Land Recycling Program Q&A Database

The following questions and responses were found in the database:

ID#: 221
Category: Agricultural Land
Question: Are farms ineligible for Act 2 liability relief?

Response: Generally, yes. Act 2 was enacted to facilitate the cleanup of former industrial sites and return them to productive use, and to help prevent the needless development of prime farmland, open space areas and natural areas. Act 2 does not apply to farmland that has residual concentrations of agricultural chemicals applied to the land using normal, routine and proper application methodologies established by the EPA, DEP, the PA Department of Agriculture, and the chemical's manufacturer. Such normal agricultural practices do not constitute "releases" for the purposes of Act 2. If specific areas of a farm have been affected by a spill or release of regulated substances (i.e., through a practice) that does not fit within the scope of normal and routine agricultural practices, Act 2 would be available for those affected parts of the farm. An example of this would be a release of fuel oil from a leaking storage tank.

Regulations:
References:

ID#: 222
Category: Agricultural Land
Question: What if the farm has a known release of a contaminant?

Response: The Department will use its authority under statutes other than Act 2 to enforce the cleanup of releases to farmland properties of agricultural chemicals that do not fit the definition of being released in the normal course of farming practices, such as leaks from fuel storage tanks.

Regulations:
References:

ID#: 223

Category: Agricultural Land

Question: Can I take a whole farm through the Act 2 program?

Response: No. Regardless of whether there have been other releases on a farm, the presence of agricultural chemicals applied during normal and routine farming procedures is not eligible for Act 2 liability relief. In addition, since it is the Department's policy that a remediator may choose the regulated substances, release, and media to be addressed under an Act 2 NIR, the remediation of a release under Act 2 on farmland does not open the door to the Department requiring that all releases, including those from the proper application of agricultural chemicals, be addressed. As is the case with any Act 2 remediation, the release of liability applies to those regulated substances identified and addressed under the NIR submitted to the Department for the specific release on the property, and does not apply to those substances that are the result of normal agricultural practices.

Regulations:

References:

ID#: 224

Category: Agricultural Land

Question: Why is the Department restricting use of Act 2 on farms?

Response: Act 2 is designed to remediate industrial sites, revitalize existing sites with infrastructure in place and to save farmland/open space. Allowing Act 2 on farms would go against the intent of the legislature. Moreover, using agricultural chemicals in the normal course of farming activities does not constitute a "release" for purposes of Act 2. As such, we are restricting its use on farmland.

Regulations:

References:

ID#: 40

Category: Attainment

Question: How to apply 75%/10X rule in situations where compliance with two

different SHS MSCs are required, such as an MSC for surface soil and another MSC for subsurface soil?

Response: Two separate attainment tests, each applying the 75%/10x rule would be required (e.g. 0-2 feet and 2-15 feet).

Regulations:

References:

ID#: 46

Category: Attainment

Question: For groundwater attainment demonstration during a period of four quarters instead of eight quarters, how many samples do I have to take from each well during the four-quarter period?

Response: Under the background standard, eight. (Section 250.707(a)(2)(x) of the regulations).

Under the Statewide health standard, one sample per well per sampling event, or a total of four samples.

Regulations: 250.704(c) 250.707(a)(2)(x)

References:

ID#: 67

Category: Attainment

Question: We will be submitting a bid for monitoring well abandonment and treatment system demolition.

The site recently obtained closure from the state under the PA Act 2 program for historical soil and groundwater issues. Are there any regulations we should be aware of for our scope of work? If so, could you provide a web page reference, or perhaps your phone number for direct dialogue?

Response: The requirements for abandonment of wells per DEP, is located in the "Groundwater Monitoring Manual" which is available online. Here are the directions:

Go to the DEP Online Documents Warehouse:
http://www.dep.state.pa.us/eps/
Click on Technical Guidance Documents- Final
Click on Bureau of Watershed Management folder
The fourth item down is the groundwater manual. You can view it in PDF or text.
Go to chapter 7, Well Abandonment procedures pp. 72-70.

Regulations:

References:

ID#: 69

Category: Attainment

Question: I have some questions regarding the use of the 95% UCL procedure. Based upon the volume of the excavation area, I obtained 48 post-excavation samples and had planned on using the 75/10X rule to demonstrate attainment. However, since the samples were composite samples consisting of approximately 15 discrete samples, an advanced statistical method must be used to demonstrate attainment. The parameters of interest include arsenic, beryllium, cadmium, chromium (total), copper, lead, nickel, zinc and mercury. To date, all samples have satisfied the MSCs for residential sites (0-15', used aquifer).

My questions are as follows:
1) page IV-46 of TGM, Section 4., Items 1-5. Must I complete this section?
2) page IV-51 of TGM, sample size calculation. I am concerned about the number of samples required to demonstrate attainment. A number of samples were obtained, plus the excavation will be backfilled. Therefore, obtaining additional samples in the future may be difficult, if not impossible.
3) page IV-61 of TGM, Item 4, how do I calculate Sx for the type of samples obtained? Simple Sb/square root of n or something different?
4) page IV-52 of TGM, first paragraph, describes other equations for calculating UCL for composite samples.

Response: Question 1: Yes for the 95%UCL procedures. No for the 75%/10X rule.

Question 2: Please take more samples than the calculated minimum number of samples. Otherwise, you may need to adjust beta.

Question 3: Sb would be calculated based on composite sample data, and n is the number of composite samples. Sx would be calculated from Sb/square root of n.

Question 4: The equations are essentially the same as those listed on Pages IV-61 and IV-62 except that the Xi's were based on the data of composite samples and n is the number of composite samples. Make sure that every composite sample was made from the same number of discrete samples so that all composite samples will have the same weight.

Regulations:

References:

ID#: 71

Category: Attainment

Question: If a remediator excavates down to bedrock and still exceeds the Statewide health standard, do they grid off the sidewalls to determine attainment of the soil standard, in addition to doing a groundwater investigation? It seems to me that it would be logical to sample the sidewalls since that is the only remaining location containing soil. In addition, should the random sampling grid just be applied to those walls or is there a different procedure in this instance?

Response: Yes, the sidewalls are to be gridded as you have described. The area considered for the attainment sampling on the sidewalls would be the zone which was indicated as being contaminated above the standard. For example, if the contamination was not apparent from 0-4 feet, then that area would not be considered in the attainment sampling.

Regulations: 250.703(b)

References:

ID#: 82

Category: Attainment

Question: In the situation where an excavation is sampled, based on biased sampling as per Section 250.707(b)(1)(iii)(B), and the consultant finds that 1 out of the 5 samples is above the applicable standard, they will then reexcavate the area with the elevated levels. How does resampling continue? How many samples?

Response: The referenced attainment method utilizes the nonexceedance rule. Therefore the areas that indicated attainment need not be resampled. The additional

samples are to be taken in the area of additional excavation (where the initial sample exceeded the standard). The number of additional samples is a function of the total volume of excavation (initial excavation plus secondary excavation) minus the number of samples that passed. For example, suppose 200 cu yd were excavated and 5 samples were taken, one of which failed. The remediator would excavate in the area of the sample failure using best professional judgment as to when to stop. Then if he excavated less than 50 cu yards (for a total of 250) he would only have to take one sample. If he excavated a total larger than 250 cu. yd., he would take additional samples at the rate of 1 per every additional 100 cu yd.

Regulations:

References:

ID#: 205

Category: Attainment

Question: I have seen this twice now in the last week where a consultant is looking at 4 consecutive quarters of groundwater data and wanting to use the 75%/10X test to demonstrate attainment.

Reading Section 250.704(d)(3) it seems that in order to even consider suggesting that only 4 consecutive quarters of data is adequate for attainment purposes you need to have all contaminant concentrations below the MSC. The only way the 75%/10X test can be applied is if you have a minimum of 8 consecutive quarters of data. In one of these cases it doesn't even look like they have the Department’s preapproval to reduce sampling quarters....but wondering about the application of the 75%/10X test.

Response: You are correct that they need at least eight consecutive quarters of groundwater data to use the 75%/10X rule. They may use four consecutive quarters or less of groundwater data with written approval from the Department under the conditions in 250.704(d). The requirement in 250.704 (d)(3) prevents them from using the 75%/10X rule and requires use of the no exceedance rule.

Regulations:

References:

ID#: 208

Category: Attainment

Question: It is my understanding that once we attain 8 consecutive quarterly sampling events for a monitoring well in which groundwater contaminants are detected below Statewide health standards, we have met the compliance guidelines for Act 2 for the contaminants of concern at that well and we are no longer obligated to continue sampling that well. It is also my understanding that we can then discontinue monitoring that well without first receiving either written or verbal approval from DEP.

Response: Numerical attainment is demonstrated on a well-by-well basis. Hence if you have 5 wells and achieve numerical attainment on 2, and must continue sampling the other 3 to achieve attainment, you need not sample the first 2 for purposes of numerical attainment. Just keep in mind that attainment under Act 2 (e.g. Statewide health standard), is partly numerical attainment of the generic numbers, and also a fate and transport analysis (could be based on professional judgment) that the site will continue to maintain SHS attainment in the future- OR that the final report contains a postremediation care plan to address how the future nonattainment will be identified (e.g. monitoring) and an action plan for what steps will be taken to maintain the standard.

That caveat blurs the issue of sampling a bit. A professional should make an informed decision that the attained wells are no longer needed to be able to show continued attainment in the future by the use of fate and transport analysis. This decision is based in part by the geographic array of wells and other known factors which may suggest or help give confidence against the contamination moving toward the “attained” wells.

Regulations:

References:

ID#: 211

Category: Attainment

Question: Certain semi volatile constituents have PQLs which are higher than the groundwater MSC (in the case I am working on it is chrysene). If the compound in question is detected below the PQL but above the Statewide health standard is that compound considered to have met attainment under the Statewide health standard?

The other somewhat interesting issue is that chrysene's MSC is based upon solubility and therefore if it is above the MSC there must be some level of free phase chrysene in the monitoring well. Since with Statewide health you are not supposed to leave free product at the property boundary does chrysene above the solubility limit constitute free product in this instance.

Response: In demonstrating attainment of any standard under Act 2, the concentration of a regulated substance is not required to be below the level of the PQL. Therefore, if a regulated substance is present in a sample at a level that exceeds the MSC but is below the published PQL, then that sample can be used to demonstrate attainment of the MSC for that substance.

The solubility of a substance can be affected by numerous factors. The solubility values reported in the regulations are based upon measurement at a temperature of 20^{o}C whenever possible. Ambient temperature at the time of sampling and/or analysis may affect the apparent solubility of a substance. Also, organic substances may adsorb onto particulate matter suspended in groundwater. This adsorbed amount of the substance could influence the analytical result depending on the specific extraction and analytical methodology used, and also result in an apparent exceedance of the solubility value. Neither of these situations necessarily indicates that separate phase liquid is present. The Technical Guidance Manual refers to EPA publications on the determination and removal of free product in Section IV.E. You would need to make a determination based upon site-specific information as to whether an exceedance of the published solubility value indicates the presence of separate phase liquid.

Regulations:

References:

ID#: 229

Category: Attainment

Question: If a source of contamination is located near the apparent upgradient property boundary, is the groundwater point of compliance located at the downgradient property boundary?

