BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	R11-9
PROPOSED AMENDMENTS TO	)	(Rulemaking-Land)
TIERED APPROACH TO CORRECTIVE	)	
ACTION OBJECTIVES	)	
(35 Ill. Adm. Code 742)	)	
	)	

PC#3

ORIGINAL

PRE-FIRST NOTICE COMMENTS OF RAYMOND T. REOTT

Raymond T. Reott respectively submits these pre-first notice comments in the indoor vapor intrusion rulemaking before the Illinois Pollution Control Board ("Board") to evaluate a proposed amendment to the Tiered Approach To Corrective Action Objectives (35 Ill. Adm. Code. 742) ("TACO"). As was requested by the Board at one of the 2011 hearings, I have included as an attachment the testimony I submitted in the 2009 vapor intrusion rulemaking as well as some of the other materials submitted at that time to add them to the record in this proceeding. These comments will rely upon those materials as well as other materials already submitted in connection with this rulemaking. My background and qualifications are set forth in my attached testimony from the 2009 rulemaking.

The fundamental question for the Board is whether to proceed now to adopt amendments to TACO to add an indoor air pathway for subsurface contaminants or to wait until later next year when USEPA has promised that it will issue new guidance which will help clarify the as yet fuzzy science on how to best evaluate this new exposure pathway. As explained below, there are still several fundamental problems with the use of the Johnson & Ettinger Model ("J & E Model") Illinois EPA proposes here. As previously acknowledged by USEPA and other researchers, simply put, the model does

not successfully calibrate to actual indoor air quality data, thereby failing the first threshold for whether the model should be relied upon for such an important topic in Illinois.

Even if the Board decides to proceed at this time to add an indoor air pathway, there are several enhancements that the Board should consider before it does so. These enhancements will be discussed below in these comments.

Should the Board Act Now to Adopt Outdated Science?

USEPA is preparing final guidance from OSWER that Illinois EPA already acknowledges will be very different from the proposed Johnson & Ettinger model. The comments submitted by the USEPA staffer who is working in this specific area, while not representing the official position of USEPA, make it clear that USEPA is not going to use the Johnson & Ettinger model in its upcoming vapor intrusion guidance. Instead, USEPA has been studying actual homes and comparing the data found in those homes to the subsurface data. This is a very different process then simply using the Johnson & Ettinger model to predict values within home based upon subsurface conditions.

It is very telling that even USEPA does not want to use its own Johnson & Ettinger model as its final approach to assessing indoor air vapor intrusion. As noted in the previous testimony that I submitted in the 2009 vapor intrusion rulemaking which I have attached to this comment, USEPA has been unable calibrate the Johnson & Ettinger model to actual field data at numerous site studies around the country because of the conservative synergistic effects in the assumptions in the model. See 2009 Testimony at page 4 (citing USEPA, September 2005, J. Weaver and F. Tillman, Uncertainty in the

Johnson – Ettinger model for Vapor Intrusion Calculations at p. 31; USEPA, September 2005, F. Tillman and J. Weaver, Review of Recent Research on Vapor Intrusion, pp. 17-23 (comparing actual field data to model predictions at several sites). Unlike Illinois EPA's proposal here, USEPA has specifically stated that the model should not be used for underground storage tanks sites with petroleum contamination. (Uncertainty at p.1; User Guide for Evaluating Subsurface Vapor Intrusion in Buildings) (USEPA 2004) at p.67 ("EPA is not recommending that the J & E model be used for sites contaminated with petroleum products if the products were derived from underground storage tanks.")

In essence, the proposed rule would codify an outdated approach to assessing indoor air quality already abandoned by its own agency. There is no reason for Illinois to take a step backwards in the ongoing efforts to understand such a complex regulatory topic. There is no emergency here requiring adoption of the rule at this time. No information requiring an immediate response has been submitted to the Board in connection with this rulemaking. Even in the record for the 2009 rulemaking, there was scant evidence of any actual homes in Illinois with ongoing indoor air quality problems from subsurface contamination other than those driven by obvious problems (such as the pool of free product below Hartford, Illinois) which already will be addressed by other aspects of the TACO program. In short, rather than act prematurely, the Board should wait for USEPA to complete its pending guidance to evaluate a more complete record.

BCT Operations and NFR Letters

In general, as is appropriate, the failure to maintain any required engineered barrier is grounds for avoiding an NFR letter. For Building Control Technologies (BCT), the issue is somewhat more complex because some BCT's are not passive. The current

engineered barriers in TACO are largely and if not entirely passive (clean soil layers, buildings, parking lots of concrete or asphalt, paved roadways, etc.) but some of the new BCTs that will be used for the indoor air quality pathway exclusion require ongoing mechanical operations. A venting system which uses a ongoing blower will require electricity as well intermittent maintenance. The rules need to reflect what will happen when the system shuts down for a measureable period.

