Resources Control Board, California Environmental Protection Agency, Low-Threat Underground Storage Tank Case Closure Policy (August 17, 2012).
8. United States Environmental Protection Agency, OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance) (2002).
9. United States Environmental Protection Agency, OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air (*External Review Draft*) (2013).
10. Office of Emergency and Remedial Response, United States Environmental Protection Agency, Comprehensive Five-Year Review Guidance (2001).