Response: For background standard cleanups, the point of compliance is throughout the area of contamination. For Statewide health and site-specific standards the point of compliance is the property boundary which existed at the time the contamination was discovered. This may be the upgradient and/or downgradient property boundary as appropriate for the specific site conditions.

Regulations:

References:

ID#: 236

Category: Attainment

Question: For attainment of the Statewide health standard (SHS) medium-specific concentrations (MSC) in regard to groundwater (nonresidential, used aquifer), do all monitoring points on the property have to demonstrate that 75% of the samples collected within each monitoring wells are below or equal to the SHS with no sample exceeding 10 times the SHS on the property, or can we use just the property boundary wells for analysis as the point of compliance?

I have a site (retail gas station) where the property boundary wells are below the SHS MSCs (with eight consecutive quarters of data), but several wells on the property near former source areas still exceed the 75%/10x rule. The plume is stable on the property and we have demonstrated the natural attenuation is occurring, and hydraulically downgradient monitoring wells are below PQLs.
Please advise if I can demonstrate attainment under the SHS just using data from the point of compliance wells (property boundary), and demonstration through analytical modeling that the plume is stable on the property. If not, I would likely have to revise the attainment standard for site-specific.

Response: The answer is that you apply the 75%10/x rule to the POC wells which should be located at the property boundary. Wells in the interior of the property may exceed the selected standard. In the general case, the only other thing to demonstrate is that if the plume exceeds the standard in the interior, there must be evidence that the standard at the POC will be maintained in the future either through natural attenuation or some postremediation care plan that includes monitoring and action steps to be taken before the POC wells fail. In the case you described, you meet these standards.

Regulations:

References:

ID#: 47

Category: Background Standard

Question: Can a person propose to demonstrate attainment of the background standard for sediment as a media?

Response: Yes. Act 2-95, 302(b)(1) does allow for demonstration of attainment of "media of concern...including soil and groundwater".

Regulations:

References: Act 2, Sec 302(b)(1)

ID#: 48

Category: Background Standard

Question: How does the DEP address groundwater contamination entering a subject property which transforms or degrades to a compound similar to a spill which occurred on the subject property? How is background determined?

Response: The statute provides for establishing the background value for a regulated substance by measurements of concentration "… that is present at the site, but is not related to the release of regulated substances at the site." For groundwater, this must be upgradient of the on-property source. Therefore, contamination which is released to the environment and subsequently migrates onto and through the subject property and is changing in both concentration and in regulated substance, would in total represent concentrations on the site, but not related to a release on the site. The remediator determines the background concentration values by combined use of sample analysis and fate and transport analysis which supports the conclusion. It is the remediator who has the burden to demonstrate that the concentrations are the result only of transformation or direct migration of chemicals from the background area.

Regulations: 250.202

References:

ID#: 72

Category: Background Standard

Question: In Section 250.707(a)(3)(ii) the wording "A minimum of twelve samples shall be collected from any combination of monitoring wells,…" needs to be explained or reworded.

Response: This issue is addressed in Section II.A.4.a of the Technical Guidance Manual. When background groundwater condition is due to naturally occurring or areawide contamination, a minimum of twelve samples should be taken offsite and twelve samples taken onsite. The number of wells sampled onsite and offsite must be the same in each round of sampling. For example, if three wells are sampled offsite, three wells must be sampled

onsite. In this example, each of the wells must be sampled four times at a minimum. The samples must be independent of one another. The onsite and offsite samples must be taken at the same time. The time frame for establishing this condition is not predetermined, as it is in the upgradient release. By increasing the number of wells onsite and offsite, the number of sampling events necessary to meet the minimum of twelve samples can be reduced (two wells will require six sampling events, six wells will require two sampling events). The offsite wells must be located upgradient of the site. The number and horizontal and vertical location of the wells onsite must be adequate to characterize any release of regulated substance at each site.

Regulations:

References: TGM Section II.A.4.a

ID#: 83

Category: Background Standard

Question: If a successful background demonstration is made on a site in which the levels are above a Statewide health standard, can the DEP approve the background standard cleanup?

Response: Yes, the background standard is separate from the statewide standard and under Act 2, is viable for receiving liability relief. In the past, some DEP field offices provided language in the final report letter for background sites to the effect that the standard was attained, but the concentrations of substances on the site are above recommended Statewide health levels.

Regulations:

References:

ID#: 242

Category: Background Standard

Question: Does PA have an established average background level for arsenic in soil? (Statewide or regionally?)

Response: No. Pennsylvania has not established average background concentrations. Levels of arsenic and other naturally occurring substances vary considerably across the state. Some literature references are available for certain rock and soil types in Pennsylvania. Under the Act 2 program, background

concentrations are determined on a site-by-site basis.

Regulations:

References:

ID#: 73

Category: Combination of Standards

Question: When using a combination of the Statewide health standard for soils and the site-specific standard for groundwater , to what extent does one consider the effect of soils on groundwater?

What about the reverse situation when using site-specific for soils and Statewide health for groundwater? Are the considerations different?

Response: When using Statewide health for soils, and site-specific for groundwater, a remediator must use the soil/groundwater value in determining the Statewide health standard, and consider soil as "source" in the groundwater pathway fate and transport analysis (used in determining the site-specific standard for groundwater).

In the reverse situation, a remediator must consider the soil to groundwater pathway in the fate and transport analysis to ensure that the site-specific standard for soil is protective of the groundwater and that the contaminant concentration in groundwater at the point of compliance will not exceed the Statewide health MSC.

Regulations: 250.308 250.404 250.604

References:

ID#: 231

Category: Combination of Standards

Question: My site has soil concentrations that will meet the nonuse aquifer values, however there are still areas that are above the nonuse aquifer standards for PCE , TCE and 1,1,1-TCA and 1,1-DCE. For these areas, I would like to use the site-specific standard with capping and deed acknowledgement. This question is in regard to soils only--can I combine both the nonuse aquifer and site-specific standards? I'm not sure if getting a nonuse aquifer designation would be any benefit--perhaps it should just be a site-specific closure? I have

put wells in to check groundwater concentrations, which appear to be below standards, and only want to get liability relief for soils.

Background: The site is a commercial site where bulk chemicals are repackaged from tanker trucks to smaller drums/containers. This loading occurs in a covered, but open on two sides space. The drums/containers are stored in several adjacent warehouse type rooms, that are enclosed. The facility has been active for at least 35 years and will remain active with similar activities, under a new owner. Spillage has occurred and soils are elevated (above the nonuse aquifer numbers) in some areas to 4 feet, others to 12 feet and in a smaller area to 15 feet. I have requested a nonuse aquifer determination. I want to combine the nonuse aquifer status for soils with a site-specific standard--so all I will need to do is cover and deed acknowledge the areas with elevated concentrations of TCE; PCE; 1,1,1-DCE & 1,1,1-TCA.

Response: If you are meeting the residential nonuse aquifer soil standards, you would not need a deed acknowledgement in the nonuse designation area, but would in the area covered by the site-specific standard. Keep in mind though that in the nonuse area, you would still need to meet the direct contact soils number, which is the same for nonuse or used aquifers (in soils). Based on this, the site would be protective in a residential setting. In summary, a combined cleanup with residential nonuse aquifer designation (for soils) would meet the normal direct contact number and then, if lower, the nonuse aquifer value for the sub area using this cleanup standard. The remaining cleanup area using the site-specific standard would use the deed acknowledgement requirements of HSCA.

If this is being done as a combination of standards remediation, remember that you need to comply with all of the requirements of both standards. This means that for those substances that you are addressing under the Statewide health standard, you must comply with all of the requirements of that standard, including the NIR, request for a nonuse aquifer determination, and demonstration of attainment of the standard for those substances. For the part of the remediation being conducted under the site-specific standard, all of the requirements of that standard also apply. This includes the NIR, the 30-day comment period, and the notices required for all of the reports submitted in support of the site-specific standard. Under the site-specific standard you must include consideration of vapor intrusion for all substances, including those covered by the Statewide health standard cleanup. It might be simpler to accomplish all of this under the site-specific standard. In this case the nonuse aquifer standard cannot be used but similar considerations would be made in the exposure pathway analysis for the risk assessment.

Regulations:

References:

ID#: 31

Category: Deed Notices

Question: Is a deed acknowledgement or restriction currently required on a site attaining the Statewide health nonuse aquifer residential standard?

Response: No, a deed acknowledgment or deed restriction is not needed in the case of an approved residential nonuse aquifer site.

Regulations:

References: Act 2, Section 303(g)

ID#: 49

Category: Deed Notices

Question: It was indicated that a deed notice was required for a nonresidential Statewide health standard cleanup. Under what standards and conditions are deed notices (or restrictions) required?

Response: Deed acknowledgments are requirements of the Solid Waste Management act and the Hazardous Sites Cleanup act and are required of al sires, unless specifically waived by Act 2. Act 2 waives these requirements for sites remediated under the background and residential Statewide health standards.

Regulations:

References:

ID#: 50

Category: Deed Notices

Question: Is there standard language or a format that the Department wants to see as a part of a deed notice?

Response: Model language for deed notices and deed restrictions is available on the Land Recycling web page under Voluntary Cleanup and Standards, Forms and Lists at http://www.dep.state.pa.us/dep/deputate/airwaste/wm/landrecy/Forms/Forms.htm

Regulations:

References:

ID#: 160

Category: Deed Notices

Question: How to implement off-property deed notice?

Response: The deed acknowledgment provision of the SWMA and HSCA apply only to the source property. A remediator cannot compel another property owner to notice his deed.

Regulations:

References:

ID#: 207

Category: Deed Notices

Question: A tanks case will be using the site-specific standard. The constituent of concern is elevated benzene in the groundwater. Is the remediator required to put a deed restriction on the property if a municipal ordinance is already in place which prohibits the drilling of wells? If so, could you give me a citation out of the Act or the regs to back it up?

Response: No. A deed restriction is only necessary when it is part of the remedy (such as an institutional control to achieve the site-specific standard by restricting use of the groundwater) and would not commonly be used if a municipal ordinance is in place. However, Section 304(m) of Act 2 requires that whenever a remediation attains the site-specific standard, the deed acknowledgment requirements of the Solid Waste Management Act and HSCA apply. This acknowledgment consists of a notice to subsequent owners that the property has regulated substances that exceed the residential Statewide health standard remaining after the remediation. This notice is to include whether residential or nonresidential exposure factors were used to comply with the site-specific standard. The only exception to this is that in the case of federally regulated tanks, no deed notice is required.

Regulations:

References:

ID#: 215

Category: Deed Notices

Question: This question is relative to Section 250.702(b)(4). We have a large former industrial site that is going to be developed into a strip mall. The consultant has been working on the site characterization for over a year. His plan was to use site-specific for soils, and SHS for GW. He has put in about 20 wells, many of which are property boundary wells. Based on between 4-5 quarters of GW monitoring (some wells were added later and have one less quarter of data), none of the wells has had any SHS exceedances.

Here's the question. There is an area of SPL within the middle of the relatively large site. Some product removal has been completed (55 gals recovered) but will need to cease soon due to site construction activities. The impacted area has been pretty well delineated and seems confined to the center of the site. So far, we don't anticipate that it will extend beyond where it's apparently been for some time, based on the age of the site. We plan to ask for some postremediation care to ensure that the SPL isn't going to migrate off-site.