How long is too long before the NFR letter is voided? What sorts of notice would be required if the building's BCT is shutdown. We have seen this summer already in Chicago power outages lasting for nearly a week in some communities as a result of recent storm activity. Some period of time should be built in to the regulation to allow for a maintenance or malfunction incident to continue without having an effect on the NFR letter.

I suggest allowing a seven day period for re-establishing the BCT without triggering any impact on the NFR letter. After seven days, in order to maintain the NFR letter, the responsible party should be required to notify Illinois EPA of the bypass/malfunction/upset/maintenance event. The notice would enable Illinois EPA to decide whether to take any immediate action. The notice provision would create a safe harbor, however, for the responsible party to know that its NFR letter has not been voided as long it provides the notice and then takes appropriate action in response to any agency's concerns.

Indoor Air Sampling

The Illinois has curiously relegated indoor air sampling to a minor role in a rulemaking designed to assess indoor air quality. Instead, Illinois is advocating an

approach that relies upon modeling from subsurface groundwater and soil conditions or subsurface soil vapor conditions to the levels of contamination expected to exist below the slab of a building then to the amount of contamination expected to migrate through cracks in the slab and then to the ultimate effects of that migration on the indoor air quality in a building of generic size and volume. Each step in that modeling chain requires numerous assumptions which cumulatively are why the model does not calibrate to real world conditions.

Negative indoor air quality results under representative conditions should always trump the subsurface data whose relevance is determined only by the use of models of questionable reliability. I share Illinois EPA's concerns that positive indoor air sampling does not always relate to contamination from subsurface conditions. However, this so called problem of false positives does not undermine the utility of using negative indoor air quality data showing the absence of the contaminants to establish that in this particular setting, the exposure pathway is not complete. Any proposed indoor air quality rule should include a provision that a representative negative indoor air sample should prevail over the predicted value based on sampling other media outside the living space.

As the agency witnesses have recognized, other states have put a "strong emphasis on that approach" of using indoor air sampling. These states already have far more experience than Illinois with addressing this issue. While several of them have geology that is more conducive to indoor air problems (New Jersey, Minnesota, California), that merely explains why they are so interested in the topic as to have been early adopters of regulatory programs addressing indoor air quality. Here, in Illinois, where our geology is not conducive to having indoor air quality problems from

subsurface soil and groundwater contamination, there is even more reason to use indoor air sampling. Natural geologic conditions in most of Illinois do not favor the transmission of contaminants from subsurface medias to the indoor living space.

Basement Scenarios and Building Size

As noted during the testimony submitted in the 2009 rulemaking, the proposed model makes very conservative assumptions about the square footage for housing and commercial units. Michigan assessed the average size of a Midwest single family home as being 2,095 feet in 1995. See attached 2009 post hearing comments at page 2. The percentage of homes under 1,200 feet, still larger than the number chosen by Illinois EPA, is only 11%. Illinois EPA has not adequately explained the basis for using the number which it has chosen or tied that number to what would be expected to exist in Illinois.

The agency has acknowledged in its testimony that the presence or absence of a basement is a significant factor effecting the likelihood that contamination in the subsurface would effect residents in the living space of the home. The proposed rule has Tier 1 tables based on an assumption that the structure has no basement or crawlspace. We know, however, that a basement is the most common structure scenario. When Michigan was evaluating the same issue, it determined that 90% of the built homes in the Midwest between 1975 and 1995 were built with basements or crawlspaces.

The Board ought to design vapor intrusion rules that fit the most common scenario. The presence or absence of a basement or crawlspace has a significant impact on the likely risk to the occupants of the structure. At a minimum, the rules ought to be amended to include a table that would be applicable to a home with a basement and its

correspondingly more typical square footage. In this way, the Tier 1 tables would provide for the most common scenario rather than be based upon the far less likely scenario. It is more cost effective to have a Tier 1 table that fits the most common scenario.

Multiply Lines of Evidence for Table I

Illinois EPA's proposal limits the use of Table I to those instances where there are both "soil gas and groundwater data from beneath the property". One of the agency witnesses testified that if there is no groundwater data because groundwater is not found or is not available at a reasonable depth, then that user cannot use Table I and its less conservative values. The absence of groundwater at a reasonable depth is itself evidence that there is little risk of vapor intrusion from groundwater. If groundwater is not found at a depth within 15 feet of the structure, then there is less reason to insist upon multiple lines of evidence to use Table I.