The question is with the POC. Is the POC just the property boundary? Can the consultant seek and get SHS liability relief even if SPL is present, as long as it doesn't migrate off site? (That's my understanding.) Section 250.702(b)(4) says that "...if SPL is present, attainment at the POC shall also be demonstrated within the soil and groundwater directly impacted by separate phase liquids." Does this mean there is a new POC within the interior of this site, which is the only place where the GW is directly impacted by the SPL? Based on the data we have so far, the property boundary POC wells are not showing any signs of direct impact by the SPL.

Can the consultant just finish out the remainder of his sampling (to get 8 quarters) at the property boundary wells, propose some postremediation care for those wells to be used to evaluate the SPL migration in the future, drop sampling from the rest of the wells not having anything to do with the SPL, and get final report approval?

Response: The POC for the Statewide health standard has not changed – your understanding is correct. Attainment is demonstrated only in the POC wells. If there is SPL in the attainment samples from the POC wells, then attainment of the Statewide health standard cannot be demonstrated. SPL may still remain in the interior of a property as long as the fate and transport analysis shows that it will not migrate to the POC, or if it does, there must be a postremediation care plan to assure that the standard is maintained into the future at the POC. This section has not changed from the original regulations. What has changed is that, by policy, when SPL is present in the POC attainment wells, the Statewide health standard is not available. This

was included in the final TGM at Section I.D.8.c.2. At sites where SPL remains within the interior of a property, remediators should document that presence in the deed to the property voluntarily (although this is not required by law under a Statewide health standard residential cleanup).

Regulations:

References:

ID#: 51

Category: Ecological Evaluation

Question: Are the eco-receptors identified in 250.311(a) the only receptors that an ecological risk assessment must consider?

Response: Yes. These are also the receptors that must be considered when conducting a site-specific ecological risk assessment.

Regulations:

References:

ID#: 52

Category: Ecological Evaluation

Question: If an ecosystem is impacted by LNAPL, what assessment process should you follow under the Statewide health standard?

Response: The ecoscreen must be followed in the same manner as for any other site. Impacts resulting from the LNAPL will most likely show up, if they are present at all, in Step 5 (if no CPECs have been identified) or in Step 6 (if CPECs are present). In fact, Step 5 was inserted into the process specifically to identify impacts from non-CPEC compounds (like petroleum hydrocarbons) that may be present on a site.

Remember that if separate phase liquids are present, under the Statewide health standard, attainment must be demonstrated at the point of compliance in the soil and groundwater directly affected by the separate phase liquid.

Regulations:

References:

ID#: 53

Category: Ecological Evaluation

Question: When addressing a site to a combination of standards such as Statewide health and site-specific, can the ecological screening process be used? Do you only have to do an ecological risk assessment for media being addressed under the site-specific standard?

Response: When combining standards, a remediator is required to meet the requirements of each of the standards for the site, media, or substance , as appropriate. With respect to application of this rule to ecological assessment under a combination of standards (Statewide health and site-specific) for soil and groundwater respectively, the Statewide health ecoscreen is required AND the site-specific ecological assessment is required for eco exposure to the groundwater. Basically, any time one is applying the Statewide health standard, alone or in combination (regardless of media), the Statewide health ecoscreen is required. What needs to be stressed however is that any time that the site-specific standard is being applied, the site-specific ecological risk assessment procedures apply to the media or substances being addressed under the site-specific standard.

Regulations: 250.311

References: TGM Sec IV.H

ID#: 54

Category: Ecological Evaluation

Question: Why is the ecoscreen applicable only to the Statewide health standard, and not the site-specific standard?

Response: The screen assumes that the Statewide health standard has been met, and the protectiveness of that standard is an inherent assumption in the first three criteria for determining if the screen must proceed to the onsite evaluation stage. If a site is remediated to a higher site-specific standard, this protectiveness cannot be assured to allow a site to drop out of the process. For sites remediated under the site-specific standard, the consideration of ecological receptors is performed using guidance developed by EPA or other sources as described in the TGM, Section IV.H.

Regulations:

References:

ID#: 248

Category: Ecological Evaluation

Question: Can you direct me to the cleanup standards for sediments? If I collect samples in a river bottom, what criteria must the results meet? Is it the Ontario SEL #s? Do I use the "soil standards"?

Response: The Land Recycling Program has not established numeric cleanup standards for sediments. For remediations being accomplished under the Statewide health standard, sediments are addressed through the application of the ecological screening process described in Section 250.311 of the regulations. The numeric soil standards published in the regulations cannot be used for sediments, as the exposure assumptions used to develop those values are not applicable to sediments. For remediations under the site-specific standard, the ecological risk assessment process is used to demonstrate attainment for sediments. Guidance for conducting ecological risk assessments may be found in the Technical Guidance Manual, Section IV.H, which may be found on the web at http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?A=1243&Q=465356. A remediator may also propose to use the background standard for sediments. In this case the demonstration of background attainment is as described in Subchapter B of the Chapter 250 regulations, and in Section 250.707(a).

Regulations:

References:

ID#: 55

Category: Fate and Transport

Question: On the Department's Quick Domenico model, the recommended vertical dispersivity default value is <0.001 ft. Why is this coefficient so small?

Also, please describe the source width and thickness inputs to the model. Is this intended to be the assumed area of groundwater contamination and therefore should not include unsaturated impacted soil?

Response: A value of 0.001 is a recommended value for "initial uncalibrated" or conceptual applications. Use of a low vertical dispersivity such as 0.001

results in a higher calculated projected concentration at the water table surface at any distance from the source. Therefore, a low vertical dispersivity is consistent with conservative use of the model for "worst case" predictions and as a screening tool when hard data on the vertical concentration profile is ambiguous or lacking, as sometimes occurs.

The documentation does not intend to restrict the Az term to 0.001 or its use as a calibration term. Any vertical dispersivity >0 can be used in QD, and a value other than 0.001 may be necessary and justified for calibration purposes, but, values in excess of 0.001 should be justified by monitoring data.

Regarding the source thickness - typically, for floating contaminants, this is the thickness of contaminated soils that contribute contamination to the water table plus the water table fluctuation that creates a smear zone.

Regulations:

References:

ID#: 57

Category: Fate and Transport

Question: When modeling groundwater at a site for fate & transport of contaminants and you have several years of data from several wells and you have decreasing trends, what value should you input into the model as the "initial" concentrations?

Response: The initial concentrations to model future transport should be based on actual monitoring data that are consistent with current and future site conditions. If several years of data that the Department considers to be valid are available, then the "initial" concentrations and t=0 could be taken from the beginning of the sample data and the fate and transport analysis compared to the actual data. If a pump and treat system will be in place, that should be considered in the evaluation, and therefore the initial concentration input into the model will be less than if the pump and treat system was not started. Note the gradient and flow would also be different. Conversely, if a pump and treat system will be turned off, this factor also should be considered.

Regulations: 250.604

References:

ID#: 173

Category: Fill Management

Question: Under the Fill Management Policy, what are the testing requirements for fill? Do we have to test for everything?

Response: It will depend on the environmental due diligence and source(s) of spills/releases identified by due diligence procedures. Testing is based on the knowledge of the chemicals used on the site resulting from the environmental due diligence.

Regulations:

References:

ID#: 174

Category: Fill Management

Question: Under the Fill Management Policy, does the clean fill policy apply to both active and abandoned mines?

Response: The policy does not apply to fill being placed in active or abandoned mines unless the activity is permitted or approved by the Department as part of a facility specific reclamation project.

Regulations:

References:

ID#: 175

Category: Fill Management

Question: Under the Fill Management Policy, if fill material is excavated within a right-of-way, can the material be put back into the right-of-way? What if the concentrations exceed the clean fill values?

Response: According to the Management of Fill policy, excavated material can be put back into a right-of-way without a permit. This provision applies to material that qualifies as regulated fill. Placement of clean fill by definition does not require a permit. Material that exceeds the values in Table GP-1 for regulated fill must be managed as waste under a permit.

Regulations:

References:

ID#: 176

Category: Fill Management

Question: Under the Fill Management Policy, if the site that is the source of regulated fill is not an Act 2 site and the receiving site is, is a General Permit required?

Response: Yes.

Regulations:

References:

ID#: 177

Category: Fill Management

Question: Under the Fill Management Policy, how is background defined? After fill is placed, can the level of regulated substances in it be used as the background level for future fill placements?

Response: The background provision of Condition 7 applies to the substances on Table GP-1b (inorganic substances). Background is the concentration of a substance present on a site before beneficial use activities occur under the general permit. This is intended to be the concentration before any placement of fill has occurred. Credit cannot be taken for concentrations in any fill that has previously been placed under the general permit. For any fill placement, either the first time or multiple times at a receiving site, either the higher of the values in Table GP-1 or the receiving site background will be the ceiling concentration.

Regulations:

References:

ID#: 178

Category: Fill Management

Question: Under the Fill Management Policy, how is this situation handled? In constructing a new highway, is PADOT required to test for all regulated substances on an agricultural area where pesticides and/or herbicides were used, or is testing only required if there is a known spill of pesticides and/or herbicides.

Response: PADOT could just do screening rather than full blown testing in areas that are not known to be subject to a spill or release unless the results indicate that more in-depth testing is needed.

Regulations:

References:

ID#: 179

Category: Fill Management

Question: Under the Fill Management Policy, can discretion be used in the sampling protocol, for example 12 samples per 3,000 yd^3. of material? Can a determination be made in a lesser number of samples?

Response: One can use the procedure in Appendix A(d) which refers to 250.707(e). Also, when the contamination in the material is known to be fairly uniform and without “hot spots” (from existing data, records, etc.), then fewer samples may help confirm the already recorded contamination levels. In order to reduce the sampling frequency required by Appendix A, one should be able to demonstrate that contamination is uniform in that pile or at that location.

Regulations:

References:

ID#: 180

Category: Fill Management

Question: Under the Fill Management Policy General Permit, is the registration applied to the source, the destination, or both?

Response: The registration applies to both. The registration process requires that the

applicant identify the receiving property where the material will be used as construction material. An application for registration may include one or more sources of fill material. As stated in Condition 26, a registration is required for each location of beneficial use. A registration will be required for each new site where fill will be beneficially used. If one applies for more than one receiving site, a separate registration may be received for each receiving site in that group. Furthermore, an applicant must indicate in the application where all of the regulated fill will be coming from and can include more than one fill generating location. (See 26(b)). If a new fill generating location is to be added to an existing registration for a receiving site, the permittee must follow Condition 28 and submit information requested in subparts (a) – (f) of Condition 26.

Regulations:

References:

ID#: 181

Category: Fill Management

Question: Under the Fill Management Policy, if a property receives regulated fill from multiple sources, are multiple deed notices required?

Response: The deed notice requirements are that the exact location and the chemical composition of the fill be noticed in the deed. If fill from multiple sources is placed at different locations on a property, all locations must be identified. If fill from multiple sources is placed at one location at a receiving site, all of the fills with their chemical analyses must be included in the deed notice as well as each fill's exact location in that receiving site. If placement occurs over a period of time, this may require multiple deed notices for a property.

Regulations:

References:

ID#: 182

Category: Fill Management

Question: Under the Fill Management Policy, if a site is receiving regulated fill from three sites, are registrations required for each source?

Response: If the three sources of fill are already listed in the original registration

application for a site where the fill is to be used beneficially, then only one registration is required, per Condition 26(b). If all three sources are not included in the original registration, then the information required in Condition 26(a) – (f) should be submitted for each new source of fill for that site, and the new fill sources should be included in the existing registration, per Condition 28.

Regulations:

References:

ID#: 183

Category: Fill Management

Question: Under the Fill Management Policy, is a broker of waste required to obtain a permit for the use of fill when a receiving site is found?

Response: If the receiving site is already registered under this general permit, then this would be a new source of fill that needs to be registered under Condition 28. If the receiving site is not registered, the broker or site owner can apply for registration under this general permit.

Regulations:

References:

ID#: 184

Category: Fill Management

Question: Is regulated fill a waste that is subject to the storage and transportation requirements of the municipal and residual waste regulations?

Response: Yes.

Regulations:

References:

ID#: 185

Category: Fill Management

Question: If regulated fill is going into a large quarry, how many certifications and deed notices are required?

Response: A quarry, which is an open pit, cannot be filled using this general permit, which is issued under the authority of the residual waste regulations. Section 287.611(e)(3) of these regulations states that a general permit will not be issued for the "use of residual waste to fill open pits from coal or noncoal mining except for coal ash mixed with residual waste. . ." Also, this general permit requires the material to be used as construction material and in connection with an approved construction project. Quarry reclamation does not fit that activity. Furthermore, the definition of "construction material" in the residual waste regulations does not include valley fills or the use of residual waste to fill open pits from coal or other mining.

Regulated fill may be placed on previously reclaimed mine lands in association with an approved construction project, subject to the requirements of the general permit, including the prohibition on placing regulated fill into waters of the Commonwealth.

Regulations:

References:

ID#: 186

Category: Fill Management

Question: Under the Fill Management Policy, if clean fill is used as cover in a landfill, is the clean fill considered a waste that is subject to fees?

Response: No, fill material is not a waste if it meets the requirements for clean fill under the policy. Fees are not required in this case.

Regulations:

References:

ID#: 187

Category: Fill Management

Question: Under the Fill Management Policy, if the clean fill status of material that is coming into PA from NJ is questionable, may the regional office staff require testing?

Response: DEP staff can request additional sampling if there is reason to believe that the material does not qualify as clean fill.

Regulations:

References:

ID#: 188

Category: Fill Management

Question: Can the clean fill certification form that is provided to the owner of the receiving property also be required to be given to the Department?

Response: No. However, the Department may request this information if it receives complaints regarding the placement of the fill.

Regulations:

References:

ID#: 225

Category: Fill Management

Question: Can one sample and analyze material that is to be excavated in place prior to generating a stockpile of fill using the sampling procedures described in Appendix A to make a fill determination? It would typically save several months of time to do this prior to start of a construction project in an area where due diligence indicates a release has or may have occurred and provide useful information on potential quantities of fill types.

Response: Material that is proposed to be used as either clean or regulated fill must be sampled in place before excavation using the protocols in Appendix A to the Management of Fill policy. The Department considers excavation and stockpiling prior to sampling to be blending or mixing in order to achieve the fill limits.

Regulations:

References:

ID#: 226

Category: Fill Management

Question: The Application for Regulated Fill General Permit under item #10 requires a recorded deed notice to be submitted with the application - what if an owner records this notice and the Department denies the application? Shouldn't this be a requirement upon approval of the application?

Response: Evidence of the recording of a deed notice is required to be submitted with the permit application. If the Department denies the application, the deed notice may be removed.

Regulations:

References:

ID#: 230

Category: Fill Management

Question: Are asphalt shingles which are buried in the ground and used to bring an area to grade (time of disposal still unknown at this time) considered historic fill? Clean fill? Regulated fill? If so, what would the responsible party have to do to be allowed for this material to remain in place?

Response: Asphalt shingles would be considered historic fill if they were placed prior to 1988 (see the definition of historic fill in the Management of Fill policy). Historic fill cannot be clean fill, but may meet the definition of regulated fill.

If the material was to remain in place, the requirements of Act 2 rather than the fill policy would apply. According to Section III.A.1 of the Technical Guidance Manual, the material is to be closed in place under the appropriate residual waste regulations by using pathway elimination under the site-specific standard for the non-media solids on the ground and any one or a combination of Act 2 standards for soils and groundwater outside the perimeter of the closure area.

Regulations:

References:

ID#: 235

Category: Fill Management

Question: I have a general question regarding analytical requirements for clean fill. I understand that analysis is not mandated and that you can use reasonable due diligence. If under your investigation you can determine that certain substances that are listed on FP-1A are not present but can not eliminate the entire list, are you still required to analyze for the entire parameter list?

A potential client of ours that is trying certify a soil pile as clean fill. They asked someone at the local DEP office whether they could use their knowledge of what was known or suspected to be present to determine what compounds would be required for organic analyses. The response they forwarded to us from the DEP representative was that if analyses were required then you need to analyze for everything. It doesn't make sense to me that you can not eliminate some of the parameters by investigation. If that's the case, what is the value of the due diligence?

We want to try to provide the appropriate level of analyses but certainly do not want to blow their budget by analyzing for more than would be required.

Response: The requirement for testing of material proposed for use as clean fill is based upon a person’s knowledge of the material. If, through the due diligence process, the person has knowledge of the history of the material so that the identity of those regulated substances that are reasonably expected to be present in the material is known, then testing is required only for those substances. The only instance where a more complete scan for substances might be necessary is if the history and nature of the material are completely unknown.

Regulations:

References:

ID#: 241

Category: Fill Management

Question: In characterizing fill to determine if it is regulated or unregulated under the Management of Fill policy, what analytical lists are acceptable to the DEP? Would PPL suffice, or would TCL be necessary? Also, if my fill material qualifies by definition as "historic fill," do I characterize/treat it any differently than material that is not historic fill?

Response: The environmental due diligence will tell you which substances to test for in making a clean fill determination. The past use of the property will in most cases determine the substances of concern.

Historic fill may only qualify as regulated fill, not as clean fill, and is subject to the same requirements as all other types of regulated fill. As always, obtaining representative samples is of primary concern, which may be more difficult given the non-homogeneous nature of many historic fills.

Regulations:

References:

ID#: 63

Category: General

Question: I'm a bit confused over the Hazardous Sites Cleanup Act. Wouldn't all brownfield sites (that require cleanup) have hazardous substances present anyway, so they would all end up falling under the HSCA? Is the difference between voluntary cleanup and Hazardous Sites Cleanup that one is considered involuntary (the latter)? In short, my main question would be: why do we need the HSCA when we have Act 2,3,4, and 6 of the Land Recycling program?

Response: The Hazardous Sites Cleanup Act (Act 1988-108) meant to provide authority for the DEP to act on sites that present significant threats to human health and the environment (not all contaminated sites meet this criteria). Our authority to act includes enforcement authorities and also authority to hire our own contractors to do the environmental study and cleanup (and then bill the responsible party). This program is still active.

The Land Recycling and Environmental Remediation Standards Act (Act 1995-2), was meant to establish environmental cleanup standards to be used to remediate (whether it is done voluntary or by DEP enforcement order or by HSCA) sites that are regulated under a myriad of other statutes. [for example the clean streams law gives the DEP authority to fine and/or issue orders to persons who pollute any waters of the commonwealth, including groundwater—but it does not in itself provide the cleanup standards]. Further, Act 2 was meant to provide a process under which any person could obtain liability relief from ever having to do more cleanup in the future (except for some re-openers in Act 2, Section 505) either because the DEP wanted it, or because citizens sued for more cleanup. This process, is commonly referred to the Voluntary Cleanup Program. It incorporates the environmental standards mandated by Act 2 and promulgated in regulation (Chapter 250), and an administrative process for what papers to send in and

notices to send to municipalities and newspapers. Any environmental cleanup outside the voluntary process would still use the environmental standards mandated by Act 2. Therefore all cleanup uses those standards.

In summary:

Voluntary cleanups use Act 2 standards and process with any contaminated site being eligible.

Enforcement ordered cleanups use Act 2 standards and part of the Act 2 process (public notices) and in addition other requirements which are listed in the enforcement order (these would be specific to the site such as schedules for work to be done).

Regulations:

References: Act 2 Section 505

ID#: 65

Category: General

Question: Can a person be required to perform a site remediation under Act 2? If not what programs are in place to require a site remediation under an enforcement action?

Response: Act 2 does not require remediation, but rather provides the standards and process by which remediation (with liability relief) is completed.

The enforcement authority for requiring remediation is mainly in the PA Clean Streams Law (CSL) and the Hazardous Sites Cleanup Act (HSCA). The CSL references releases of contaminants to the "waters of the Commonwealth" This includes groundwater, and soils as they affect groundwater.

So the process in place basically allows, on a voluntary basis, for a remediator to enter the voluntary cleanup program. However, individual DEP regional offices may exercise enforcement authority-requiring cleanup-under the CSL or HSCA. This is generally only done if there is evidence of a significant threat to human health or the environment (e.g. someone's well is contaminated, there are identifiable impacts to surface water, illegal hazardous waste disposal has occurred on the site). The cleanup standards that apply when enforcement authority is used are the Act 2 remediation standards.

Regulations:

References:

ID#: 84

Category: General

Question: Does liability relief apply to all areas of a site that have been characterized, or just to those areas where attainment has been demonstrated?

Response: The remediator of the source property will receive liability relief for all areas of contamination that have been characterized and, where necessary, remediated which are identified in your final report, whether or not the site characterization showed that they exceeded the selected standard. Since the demonstration of attainment only applies to that volume of soil identified as exceeding the selected standard, areas which are contaminated at levels below the standard need no attainment demonstration, but since the characterization shows that the standard is not exceeded the liability relief applies. The key to liability relief lies in identifying the areas of concern and the contaminants involved in the final report submitted to the Department. Further, that liability relief applies only to the areas characterized and to the specific contaminants identified in the report.

Regulations:

References:

ID#: 249

Category: General

Question: Can ASTM, EPA, or other environmental science training classes be used to fulfill the Land Recycling Program training required to participate in the Low Risk management practice?

Response: The Low Risk management practice developed by the Department as part of the 2004 Enhancements Report created a process whereby simple low risk sites could receive an expedited review and approval from the Department. There were a number of conditions and limitations set forth in the Low Risk procedure including a requirement for training. The Enhancements Report states that a consultant preparing the final report for a Low Risk project "must have attended a Land Recycling Program client workshop within the last 2 years." The intent of the training requirement is to assure that the consultants have a specific understanding of the assessment, remediation,

and attainment requirements pursuant to the Land Recycling Act, the associated regulations, and the technical guidance. Therefore, training applicable to the Low Risk training requirement is limited to approved training classes conducted by the Land Recycling Program.

Regulations:

References:

ID#: 85

Category: Institutional Controls

Question: If an institutional control exists, such as a municipal ordinance prohibiting groundwater wells for drinking, is it a requirement that deed restrictions (another institutional control) be utilized on all properties throughout the plume?