Impact on Site Investigation Costs

In its testimony, Illinois EPA commented that acquiring groundwater data to use Table I would not likely impose a significant cost on the regulated community. I believe that this is contrary to actual experience. This proposed regulation will have its most significant impact in communities that have adopted the model Illinois EPA groundwater use ordinance. Most of the Illinois population lives in such a community and the number of communities adopting the model groundwater restrictions grows each year. In those locations, even a thorough Phase II investigation often does not review groundwater conditions because you can use the ordinance as an institutional control to exclude that pathway. While those smaller subset of sites that enroll in the Illinois EPA TACO

program may gather groundwater data as part of the satisfying the burdens to get an NFR letter, those sites represent nearly the tip of much larger iceberg that use the TACO Tier 1 tables daily to manage environmental risks without regard to or participation in an Illinois EPA NFR program. The Illinois EPA proposal will force many more sites, particularly in the City of Chicago, to collect expensive unnecessary groundwater data. The Board needs to set a vapor intrusion system that works not only within the context of the Illinois EPA administered TACO program but also generally for the citizens of Illinois.

The General Assembly has previously directed that the Board is to "develop a risk based cleanup objective system based upon the risk posed by contaminated beside the human health". 415 ILCS 5/58 (1) (See also procedural history, p.1, April 17, 1997 opinion and order of the Board, IPCB Rulemaking R97-12 (a); August 6, 2008 statement reasons, p.1 IPCB Rulemaking R09-9). Overly conservative Tier 1 values have an impact far beyond the number of sites processed by the Illinois EPA in its programs. For every site that participates in an agency supervised cleanup process, there are tens if not hundreds of sites that are evaluated and remediate based upon those Tier 1 numbers without any agency involvement. The TACO system works well in particular because it is so predictable that private parties can apply it in a transaction context without requiring agency oversight. For this reason, overly conservative Tier 1 values that do not reflect actual risk to people (as directed by the General Assembly) create costs which simply cannot be addressed by having the parties resort to more expensive Tier 2 and Tier 2 analysis. As the agency has acknowledged in its testimony here, Tier 3 analysis in the TACO program is relatively rare. The expense of doing the Tier 3 analysis limits its

utility and it is rare in part because the remainder of the TACO system functions well enough that parties do not need to use the Tier 3 process.

The agency has provided no assessment of the costs and benefits of this proposed regulation. The only testimony on this topic is that of Brian Martin who estimated that a soil gas survey would cost $20,000 per site. This is a significant cost that will have adverse impact on the ability to develop some Brownfield sites in particular like former gas stations and former dry cleaners where the contaminants in question are volatile chemicals subject to the indoor air quality pathway. The need to investigate groundwater in communities with use restrictions would add even more costs. Thus, it is imperative that the Board adopt a proposal which has sensible Tier 1 values designed to make those additional costs necessary at the smallest number of sites.

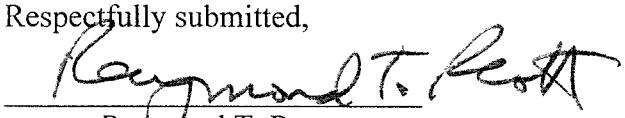
The agency's proposal is a boon for consultants and laboratories but not for the people of Illinois. It will require much more expensive investigations in terms of installation of groundwater wells and soil vapor sampling that are not routinely conducted at the brownfield sites in Illinois.

Representative Soil Type

In this rulemaking, Illinois EPA has accepted the suggestion which I made in the 2009 rulemaking that it uses values consistent with Illinois' most common soil for FOC and water filled soil porosity. While I applaud the Illinois EPA's willingness to use what it now acknowledges as a the most representative Illinois soil conditions, if this rulemaking proceeds and the Board adopts this position, it should also open another rulemaking to review the impact of that choice on the rest of the TACO Tier 1 values. Illinois should have a consistent approach. If loam is a typical soil and suitable for

assessing indoor air quality, then it should be the typical soil suitable for assessing the rest of the TACO program. There is no reason to have default FOC and water filled soil porosity values that are different for the two different aspects of the TACO system.

Respectfully submitted,



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July 13, 2011

STATE OF ILLINOIS)
)
COUNTY OF COOK)

PROOF OF SERVICE

I, the undersigned, on oath state that I have served the attached Pre-First Notice Comments upon the persons to whom they are directed, by placing a copy of each on recycled paper in an envelope addressed to:

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by mailing them (First Class Mail) from Chicago, Illinois on July 13, 2011, with sufficient postage.