Response: No. Any combination of remedial measures that attain a standard is acceptable. Deed restrictions (not to be confused with deed acknowledgements under HSCA and the SWMA) can be used at the discretion of the remediator as one of the options for attaining a standard.

Regulations:

References: Act 2, subsection 304(i); TGM section II.C.2.b.iv; TGM Section II. C.4; TGM Section II. C.9

ID#: 37

Category: Laboratory Certification

Question: If a person is conducting field laboratory measurements that are not required by the DEP, is that person required to be registered?

Response: No. The Environmental Laboratory Accreditation Act provides that if a facility is engaged in the testing and analysis of an environmental sample that is required because of an environmental statue administered by the DEP, that facility must register with the DEP to continue testing and analysis. The key is that the testing or analysis must be required by an environmental statute. Field measurements that are required by an environmental statute would be included. Sampling activities are not covered by the Act.

Many field measurements are not required to be performed by a person

registered under the Act. For example, if field measurement/testing is used to determine where to place a well screen or where to take a sample AND that field measurement/testing is not required by the DEP per regulation or statute, then that activity is not covered under the Act. The sample itself, collected as a result of the above field measurements, would then be analyzed by a lab that must be registered under the Act.

Regulations:

References:

ID#: 27

Category: Liability Relief

Question: Can persons get liability relief for areas that they characterize and/or for substances that they characterize where concentrations of regulated substances are above the PQL but below the Statewide health MSC.?

Response: Yes. They get liability relief for these substances and the area characterized in the final report, even where the concentration of those substances are below the Statewide health standard. This inherently gives the remediator the motivation to do a more complete site characterization to levels below the selected standard. The qualifier for entering the program is that there is evidence that there has been an environmental release- either by sample results or by historical record OR the standard to be attained is the background standard.

Regulations:

References: Act 2 Section 501(a)

ID#: 45

Category: Liability Relief

Question: Do other property owners qualify for an Act 2 Release of Liability if the remediator attains an Act 2 standard on its property as well as these other properties impacted by a release identified in the Final report?

Response: Yes. The scope of the liability protection afforded by Act 2 is set forth in Section 501 (see below). If the property is identified in the final report and the report is approved by the Department, then pursuant to Section 501(a)(1), the owner qualifies for the liability protection afforded by Act 2 .

Regulations:

References: Act 2, Sec 501

ID#: 206

Category: Liability Relief

Question: I am currently working on a site with numerous areas of concern (AOCs), all of which have some contamination. Since we are dealing with manmade compounds, presence of any level generally implies contamination. We have generally been delineating these AOCs to at least below the nonresidential Statewide health standards (NRSHS). About half the AOCs (sites) have some data which exceeds the NRSHS, and the other half of the AOCs have contamination, but no exceedances of the NRSHS. We will likely seek to obtain liability protection to the NRSHS. I have 2 questions.

For the AOCs where we have some exceedances, we will likely perform some partial removal to remove the exceedance and demonstrate attainment. Since we characterized more area of each AOC than we would remediate, will we receive liability protection for the area we characterized?

For the AOCs where we have contamination but no exceedances, we would not plan to perform any removal or other remediation. Will we receive liability protection for the area we characterized since contamination was documented (even though it was below the NRSHS)?

Response: You will receive liability relief for all areas of contamination that have been characterized and, where necessary, remediated which are identified in your final report. Since the demonstration of attainment only applies to that volume of soil identified as exceeding the selected standard, areas which are contaminated at levels below the standard need no attainment demonstration, but since the characterization shows that the standard is not exceeded the liability relief applies. The key to liability relief lies in identifying the areas of concern and the contaminants involved in the final report submitted to the Department. Further, that liability relief applies only to the areas characterized and to the specific contaminants identified in the report.

Regulations:

References:

ID#: 246

Category: Liability Relief

Question: If a contaminant plume migrates offsite and impacts a downgradient property the property qualifies for a release of liability if mentioned in an approved final report. Does the "site" owner have to name the downgradient property? If the "site" owner refuses, can the downgradient property owner obtain a release of liability using the background standard?

Response: The intent of the statute is to automatically include owners of the "site" that is compliance with the Act. Since plumes can go off the source property yet still be part of the "site", those properties should by logic be eligible for liability protection. To be clear, Section 501 (a) relating to Cleanup Liability Protection, says that the protection extends to [among others], "the current or future owner of the identified property..." Therefore, preparation of the final report should provide for identifying properties (such as through boundary maps with plumes overlain) if the intent is to provide the greatest liability coverage. Further it is advisable to list the names of the owners, but in your example the site owner does not want to do that. The situation is that as long as the property is identified (and that could be by showing relative property boundaries), the properties should fall under Section 501(a).

The second question you had is whether the downgradient property owner could use the background standard to obtain liability protection. The answer there is yes, but it may not be necessary based on the above paragraph.

Regulations:

References:

ID#: 216

Category: NIR Submittal

Question: I have a question in regard to standards chosen on the NIR and later submittal of the final report where demonstration has shown attainment of a more stringent standard. It seems that in 301(b) of Act 2 it can be interpreted to mean that if you went through the procedures for a site-specific standard you can "default" back to background or Statewide health if you demonstrate their requirements.

What about the case of an NIR that is submitted for the nonresidential Statewide health standard (soils in this case)--my understanding is if they demonstrate attainment of the residential standard (and in many cases the residential and nonresidential standard are the same--especially for petroleum related compounds) then they achieve a SHS residential closure and wouldn't need to do a deed acknowledgement. The consultant I am

working with is still thinking they need to resubmit the NIR to reflect this change (NR to R). If anything they can rewrite their summary to indicate they meet residential standards....but would anything else be required?

Response: Going from nonresidential Statewide health to residential Statewide health would not require a new NIR. The standard under which they are demonstrating attainment would, of course, need to be defined in the final report and final report summary.

Regulations:

References:

ID#: 32

Category: Notification

Question: If a person is voluntarily cleaning up a site and does not go through the LRP, under what circumstances are they obligated to notice the DEP of the contaminated site. Specifically if GW or surface water is not contaminated (soil contamination only)

Response: Reference to§ 91.33, related to threats to waters of the Commonwealth. Generally, DEP considers any release to soil as potential release to waters of the Commonwealth.

Regulations:

References: 91.33

ID#: 228

Category: Notification

Question: I understand that if the cleanup is completed within 90 days of the release, public notification is not required. Is the 90 days from the time of the release or from the time the release is discovered? For example, I am removing a heating oil tank and I discover a release (corrosion holes) during closure activities. If I complete the cleanup and submit the final report within 90 days do I have to do public notification even though I do not know how long the tank has leaked?

Response: This section applies to remediations under the background or Statewide

health standards, and it is from the time of the release.

Regulations:

References:

ID#: 42

Category: Pathway Elimination

Question: My metals finishing plant is located in a major city with public water provided throughout the city and had a spill that has contaminated groundwater off the property. I plan to propose using the site-specific pathway elimination standard for groundwater to demonstrate that no complete pathways exist for groundwater ingestion. Are deed restrictions (for groundwater use) required from each owner of the properties down gradient from my property?

Response: No. Other options available under the site specific pathway elimination standard for use as an engineering or institutional control as a post remedial measure include a municipal ordinance prohibiting groundwater use for drinking water or notices to the down gradient property owners combined with periodic review of DEP well drilling licenses to assure no wells have been drilled in the area, review of public water billing records to assure that properties are still being billed for public water, or results of a letter or door-to-door survey of the property owners or other activities which can provide assurance the remedy is still effective. These options are also available for sites attaining nonuse aquifer MSCs under the Statewide health standard.

Regulations:

References:

ID#: 234

Category: Pathway Elimination

Question: Scenario: Someone is chasing lead contamination in soil, and it goes beneath the ballast on a railroad track. The ballast is 2 ft thick.
Questions:
1. Does DEP consider the ballast the 0-2 ft part of the soil profile?
2. Would samples collected beneath the ballast be considered the 2-15 ft section of subsurface soil?
3. Would DEP accept the ballast sufficient for pathway elimination?

Response: Since the contaminant is lead, the answers to your questions became fairly simple. The basic question was what standard applies to this situation. In the case of lead, the nonresidential direct contact numeric values are 1,000 mg/kg for the 0-2 ft interval and 190,000 for the 2-15 ft interval. However, the soil-to-groundwater value of 450 trumps both of these values and the Statewide health standard MSC for lead is 450 mg/kg throughout the soil column. This would also be true for any substance where the soil-to-groundwater value is less than the direct contact value.

More generally, we would not consider ballast to be the 0-2 ft soil interval because it is not soil. The ballast would not be a sufficient pathway elimination measure because it would not eliminate all exposure pathways. It would only eliminate the ingestion pathway, but would still allow for leaching from soil to groundwater and also inhalation for volatile regulated substances. The question of how to handle samples collected from below the ballast could have several possible solutions depending on the specific regulated substances involved and could probably best be handled on a case by case basis in consultation with your regional office case manager.

Regulations:

References:

ID#: 56

Category: Postremediation Care

Question: How does one apply the requirement for Fate and Transport analysis (in a postremediation care plan) in cases where natural attenuation is used to achieve the standard at some point before the POC? What factors or requirements must be considered?

Response: The fate and transport analysis must show that the selected standards have been attained and will be continuously attained. The fate and transport analysis must comply with EPA or ASTM QA/QC requirements. A postremediation monitoring program must be established to confirm the success of natural attenuation. Factors to be considered may include:
Is a receptor impacted?
Has the source been removed?
Is the plume expanding and will it extend beyond the POC?
Is the amount and rate of attenuation sufficient?
Is site characterization comprehensive enough to support a natural attenuation decision?

Regulations:

References:

ID#: 44

Category: Program Management

Question: I have a dispute with regional program staff regarding an Act 2 required report currently under review . I believe, the regional office review is not consistent with the Act 2 regulations or the TGM. The deemed approved review period is coming to a close and the regional office is now telling me that my report is not acceptable and will be disapproved. Do I have any recourse before the regional office takes a final action on the Act 2 report?

Response: Yes. Remediators identified in the NIR who believe that impending regional decisions on a required Act 2 report are inconsistent with the Act 2 regulations or the TGM may elevate the issue to an Issue Review Panel. This panel will meet on an as-needed basis and its decisions will apply to the regional office. Disputes to be reviewed by the Issue Review Panel may be directed to Tom Fidler, Chief of the Land Recycling and Cleanup Program (tfidler@state.pa.us) located in our Central Office, Harrisburg, Pa.

Regulations:

References:

ID#: 121

Category: Remediation

Question: What are the DEP requirements for insitu treatment or exsitu with re-injection of treated groundwater?

Response: The Department's web page describing the requirements and procedures for obtaining an EPA Rule Authorization Letter for a Class V well used to inject remediation materials into groundwater is complete.

To see or direct outside people to this web page go to the SUBJECTS page of our external home page:

then scroll down to subjects under U and click
Underground Injection Control Requirements For Remediation Wells

Regulations:

References:

ID#: 39

Category: Risk Assessment

Question: Do we consider the effects of a proposed remediation measure in the baseline risk assessment?