Raymond T. Rett

		2011, MAILBOX RULE DOES NOT APPLY; prefiling deadlines for second hering may be set later
12/7/2010	DCEO / Sec. of State	*Letter from DCEO stating they are unable to undertake an economic impact study
12/1/2010	Other	*Letter to Director Ribley of DCEO Requesting Economic Impact Study
12/1/2010	Motion	Agency's Motion for Leave from Filing Requirement
11/22/2010	Other	*Electronic version of Proposed Amendments submited by the IEPA (see Clerk's Office)
11/18/2010	Order	Order of the Board by T. E. Johnson: Accept rulemaking proposal for hearing
11/18/2010	Appearance	Appearance of Alec M. Davis for Illinois Environmental Regulatory Group (electronic filing)
11/9/2010	Initial Filing	Proposed Amendments (< 4MB, 172 Pages)
11/9/2010	Initial Filing	Motion for Acceptance; Appearance of Kimberly A. Geving; Certification of Origination; Statement of Reasons; and List of Studies and Reports Used in Regulatory Development

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER:	)	
	)	R09-9
PROPOSED AMENDMENTS TO	)	(Rulemaking-Land)
TIERED APPROACH TO CORRECTIVE	)	
ACTION OBJECTIVES	)	
(35 Ill. Adm. Code 742)	)	
	)	

TESTIMONY OF RAYMOND T. REOTT

I, Raymond T. Reott, being first duly sworn, submit the following testimony in the above rulemaking.

Background

I have been an environmental lawyer in Illinois for close to 30 years. I graduated from the University of Chicago Law School cum laude in 1980 where I also served on the law review. I thereafter clerked for Judge Richard Cudahy of the United States Court of Appeals for the Seventh Circuit. I then joined Jenner & Block where I was made a partner in 1987. I was a partner at Jenner & Block until 2002 when I left to found my own firm.

My practice is national in scope and includes advising clients about cleanup related issues across the country. As a result, I am familiar with the programs in place in several other states as well as the Illinois programs that use the Tiered Approach to Corrective Action Objectives ("TACO") regulations that are the subject of this rulemaking.

With regard to those rules, I was an active participant in the original TACO rulemaking. I was one of two witnesses to testify in opposition to the Illinois EPA's original 1994 TACO proposal which the Board rejected. I also testified two additional times in the TACO rulemaking before the Board ultimately adopted the TACO rules with the improvements added by the Illinois EPA in its second and third proposals.

At the time of their adoption, the Illinois TACO regulations represented the most advanced thinking on this topic being employed in any of the 50 states. Since that time, Illinois has reaped the benefit of having a cleanup system focused on the real risk to people present on a property as opposed to more theoretical concerns. The TACO rules have worked well because they are a model of predictability, flexibility, and can be applied in a timely fashion to get a rational evaluation of the actual risk posed by contamination found on a given piece of property.

This success obviously did not occur by accident. The General Assembly had directed the Illinois EPA and the Board to develop a risk-based cleanup objective system based upon the risks posed by contaminated sites to human health. (415 ILCS 5/58 (1)) (See also Procedural History, p.1, April 17, 1997 Opinion & Order of the Board, IPCB

EXHIBIT
A

Rulemaking R97-12(A); August 6, 2008 Statement of Reasons, p.1, IPCB Rulemaking R09-9).

The present TACO system has a fairly conservative set of Tier 1 values for contaminants of concern. The system also allows for various adjustments to those conservative values by excluding pathways where engineered barriers and institutional controls render a particular pathway unlikely to pose a risk to human health or by recalculation of the cleanup standards using more site specific data. In addition, although costly, responsible parties can use more site specific data to develop alternative Tier 2 or Tier 3 remedial objectives.

As in 1994, however, in this rulemaking, the Illinois EPA has proposed changes to the Tier 1 values that are so conservative that the changes will greatly increase the costs experienced by property owners, municipalities, and others across Illinois.

Overly conservative Tier 1 values have an impact far beyond the number of sites processed by the Illinois EPA that used those values. For every site that participates in an agency supervised cleanup process, there are literally tens if not hundreds of sites that are evaluated and remediated based upon those Tier 1 numbers without any agency involvement. The TACO system works well in particular because it is so predictable that private parties can apply it in a transactional context without requiring agency oversight. Thus, while Illinois has issued over 2,600 NFR letters since 1996 based upon the TACO values, far more sites have been remediated and evaluated based upon those numbers without any agency involvement.