Response: If a remediation measure other than pathway elimination is proposed, a risk assessment report to develop site-specific cleanup standard should be submitted to Department for approval. If there is a complete pathway and the proposed remediation measure is simply to eliminate that pathway, then the remedial investigation can be combined with a simplified risk assessment documenting the current and potential future complete exposure pathways and how the proposed pathway elimination measure will be effective- but this simplified risk assessment is technically not a baseline risk assessment. Baseline risk assessment only evaluates the current and potential future risks without considering the effects of any proposed remediation measures. If a remediation measure is proposed to address risk, no baseline risk assessment is required, under Section 250.405(c) of the regulations.

Regulations: 250.405

References:

ID#: 238

Category: Risk Assessment

Question: I have a question regarding exposure assumptions for a trespasser. The Act 2 regulations state that exposure factors must be justified by supporting data. What would you recommend for default exposure assumption for a trespasser scenario on a industrial facility?

Response: EPA Region 4 has the following guidance on the trespasser scenario: Region 4 considers the typical trespasser to be an adolescent aged 7-16 (10 year exposure duration) with a body weight of 45 kg as representative of this age range. Trespasser exposure frequency should consider site-specific factors such as distance from the site to residences and the attractiveness of the site to the trespasser.
Exposure frequencies in risk assessment reports may be as low as 24 events/yr or as high as 100 events/yr. An example to specify the exposure

frequency may be like this: 65 events/year exposure frequency, assuming exposure by an individual trespasser 3 times per week during summer months, once per week during spring and fall months, and no exposure during the winter.

Regulations:

References:

ID#: 58

Category: Sample Analyses

Question: What course of action do laboratories have when they cannot achieve the MCLs in samples from a site remediation? The drinking water methods and their detection limits are for very clean drinking water samples. Act 2 allows levels of "light hydrocarbons" to be present; however, these types of interferents prevent labs from reaching the PQLs that are based on MCLs. Also, do you expect labs to perform all of the tests specified (used to derive PQLs, MSC, etc) to reach every Act 2 limit? This seems cost prohibitive.

Any guidance you can provide would be helpful. Consultants expect to get data that achieves all Act 2 limits and they are not interested in hearing lab limitations.

This type of pressure could result in some labs reporting detection limits that are not actually achieved (bordering on fraud) and jeopardizing cleanup efforts/liabilities.

Response: The list of PQLs in Section IV.F of the Technical Guidance Manual makes reference to particular analytical methodologies solely for the purpose of establishing the PQL for each regulated substance. Section 250.4(f) of the regulations allows a laboratory to use any valid and generally accepted methodology for analyzing samples of environmental media. In demonstrating attainment of any standard, the concentration of a regulated substance need not be less than the PQL for that substance. This means that for those substance where the MSC is less than the PQL, attainment may be demonstrated if the substance is reported as "non-detect" at the level of the PQL. Section 301(c) of Act 2 specifically prohibits the Department from establishing alternative ways to demonstrate attainment for substances where maximum contaminant levels and health advisories have already been established. This means that if an analytical methodology cannot achieve the PQL, and that PQL is equivalent to the MCL, then attainment of that substance cannot be demonstrated. The laboratory is always free to choose another valid methodology that will achieve that PQL.

The alternative methods for establishing a PQL listed in Section 250.4 of the

regulations only apply when no PQL is listed in the tables in the Technical Guidance Manual. The Department does not expect a laboratory to go through these exercises unless a PQL has not been established.

Regulations: 250.4(f)

References: Act 2 Section 301(c)

ID#: 59

Category: Sampling

Question: We allow composite samples for inorganics (in this case, metals) under Act 2, don't we? I could swear that I read somewhere in the regs or the TGM something to the effect that "compositing is not allowed for organics", which kind of meant to me that compositing is allowed for inorganics. But now I can't put my finger on the reference I'm thinking of.

Response: Yes. We allow composite samples for inorganics (in this case, metals) under Act 2 under the conditions that nonparametric methods and 75%/10X rule are not used.

Regulations: 250.707(b)(1)(i) 250.707(d)(2)(iii)

References:

ID#: 214

Category: Sampling

Question: Please respond to following issues:

1. Is there a particular NIOSH method you can recommend to sample naphthalene from a soil boring?

2. Is it acceptable to modify these industrial hygiene (IH) methods if necessary?

Example: Is it acceptable to shorten the method specified sample volume or time providing the laboratory detection limits are below regulatory limits?

The dilemma I'm facing is that I need to sample soil borings for naphthalene. NIOSH 5515 specifies 200-1000 liter samples at a rate of 2 liters per minute (LPM). The laboratory informs me that they need a 3 liter sample to meet the

regulatory limit of 0.42 mg/m^3 (naphthalene in soil gas, residential). Is the following modification acceptable?

Sample the soil gas for naphthalene using NIOSH 5515 specified sample media at a rate of 2 LPM for 3 minutes for a sample volume of 6 liters. The 6 liter sample is more than sufficient to achieve the necessary detection limits.

The concern about following the NIOSH 5515 specifications is both the required time (100 minutes per boring) and the limitation of the boring volumes (it may not be possible to pull 200 liters of air from a boring without sampling ambient air).

Response: It is acceptable to modify these industrial hygiene (IH) methods if necessary. The sampling rate of 2 LPM and the total volume of 200-1000 liter samples specified in the NIOSH Method 5515 are not appropriate for soil gas sampling. We would suggest a sampling rate of 30 to 200 mL per minute (depending on the soil characteristics) for a sample volume of 6 liters, provided that the laboratory detection limits are below regulatory limits, and the filter recovery and the desorption efficiency from sorbent tubes are acceptable.

Regulations:

References:

ID#: 232

Category: Sampling

Question: I am new to working in the Pennsylvania area and I am looking for what chemical compounds I need to sample based on Act 2 requirements. My site (soils and ground water) may have petroleum products from gasoline stations and auto repair garages. Is there a short list of petroleum products that I should be sampling for ?

Also, identified in the Phase I report are dry cleaners and laundry facilities near my site. Is there a specific list of chlorinated solvents that I need to sample for ?

Response: In general, there are no specific lists of contaminants to be sampled for to satisfy Act 2 requirements. The expertise of the consultant and/or remediator are relied on to determine, through environmental due diligence, what regulated substances may have been released.

The one exception to this is for the release of petroleum products. Our Technical Guidance Manual contains a short list of substances to be sampled for based upon the particular petroleum products that have been released. This short list is also provided in the Closure Requirements for Underground Storage Tank Systems under the Storage Tanks program. The short list is contained in Section IV.E of the

Technical Guidance Manual and may be accessed on the web at http://www.dep.state.pa.us/dep/deputate/airwaste/wm/landrecy/manual/Manual.htm .

There is no corresponding list of chlorinated solvents for dry cleaning establishments; the sampling should focus on typical solvents used in the industry and their breakdown products.

Regulations:

References:

ID#: 237

Category: SIA

Question: Is a site that is within a Keystone Innovation Zone the same as a Keystone Opportunity Zone for purposes of eligibility as an SIA site? Previously Keystone Opportunity Zones were determined to have the same SIA eligibility effect as Enterprise Zones. I would like to know if Keystone Innovation Zones can be considered likewise.

Response: Yes.

Regulations:

References:

ID#: 26

Category: Site Characterization

Question: Is drilling through the basement of a building required to determine the full extent of contamination?

Response: As presented in the DEP Act 2 workshops, a person may propose that a building or other structure is part of a pathway elimination measure, characterize the contamination outside the building “footprint” and presume that the structure is preventing direct contact horizontally. To address the potential environmental concerns vertically (other than vapor intrusion which is discussed later) the groundwater should be sampled to determine the effects of the contamination on that media. If ground water is not adversely impacted, and it is determined by the licensed profession that there is adequate information to develop a fate and transport analysis, the site

characterization of soil under the structure is not necessary. The basis for this answer is found in the TGM, Section I.D.7.b.i (page I-13):

Here, the soils are characterized outside the building footprint to assure that the horizontal extent above the standard is no larger than the building footprint.

For statewide health sites, soil gas or indoor air sampling per the vapor intrusion guidance would address vapor intrusion concerns.

Site-specific standard sites would follow normal risk assessment procedures. One concern a remediator should consider when weighting this issue, is to what extent the contamination under the building may be a source of future contamination of groundwater. This would be a factor in performing the fate and transport analysis, as part of the demonstration of attainment requirements.

Regulations: 250.204(g)

References: TGM, I.D.7.b.i

ID#: 61

Category: Site Characterization

Question: Do you have to assess both the soil and the groundwater at a site or can you opt for just one or the other?

Response: If the licensed environmental professional determines that the contamination has likely reached, and has impacted the groundwater, then both groundwater and soils must be assessed. This should be discussed with the DEP licensed professional. This is true even if the remediator is choosing to attain an Act 2 standard for soils only, however the rigor to which assessment is applied to groundwater when it is not a part of liability relief may be less.

Regulations:

References:

ID#: 87

Category: Site Characterization

Question: Some DEP regional offices require the characterization of the entire property

and remediation of all areas found to have contamination above the Statewide health standard regardless of the site identified in an NIR. Does this continue to be the policy of the DEP?

Response: No. That was never the policy of the DEP. As clarified in the revised Technical Guidance Manual, a remediator may voluntarily submit an NIR for a property without being obligated to study the whole property. It is up to the discretion of the remediator as to what is included in the request for liability relief under Act 2. It is up to the Department to take a separate action if deemed necessary. The only exception to this is with Special Industrial Areas (SIA), which by statute cover the entire property.

TGM I B. (relating to Voluntary Nature of Act 2):

"If the Department is aware of contamination on a property, which is NOT part of a proposed remediation under a submitted NIR, the Department may suggest that the remediator include this area, or site, as part of the NIR. However, if the remediator declines to include other known areas of the property, the Department will NOT interfere with the voluntary cleanup and will approve a final report that otherwise meets the requirements of Act 2. The Department always reserves the right, as a separate action, to apply its enforcement discretion in requiring remediation of other contamination on the property which was not addressed by the voluntary cleanup in the NIR. However the exercise of such enforcement discretion is intended to be based on DEP's knowledge of other contamination on the property, which may significantly threaten human health and/or the environment, not on a requirement that the property owner perform an environmental site assessment to identify other areas of concern."

Regulations:

References: TGM I.B

ID#: 122

Category: Site Characterization

Question: Is a vertical profile of groundwater quality data required at every site?

Response: No. The need to establish a vertical profile of groundwater quality based on sampling, is based on the licensed Professional Geologist's conclusion that there could be downward migration of contaminated groundwater or separate phase liquid. In order to develop an adequate sampling plan a site conceptual model should first be developed. The model should focus on contaminant fate and transport processes, such as contaminant pathways, how the geologic materials control the contaminant pathways (depositional environments, geologic structure, lithology, where the site is in relation to the local and regional recharge and discharge zones, etc.), types of contaminates present (i.e., hydrophobic versus hydrophilic), and the processes that influence concentrations of the contaminants preset such as dilution,

biodegradation, and dispersion. If the licensed Professional Geologist concludes that there is likely downward migration of contaminants, then multiple wells at completed appropriate depths is warranted. As long as the conclusion is reasonable based on the interpretation of data, the department will accept the conclusions of the Licensed Professional Geologist.
The recommended guidance is the DEP Groundwater Monitoring Manual, available online at: http://www.dep.state.pa.us/eps/docs/cab200149b1126000/fldr200149e0051190/fldr200149e32221af/doc20026sb490900e/383-3000-001.pdf

Regulations:

References:

ID#: 123

Category: Site Characterization

Question: I have been told that any data I have that is older than 2 years should not be considered in an Act 2 submittal, but it seems unwise to ignore it. What is the value of historic data with respect to the Act 2 program?