For this reason, overly conservative Tier 1 values that do not reflect actual risk to people (as directed by the General Assembly) create costs which cannot be addressed simply by having parties resort to Tier 2 or Tier 3 analysis. There are additional costs simply to do the Tier 2 or Tier 3 analysis. More importantly, however, the ambiguities in the agency's proposal for how to do that analysis in a soil gas/indoor inhalation context will make it unfortunately necessary that more and more sites enroll in state programs to develop a reliable analysis of the actual risk posed by contamination at the site.

Impact of the Proposed Tier 1 Standards

I have prepared a series of charts that are attached that help illustrate the significant impact of the proposed indoor inhalation standards. Although the Illinois proposal focuses on 59 volatile chemicals, those chemicals include the most commonly encountered chemicals which pose significant cleanup issues at sites in Illinois. These are the chemicals present in leaking from underground storage tanks at gas stations (benzene, ethylbenzene, toluene, xylene and MTBE), and the types of chlorinated solvents found at many industrial sites, as well as typical dry cleaner remediation sites. Finally, the agency's proposal would change the standards for mercury and naphthalene which are found at a variety of different types of sites.

In the present TACO regulations, if all of the pathways are appropriately invoked for the site, the soil cleanup standards for most of the common contaminants are usually determined by the soil migration to groundwater component. Generally, these values are the lowest of the various pathways and will drive soil cleanup decisions for the site.

For most of the Illinois population, however, and all of its large urban areas, the relevant communities have long ago adopted ordinances approved by Illinois EPA that prohibit the use of groundwater for drinking water purposes. Thus, in Cook County, Springfield, Peoria, Rockford, Champaign, Urbana, Naperville, Aurora, and other urban areas across the state, the migration to groundwater pathway does not need to be considered because of the use of an approved local municipal ordinance as an institutional control. In these circumstances, the appropriate cleanup standard for most sites for soils are substantially different. While it is difficult to generalize, the soil cleanup standards are controlled by the lowest of either the ingestion or outdoor inhalation pathway that would be appropriate for the site given the location of the contamination. In these large urban settings, where many contamination problems are found, the Illinois EPA's proposal will create a roughly ten fold increase in the severity of the residential cleanup standards.

As you can see from the attached exhibits, the soil cleanup standards for benzene currently are 12mg/kg for ingestion and 0.8 mg/kg for outdoor inhalation. Under the proposal, the new residential soil standard for benzene for indoor inhalation is 0.069 mg/kg, a 12 fold increase in severity. In addition, industrial or commercial soil standards also increase although generally by lower amounts. For example, the current standards for toluene are 160,000 mg/kg for ingestion and 580 mg/kg for outdoor inhalation. The proposed standards require 240 mg/kg as the soil objective. Because the Illinois EPA's proposal relates to the class of compounds that are volatile in nature, the impact will be felt by leaking underground storage tanks sites, dry cleaners, industrial solvent users, and any sites with naphthalene or mercury as problem contaminants.

For these communities with groundwater ordinances, there are an even more significant difference in the groundwater standards. At these sites, the current groundwater standards (for problems contained on the site) have little practical effect. Under the proposed regulations, all of these sites will have to meet new groundwater standards even if a local ordinance prohibits use of the groundwater.

For communities which do not have a groundwater ordinance, there are some contaminants where the proposed change in standards will still be significant. For example, the soil value for xylene will go from 200 mg/kg to 63 mg/kg. The value for carbon tetrachloride will go from .071 mg/kg to .021 mg/kg. While less significant than the changes in values for communities with an existing groundwater ordinance, even in the remainder of Illinois, the proposed soil standards will require additional investigation at additional sites.

Of course, if there was a real risk to be addressed, it would be appropriate for the Board to tighten the cleanup standards by whatever degree was necessary. The Board should be mindful, however, that its direction in this area from the General Assembly is to set up a

cleanup standard system that reflects actual risk to human health, not theoretical risk. (415 ILCS 5/58 (1)).

Lack of Model Calibration

The agency's proposal lacks any attempt to correlate the proposed model with the actual conditions found at Illinois sites. I have not reviewed everything that the agency has cited in its testimony but I have not found any example yet of any attempt to correlate the predicted values using the proposed model to actual site conditions in actual buildings in Illinois.

To the contrary, I believe that there is substantial critical analysis available, including from USEPA, demonstrating that the proposed model should not be used in many of the contexts for which the agency is submitting its use to the Board. The proposed model is several orders of magnitude more conservative than the actual field data at numerous site studies around the country because of synergistic effects in the model assumptions. (USEPA, Sept. 2005, J. Weaver and F. Tillman, Uncertainty and the Johnson-Ettinger Model for Vapor Intrusion Calculations, p.31; USEPA, Sept. 2005, F. Tillman and J. Weaver, Review of Recent Research on Vapor Intrusion, pp. 17-23 (Comparing actual field data compared to model predictions at several sites)). Further, the USEPA states that the Johnson and Ettinger model only should be used where "site conditions match the model assumptions using reasonable, site-specific, or regulator-approved input." (USEPA, March 2008, "Brownfield's Technology Primer: Vapor Intrusion Consideration for Redevelopment") (In Illinois EPA's previously submitted reports). The USEPA specifically has stated that the model proposed here should not be used for underground storage tank sites. (Uncertainty at p.1; User Guide for Evaluating Subsurface Vapor Intrusion into Buildings (USEPA 2004) at p. 67 ("EPA is not recommending that the J & E model be used for sites contaminated with petroleum products if the products were derived from Underground Storage Tanks.")).

Consequently, I urge the Board to proceed cautiously with the Illinois EPA's proposal. The proposal requires far more support in the record before the Board and consideration before it or anything similar is adopted. The Board is faced with a significant change to the Illinois cleanup program without an adequate assessment of the likely cost of that adjustment, its potential impact, or the actual ability of the proposed model to predict real world conditions in Illinois.

How to Improve the Proposed Model

The Johnson and Ettinger model could be improved by making it more representative of expected conditions in Illinois. The Illinois EPA already has adjusted the model by altering the temperature value in the model to reflect Illinois. The agency should at least provide the Board with an alternative version of the resulting Tier 1 table that reflects more representative Illinois conditions. In the testimony submitted so far, the agency acknowledges that it has chosen sand as a default geologic strata between the source of

contamination and the building. (Nov. 14, 2008 Pre-Filed Testimony of Gary King, p.9, IPCB Rulemaking R09-9).

Sand is not a typical Illinois soil type. According to the soil bulletin, it represents less than 10% of Illinois soils. (Soils of Illinois, University of Illinois, Bulletin 778 (1984)). We have a state soil, the drummer soil, the most extensive soil in Illinois, that is highly organic and far less permeable than sand. The agency's witnesses already have acknowledged that the carbon content of the soil is a variable on which the model is highly sensitive. (Nov. 14, 2008 Pre-Filed Testimony of Gary King, p.14, IPCB Rulemaking R09-9). Even a modest adjustment to reflect more typical soil types in Illinois would significantly change the proposed Tier 1 cleanup standards. At a minimum, the Illinois EPA should attempt to educate the Board further about what the Tier 1 table would look like in the event that the Board made such a change. Perhaps the state geologist or state soil scientist should be called to testify to help provide the Board with a basis for picking a representative soil type for the purposes of the Tier 1 TACO calculations.

The model makes similarly conservative assumptions about soil porosity and soil water content. The values chosen are not reflective of typical Illinois soils and would appear at first glance to significantly drive the model towards overly conservative conclusions for Tier 1 values.

In related rulemakings, the Board already has recognized the appropriateness of using Illinois specific geologic information to guide cleanup decisions. In the old Part 732 rules related to UST cleanups, the Board specifically endorsed a system where the appropriate cleanup process was driven in large part by the classification of the soils in the now famous Berg map for Illinois. The Berg map illustrated the likelihood of aquifer contamination at various sites across Illinois based upon local soil types. Some portions of the state were in categories requiring less significant cleanup simply because the soil at the sites had typical Illinois high carbon content. For other parts of the state with sandy soils or fracture geology, the risks were perceived to be greater and the Board adopted rules requiring the parties to address the contaminants. A similar approach could be taken here which coordinates the risk of indoor inhalation issues with the actual underlying geology of that portion of Illinois.

The agency's model, as proposed, does not include any adjustment for the depth between the building and the source of contamination. This counter-intuitive decision overlooks the position that this Board already has taken in the TACO rules. In the outdoor inhalation context, the Board already has adopted regulations which provide that contamination more than ten feet below the surface essentially need not be considered if the surficial soils meet the TACO standards. 35 Ill. Adm. Code 742 §1105(c)(3)(C)(iii). As long as the property owner maintains the clean surficial soils above the source of contamination, the property owner may exclude the outdoor inhalation pathway from consideration. 35 Ill. Adm. Code 742 §1105(c)(3)(C)(iii). Why then should the Board adopt a model in which the distance between the source of contamination and the surface

is irrelevant for an indoor inhalation pathway when it already has taken a different position in the TACO rules for the outdoor inhalation pathway?

The Illinois EPA's proposal also is significantly influenced by the agency's assumptions about the size of the typical residential and industrial buildings that might be affected by any indoor inhalation pathway issues. The agency has offered no basis for its assessment of the typical size of a residential structure in Illinois or a typical commercial structure. The sizes chosen, about 1089 square feet (33 ft. x 33 ft. x 8 ft) for residential structure and about 4356 square feet (66 ft. x 66 ft. x 10 ft.) for industrial structures, do not seem to be representative sizes.