Response: The issue of use of data should be ruled by common sense. Here are some issues to consider when using historic data:

- Does the data set comply with current collection and analytical methods?
- Is the historic information a complete data set in terms of old verses new analytical parameters?
- What is the history of releases at the site?
- Have the source areas been identified?
- Is the site currently active or abandoned Brownfield property?
- What remediation activities have been implemented?
- Will historic data be used to identify pathways and receptors?
- How was it used to make decisions?
- How will it be used to make new decisions, and is it sufficient to reach a conclusion? Will historic data be used for delineation of the groundwater plume, extent of soil contamination, or attainment demonstration at the site?
- Does the historical data support an acceptable site conceptual model?
- Can the sources of the historic data be located and is it reliable?

Here are some guidelines in using historic data.

- In almost all cases, all historical data has value
- The usefulness of data for site characterization is a function on the actual or reasonable presumption that the site conditions have not changed (e.g. no new releases).
* Therefore, sites that are not reasonably expected to have had new releases, and the data is less than 2 years old, can use that data as their assessment data, pending the professional judgment and strongly advisably concurrence

the DEP project manager.
* Sites that are not reasonably expected to have had new releases and the data is more than 2 years old, should have historic data submitted with limited additional current data to confirm the presumption (e.g. a phase I type judgment) that there have been no new releases.
* Sites that are expected to have had releases, should in all cases give both historic data and current data, per direction of a Phase I type analysis.

- The usefulness of older data for attainment is dependent on media.
* For soils attainment, current data (some judgment can be exercised for data up to one year old) is needed.
* Historic groundwater monitoring data is useful to see trends, but the numeric attainment tests data usefulness must be limited to the time after which groundwater remediation has stopped and rebounded.
* The 8 sample rounds of groundwater data shall be collected within a term not exceeding three (3) years

Generally, historic groundwater data, including at least the last 4 quarters, is acceptable for attainment, and this can be extended to cases where there has only been soil remediation. Hence, one may need only 8 quarters minimum, but could use 3 or more years, to calculate the 75%/10x , or an approved statistical test.

Regulations:

References:

ID#: 204

Category: Site Characterization

Question: When applying a site specific standard for contamination at a regulated storage tank facility (regulated under Chapter 245) does the full extent of soil and/or groundwater contamination need to be delineated to the Statewide health standard? Chapter 250 of the Land Recycling program indicates we must delineate to a standard, not necessarily the Statewide health standard.

We have received different answers from different case managers in the storage tank program. Please clarify this issue so we can consistently manage our projects in different regions.

Response: Characterization is required to be sufficiently detailed that the remediator can provide the Department with assurance that all concentrations of regulated substances above the selected numeric standard have been identified. For the site-specific standard, characterization is not required to the level of the Statewide health standard. Section I.D.7.b.i of the Technical Guidance manual addresses this issue, and is provided below:

In soils, the characterization must be at least to a concentration sufficiently below the selected numeric standard, or to where it can be demonstrated that the pathway elimination measure is adequate to protect public health and the environment, to insure that all areas containing regulated substances at or above the selected numeric standard have been adequately characterized, and that is sufficient to support a fate and transport analysis which shows where the contamination is currently located and those areas to which it is moving. The remediator determines the concentration level for characterization below the minimal level stated above. The remediator must state what factors were used in determining the level used to define the site boundaries.

The obligation to replace affected or diminished water supplies, found in 25 Pa. Code Section 245.307 under the Storage Tank Act (Act 32), may require additional sampling/investigation beyond the site characterization requirements necessary to determine and achieve a standard under the corrective action regulations and Act 2.

Regulations:

References:

ID#: 243

Category: Site Characterization

Question: Is it appropriate to use 99% UCL results for site characterization under the Statewide health standards? I have a site where 190 soil samples were collected on a 6 acres property in a biased fashion. They derived a 99% UCL value to determine what contaminants of concern are above the SHS. Is this an acceptable approach? More than one distinct area of contamination exists. I was under the impression that the statistical analysis apply to attainment only.

Response: They could use 99%UCL or other approaches to determine which regulated substances that they would like to use the Statewide health standards. This is a site management decision of the remediator. The Department would not dictate such decision. However, such decision should not be confused with the attainment demonstration. The approach you described may be good for selecting SHS or SSS (a remediation decision), but is not appropriate for attainment demonstration. For attainment demonstration, they would calculate the 95%UCL for each distinct area of contamination that exceeds the SHS MSCs. They should not include data from clean areas for such calculations.

Regulations:

References:

ID#: 33

Category: Site-Specific Standard

Question: A person had a site-specific standard site with no current or probable future drinking water use of groundwater (in town with public water, municipal ordinance), but there was use of groundwater for non-DW purposes (e.g. washing cars, watering lawns, etc). How do they consider risk and appropriate standards under the site-specific standard? For example, must they meet DWLs because someone could drink out of the hose?

Response: Fundamental to the site-specific risk based cleanup approach is that actual current and future risk is considered. Exposure pathways associated with inhalation, ingestion, dermal contact, ingestion of produce from home gardens must be considered. Drinking water levels would not need to be met because the scenario of someone drinking out of the hose represents incidental ingestion and not a relevant pathway for the risk assessment.

Regulations: 250.402(b) 250.602(c)

References:

ID#: 38

Category: Site-Specific Standard

Question: How do I determine a complete exposure pathway? Do I use groundwater modeling results to determine an incomplete exposure pathway if such results indicate acceptable concentrations at the exposure point?

Response: The complete exposure pathway determination is based on the consideration of the chemical and physical properties of contaminants and the direction and rate of groundwater flow. This is just a qualitative evaluation. A pathway is considered to be complete if there is a release, an exposure point where contact can occur and an exposure route by which contact can occur. Detailed quantitative evaluations, such as using a groundwater model to predict exposure concentration, are not used in the complete pathway determination. Instead, such detailed quantitative evaluations should be included as part of the risk assessment report. A pathway is considered complete if exposure is present at the current or future exposure points. This is true for any level of exposure, even if that concentration level equates to an acceptable risk. Having demonstrated a pathway is complete, a person

could then apply a pathway elimination measure, or demonstrate that the risk is within the acceptable range.

Regulations: 250.603

References:

ID#: 88

Category: Site-Specific Standard

Question: A person completed a baseline risk assessment and found that the risk was within the acceptable limits of Act 2. Do they have to develop site-specific numeric values, or can they submit the baseline RA as their demonstration of attaining the site-specific standard?

Response: It is not necessary to develop site-specific numeric values in all cases under the site-specific standard. As presented in the Act 2 client workshops, there are 5 attainment options under the site-specific standard:

#1 Document in the RI that no complete exposure pathways exist
#2 Make demonstration that baseline risk is within allowable limits (see note below)
#3 Show that pathway elimination is effective
#4 Use sampling and statistical analysis to show site-specific numeric standards are met
#5 Use residual risk assessment

Note:

When using the baseline risk assessment to demonstrate attainment for groundwater, a person must demonstrate that risks at all exposure points (in soil, groundwater, surface water, and/or air) that may be inside the property, at the POC wells, and/or off property) are acceptable under the current and future conditions. This, of course, would need sufficient site characterization sampling data (soil, groundwater, surface water, and/or air inside the property, at the POC wells, and off property, if necessary) as well as fate and transport analysis to establish a complete and accurate site conceptual model. A mistake that is sometimes made is to take one or two quick rounds of site characterization samples (indicating concentrations corresponding to $1x10^{-4}$ risk or less) and using that alone as a base line risk assessment. This does not represent an acceptable baseline risk assessment.

The baseline risk assessment site characterization data requirements include groundwater monitoring data over multiple quarters to account for seasonal variations.

Regulations:

References:

ID#: 30

Category: Soil-to-Groundwater Values

Question: Under what circumstances would the Statewide health standard saturated soil-to-groundwater generic numeric values be applicable?

1. Are persons required to take soil samples below the water table to demonstrate attainment of a standard?

2 Would soil-to-groundwater numeric values be applicable in wetlands, or how else would attainment demonstration be made in wetlands?

3. Also, how is the determination of saturated soil made?

Response: #1 & 3: The wording of the regulations uses the phrase “soil in the zone of groundwater saturation” to include those soils that are intermittently or periodically saturated by rising and falling groundwater levels. These soils may be identified either after monitoring groundwater levels over at least 4 quarters to determine the seasonal high water elevation for a site or by observation of evidence of periodic saturation, such as soil mottling. In the case of soils below the water table, contamination becomes a groundwater issue, as the soil is in constant contact with the groundwater rather than being only periodically saturated. Sampling of these permanently saturated soils is not necessary. Instead, sampling of the groundwater itself would be used to determine the effects of the soil on the groundwater.

#2: As with stream sediments, the primary impacts of contamination in wetlands are to ecological receptors and the ecological screen under Statewide health or the ecological risk assessment process under site-specific would be needed to demonstrate attainment. Also as with stream sediments, the remediation of wetlands can actually be more harmful than the contamination itself. This is another reason wetlands are treated similar to sediments.

It must be emphasized that there are 5 options for satisfying the soil-to-groundwater portion of the Statewide Health Standard. The 1/10th provision for saturated soils is only applicable in selecting the generic value to compare to the other options to determine the appropriate soil-to-groundwater value.

Regulations: 250.308(a)(2)(ii) 250.308(a)(4)(ii)

References:

ID#: 212

Category: Soil-to-Groundwater Values

Question: I have a question concerning the soil to groundwater pathway numeric values calculation for saturated soils. First of all, why is the PADEP calculating a numeric soil to groundwater value to predict whether soil impacts will migrate from saturated soil to groundwater above the groundwater MSC. If the groundwater MSC is met, the saturated soil to groundwater value is irrelevant. Similarly, if the soil to groundwater value is attained, but the groundwater MSC is not, groundwater is still a concern.

The language used to determine a saturated zone soil to groundwater value is not clear. Referring to 250.308(a)(2)(ii), for soil in the zone of groundwater saturation, the standard is 1/10th of the generic value calculated by the equation in paragraph (3). The calculated generic value for benzene is 0.13 ppm. What would be the numeric value in the saturated zone 0.013 or 1.3 ppm?

Response: The language in the regulations came about as a result of the wording in Act 2 in Section 303(b)(4) stating that the soil to groundwater pathway numeric value applies throughout the soil column. We are not talking about permanently saturated soil here, but soils that may be periodically saturated during times of elevated groundwater levels. The equation used to calculate the soil-to-groundwater values (the generic value) uses a dilution factor of 100 to account for the leachate passing though the unsaturated zone. When soil is saturated this dilution does not occur, so the regulations require that a remediator use one-tenth of the generic value when calculating the MSC for soils within the zone of groundwater saturation. We specifically chose the term “zone of groundwater saturation” rather than “saturated soils”, and define that to mean soil that is below the seasonal high water level, as evidenced by soil mottling or other evidence of periodic saturation. This one-tenth value essentially reduces the dilution factor from 100 to 10. For example, if benzene is in soil within the zone of saturation, the remediator would use 0.013 mg/kg (one-tenth of the published value of 0.13) as the generic value to compare to the 100X GW MSC value to calculate the soil-to-groundwater value.