For example, the US Census Bureau found the median square footage for housing units in the Chicago Metropolitan area to be 2017 square feet. (American Housing Survey for the Chicago Metropolitan Area in 2003, Table 1-3, www.census.gov/prod/2004pubs/h170-03-22.pdf). Further, this did not include cooperatives or condominiums, which would inevitably increase this number. One of the pre-filed questions states that industrial users tend to have buildings that are 250,000 square feet (500ft x 500ft x 25ft). (Illinois EPA's Responses to Pre-Filed Questions, p.3-4, January 13, 2009, IPCB Rulemaking R09-9). Based on this testimony, the current typical building size for industrial buildings is drastically too small.

How to Establish Compliance

The Illinois EPA has offered a variety of reasons for why the testing for indoor quality is problematic. There are numerous reasons why indoor testing may detect contaminants which have indoor sources unrelated to the subsurface contamination. The agency has acknowledged, however, that indoor testing under representative conditions which finds an absence of the contaminants at levels of concern should be relied upon. (Transcript of Proceedings held on January 27, 2009, pp. 96-96, IPCB Rulemaking R09-9). Indeed, given the overly conservative nature of the model, many property owners will need quickly to test indoor air quality to avoid a variety of tort type claims once they exceed the Tier 1 standards. Negative indoor air tests under representative conditions should be a presently conservative absolute defense to the indoor inhalation pathway as it provides actual data showing the absence of any risk which ought always to trump a theoretical concern driven by a model unproven in Illinois.

Adverse Effect on Building Cost and Energy Efficiency

Overly conservative Tier 1 values also could cause environmental harm. Many of the proposed Building Control Technologies (Illinois EPA's Proposed Amendments, 35 Ill. Adm.Code §§742.1200, 742.1205, 742.1210) will undermine efforts to reduce energy usage. Every building that adds a Building Control Technology will cost more and be less energy efficient, a result that should be avoided unless the Building Control Technology addresses a real risk, not just a projected but overly conservative assessment of risk.

Existing NFR Letters

Finally, there is the whole question of the impact of the proposed rulemaking on the sites which already have obtained NFR letters from Illinois. The TACO program is a mature program operating in largely the same manner for more than a decade. At present, Illinois EPA has issued over 2,600 NFR letters, many of which are in the City of Chicago where the proposed change in standards will have the greatest effect. While the agency maintains that it will not be its practice to reopen those letters in the absence of new information, its response does not explain whether new soil gas data or the evaluation of old data in light of the new standards will itself trigger the reopening of old NFR letters.

More importantly, however, even if the agency does not reopen the NFR letters on its own, the parties in commercial transactions will often do so. Especially in the current lending climate, lenders likely will insist that property buyers supply new NFR letters addressing the indoor inhalation pathway if there is any chance that the pathway poses an additional risk to the lender's collateral. In this way, as properties change hands, they will all be reevaluated and all of the NFR letters involved for those sites will essentially be reopened through new testing, new analysis, and new submissions to Illinois EPA seeking additional NFR letters.

All of this will come at a significant and likely unnecessary cost, driven in the first instance by the overly conservative Tier 1 values. Realistic values would limit the number of sites that would need to be reopened and allow the public and the Illinois EPA to focus their attention on the sites that truly matter.

Conclusion

Indoor inhalation of contaminants from underlining soil and groundwater contamination can be a serious problem. We are all familiar with the travails of the residents of Hartford, Illinois who have lived for years with the effects of gasoline vapors in their homes. This serious problem is atypical, however, and can be readily dealt with by the existing regulatory mechanisms. It does not take a new set of overly rigorous indoor inhalation standards to enable the agency to drive those types of sites towards appropriate risk-based remediation. Here, the Board should adopt only regulations shown to be based on actual risk to human health, consistent with the General Assembly's mandate.

Raymond T. Reott

SUBSCRIBED AND SWORN TO
Before me this 24th day of
February, 2009.

NOTARY PUBLIC

OFFICIAL SEAL
PATRICIA K SCHELLHASE
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES 03/22/11

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER:	)	
	)	R09-9
PROPOSED AMENDMENTS TO	)	(Rulemaking-Land)
TIERED APPROACH TO CORRECTIVE	)	
ACTION OBJECTIVES	)	
(35 Ill. Adm. Code 742)	)	
	)	

POST-HEARING COMMENTS OF RAYMOND T. REOTT

Raymond T. Reott hereby submits the following comments in the above rulemaking. These comments supplement the pre-filed testimony I submitted on February 24, 2009, my March 4, 2009 pre-filed questions with the Illinois EPA's responses dated March 11, 2009, and my testimony at the March 17, 2009 hearing.

Each Assumption's Affect on Values

The Illinois EPA's proposal ultimately leaves the Board in the dark about the impact of the assumptions the agency used to formulate the proposed rule. The Illinois EPA bases its proposal on the USEPA Johnson & Ettinger model and uses the model to create the proposed Tier 1 table values for the new indoor air inhalation exposure pathway. The new Tier 1 values represent a tenfold increase in cleanup levels for communities with approved groundwater use restrictions ordinances, i.e. most of the Illinois population. Even USEPA acknowledges that the Johnson & Ettinger model is so conservative that [illegible] find the predicted levels of contaminants in actual indoor air sampling. [illegible] 2005 [illegible] Weaver and F. Tillman, Uncertainty and the [illegible] Model for Vapor Intrusion Calculations, [illegible] USEPA Sept. 2005 [illegible] and J. Weaver, Review of Recent Research on Vapor Intrusion, [illegible] because the model does not reflect actual attenuation present in [illegible] sites. USEPA [illegible] the Johnson & Ettinger model for UST sites. [illegible]

Because of how the Illinois EPA presents the proposed rule, the impact of any individual [illegible]. For instance, the impact on the proposed Tier 1 table [illegible] assumptions about the fraction of organic carbon in the soil cannot be [illegible]

The Board should choose a more open and informative approach. The Illinois EPA should first submit a Tier 1 table using realistic assumptions from Illinois and then apply a conservative factor to those numbers. Instead of hiding the conservative nature of the numbers, the agency should clearly state its chosen safety factor. The current proposed rule fails to identify the safety factor chosen by the agency and the Board should not adopt it.

Notice Burden

In addition, the Board should be aware of pending House Bill 4021 which would base the Right-to-Know notification requirements on the Tier 1 objectives set in this rulemaking. If HB4021 passes and the Board also enacts this proposed rule with its current Tier 1 objectives, these rules will create a new unnecessary notice burden. An unintended consequence will be to force many more public notifications for an overstated risk. Communities with groundwater ordinances would then be subjected to new Right-to-Know notification requirements about risks that everyone agrees are overstated risks. This Right-to-Know notice burden is another cost of establishing overly conservative Tier 1 values and adopting the current proposed rule.

Negative Indoor Air Samples

The Illinois EPA is not proposing using actual indoor air concentrations because of its concern about false positives. However, at the previous hearings, no witness articulated any reason why representative samples with a negative result were not reliable. Further, other states already have adopted indoor air concentration values. States like New Jersey and Minnesota also have issued detailed guidance for taking indoor air samples. The proposed rule should include a provision so that a representative negative indoor air sample should prevail over the predicted values from other samples outside the building.

Assumptions Are Not Representative of Illinois

As I mentioned in my previous testimony, the agency's assumptions about soil geology are not representative of conditions in Illinois. In addition, the assumption of 1089 square feet (33 ft. x 33 ft. x 3 ft) for a residential a structure is far below the average size of a single family home in the Midwest. For example, Michigan cited the average size of a Midwest single family home as 2,095 feet in 1995. (Michigan DEQ [illegible] Division, Part 213, Risk-Based Screening Levels (RBSLs) for Groundwater [illegible] Volatilization to Indoor Air, Operational Memorandum No. 4, Attachment [illegible] [illegible] Characteristics of New Housing: 1995 (US DOC and US HUD, [illegible]). Further, the percentage of homes under [illegible] square feet, which includes the [illegible] [illegible]

[illegible]

The Illinois EPA also assumed that the average home in Illinois did not have a basement, yet Michigan cites that 90% of homes built in the Midwest between 1975 and 1995 were built with basements or crawl spaces. *Id.* These statistics further show how overly conservative the agency's assumptions are and how these assumptions fail to represent conditions in Illinois. If the default building had a basement, the Tier 1 values would be higher and far more realistic. As stated above, the Board should require the agency to first establish values representative of Illinois and *then* incorporate a known safety factor into those values.

Conclusion

The Illinois EPA's proposed rule is overly conservative. Further, the agency presented the rule in a way that does not show each assumption's impact on the final value. The Board should ask the agency to provide the information needed to determine the impact from each assumption. The Board should not adopt this rule as proposed because it is not representative of actual conditions in Illinois. The Board should only adopt regulations based on conditions in Illinois and actual risk to human health, consistent with the General Assembly's mandate.

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