We agree that when permanently saturated soil is contaminated by regulated substances, then it is a groundwater issue, not a soil issue.

Regulations:

References:

ID#: 34

Category: Statewide Health Standard

Question: If a person can demonstrate that their site meets the soil buffer requirements under the Statewide health standard, do they have to demonstrate continued attainment by presenting a fate and transport analysis?

Response: No. The modeling used to establish the buffer distances incorporated fate and transport considerations, so additional analysis is unnecessary. The soil buffer approach is one of five options a user has to demonstrate compliance with the soil-to-groundwater portion of the Statewide health standard.

Regulations: 250.308

References:

ID#: 35

Category: Statewide Health Standard

Question: What is the effect of sulfates being taken off the GW MSC list and listed as SMCLs?

Response: The effect of moving sulfates to the SMCL section of Table 2 in the regulations is that for those substances the point of compliance may be moved away from the property boundary up to and including the point of use. The effect is that the SMCL is not enforced in the aquifer, but at the point of exposure.

Regulations: 250.302

References:

ID#: 36

Category: Statewide Health Standard

Question: What are the attainment sampling obligations of a person demonstrating attainment of SHS in groundwater where a drinking water well exists on the adjacent property?

Response:

Attainment demonstration is made by sampling, but fate and transport analysis is also needed which may trigger the need for a postremediation care plan. For sampling, the attainment demonstration is made at the point of compliance (property boundary) and via sampling on all those wells off the source property which the site characterization showed were in an area with groundwater exceeding the MSCs. Finally, fate and transport analysis is performed to show continued compliance with the standards, or if analysis shows non-compliance in the future, then a postremediation care plan is required detailing how compliance will be maintained.

Regulations: 250.302

References:

ID#: 77

Category: Statewide Health Standard

Question: Do we have a clean up standard for ferrous sulfate? This stuff is a hazardous substance with a low pH, < 2. There was a release to the soil. It was neutralized with a lime solution. The soil was excavated. Now they want to sample to see that it is clean but they would like a target number. Any suggestions?

Response: Our Statewide health standards for inorganics are based on the metals present, not the associated anions. There is a Statewide health direct contact numeric value for iron. There is no soil-to-groundwater value because there is no groundwater MSC for iron, only an SMCL. The value for iron on a residential site is 66,000 mg/kg, and for a nonresidential site 190,000 mg/kg. The remediator would also be able to use either the background or site-specific standard, if appropriate data are available (toxicity values to calculate a site-specific standard, for example).

Regulations:

References:

ID#: 78

Category: Statewide Health Standard

Question: Is the residential direct contact standard for arsenic now 41 mg/kg? The proposed clean fill policy shows a residential regulated fill concentration limit of 41 mg/kg.

Response: No, the Act 2 MSC has not changed. The direct contact value for arsenic remains 12 mg/kg. If and when any changes are made to any of the published Statewide health standards, they must first be published in the PA. Bulletin.

Regulations:

References:

ID#: 210

Category: Statewide Health Standard

Question: Given the recent changes in MSCs, should we be using the arsenic MCL value of 10 ug/l or the current MSC of 50 ug/l? The new tables reflecting the most recent changes in the MSCs do not show the arsenic value being changed. Could you please advise us on this matter?

Response: EPA will not begin enforcing the 10 mg/L MCL until January 23, 2006. At that time the Department will also change its MSC to match the EPA MCL. Until that time, the MSC for arsenic in groundwater remains at 50 mg/L. All final reports in which arsenic is identified as a contaminant that are approved on or after January 23, 2006 will demonstrate attainment of the new standard.

Regulations:

References:

ID#: 239

Category: Statewide Health Standard

Question: Chapter 250 lists the residential, used aquifer MSC for lead in groundwater as 5 µg/L and references the source as the MCL. However, EPA's MCL is listed as 15 µg/L. Could it be a simple typo, or is there another explanation?

Response: The MSC of 5 µg/L for lead in groundwater is based upon the Pennsylvania state MCL for bottled water. EPA has not published an MCL for lead, but establishes an action level of 15 µg /L to be met at the tap by treatment. Section 303(a) of Act 2 authorizes the Department to adopt groundwater MSCs based on both State and federal standards.

Regulations:

References:

ID#: 245

Category: Statewide Health Standard

Question: I have a client that has asked me about a Region III RBC for TCE at 0.26 ppb in soil. Wanted to check with you to see if that number has any validity with PADEP ACT 2 criteria. If the limit is valid I am concerned because it is below lab MDL currently. Risk based criteria and lab technology occasionally don't meet.

Response: Under Act 2, a remediator would screen soil concentrations based on our Statewide health standard of 0.5 mg/kg rather than the Region III RBC. We recognize that lab technology cannot always meet risk-based standards and therefore we use the PQL as the lower limit in demonstrating attainment of a standard (which does not become a factor for TCE).

Regulations:

References:

ID#: 113

Category: Tank Remediation

Question: MSC exceedances in soil and groundwater for MTBE, yet release of liability granted (SHS). Southeast region asked why release was given, with MTBE contamination. Answer received: organic compounds no longer regulated under Act 2 if contaminant source is UST. New regs separating Act 2 & 250?

Response: The attainment tests used under the Statewide health standard do allow for exceedances of the selected standard. Organic regulated substances are regulated under Act 2 for regulated tanks, and the Act 2 standards do apply.

Regulations:

References:

ID#: 233

Category: Tank Remediation

Question: I have been involved with a site under the Storage Tank Corrective Action Process and am working to obtain an Act 2 release of liability. I have demonstrated attainment of the Statewide health standard for groundwater even though we've detected MSC exceedances in the past. I attempted to demonstrate attainment of the Statewide health standard for soils based on UST closure samples, but the regional office claims that we must request a site-specific standard for soils unless we resample per the systematic random sampling procedure. I was informed by the regional office that when there are groundwater impacts, the tank closure soil samples cannot be used for attainment. To attain the Statewide health standard I would have to do attainment sampling at the tank excavations. The regional office asked if I want to change my soil attainment to the site specific standard for all of the soil parameters so that I do not have to do further work at the site.

This policy is new to me in that we've been successful in the past at having PADEP recognize the UST closure samples as attainment samples. I suspect that this "policy" is specific to that particular regional office because we are not finding that this is the interpretation in other regions. If this is a policy adopted by PADEP, I believe it should be made public and put in writing since it impacts the way in which Act 2 closures are obtained.

Response: What the region is enforcing are the "localized contamination" requirements at the bottom of page 13 of the tank closure guidance (253-4500-601). It says that localized contamination is defined as contamination not more than 3 feet from the source and not impacting groundwater. The confirmational sampling for localized contamination is different (five samples, no exceedance of the standard) than for Statewide health standard attainment (systematic random sampling) or attainment under site-specific pathway elimination. Thus, the suggestion from the regional office. You are not directed to only go site-specific; this was only a suggestion. You could do a normal Statewide health standard remediation. If your characterization did not show ANY contamination above the Statewide health MSCs, then you have no area to apply the attainment sampling to (ref: 250.703(b)). It is important to note that this means that, under Act 2, contaminated soil below a Statewide health standard gets the relief from liability but is not required to have attainment sampling (e.g. systematic random sampling), only characterization sampling.

Regulations:

References:

ID#: 1

Category: Vapor Intrusion

Question: The guidance should specify a permeability value for soil-like material to avoid arguments with consultants.

Response: The calculation of the screening levels in the guidance used sandy clay loam as the default soil. If the soil on a site has a hydraulic conductivity greater than that of sandy clay loam, as defined in Table 5 of EPA's guidance for using the Johnson & Ettinger model, then there is a high probability that the material is not soil-like and the screening values in the tables should not be used. When conducting modeling using the J&E model, use Table 11 of EPA's guidance to select the proper soil type for the model inputs.

Regulations:

References:

ID#: 2

Category: Vapor Intrusion

Question: Site characterization requires the identification of soil types.

Response: This was true even before the development of the vapor guidance. Identification of soil types is required for both the site characterization and the fate and transport analysis.

Regulations:

References:

ID#: 4

Category: Vapor Intrusion

Question: If attainment is demonstrated using the 75/10x rule, and one sample exceeds the standard, are you automatically kicked into doing indoor air or soil gas sampling? This could be a problem for residential basements if they are required to go through a site-specific risk assessment.

Response: In the situation of a spill in a basement, there is not five feet of soil-like material between the source and the receptor, and therefore the screening values cannot be used. This requires either soil gas or indoor air sampling. This sampling may be conducted under the independent options in the center

of the matrix rather than going through a site-specific risk assessment.

Regulations:

References:

ID#: 5

Category: Vapor Intrusion

Question: Can we compare sample results in ppbv to the screening values in Table 3?

Response: The sample results must be converted to mg/m3 using the molecular weight and ambient temperature during sampling.

Regulations:

References:

ID#: 6

Category: Vapor Intrusion

Question: Must a remediator sample soil gas beneath a basement floor?

Response: Sampling must occur as close to the source as possible. A concrete basement floor acts as a barrier to vapor movement and transmits the vapor laterally to the edges of the foundation. Samples taken around the edge of a building should be representative of vapor conditions under the floor.

Regulations:

References:

ID#: 7

Category: Vapor Intrusion

Question: When sampling indoor air, how many samples must be taken?

Response: Typically, one sample per home is taken during each sampling event.

Appropriate QA/QC, including blanks and duplicates, must also be taken according to the requirements of the analytical method. The Massachusetts guidance document and the analytical method provide guidance for QA/QC samples.

Regulations:

References:

ID#: 8

Category: Vapor Intrusion

Question: Requiring soil gas or indoor air samples to be taken only in winter and spring seasons will delay submittal of final reports for projects with short turnaround times. We should be somewhat flexible.

Response: Two soil gas sampling events may be taken during the same season providing that the second sampling event occurs within 2-4 weeks after the first event . However, indoor air samples must be taken in winter and spring. The best time to take such samples is when the ambient air temperature is lower than the soil temperature. Other factors such as barometric pressure, ambient temperature and soil moisture must also be considered. Generally a single sampling event is not adequate to provide representative samples. Not every site will require sampling of soil gas or indoor air.

Regulations:

References:

ID#: 9

Category: Vapor Intrusion

Question: If a source is greater than 100 ft from a building, but there is a preferential pathway leading from the source to the receptor, wouldn't this allow vapors to travel distances greater than 100 ft and make the default separation distance insufficient to render the pathway incomplete?

Response: If field data strongly support the potential for an indoor air intrusion problem at greater than 100 ft from a source because of the existence of a preferential pathway, this should be evaluated. This would at least include a fate and transport analysis to evaluate future conditions.

Regulations:

References:

ID#: 10

Category: Vapor Intrusion

Question: If a site meets the Statewide health residential standard, and there is no complete pathway because the source is greater than 100 ft from any receptor, and there is no present plan for residential development, then there is no deed notice required for this site. If a house or building is subsequently proposed such that it is within 100 ft of the source, there is no way for the new property owner to know that there may be a vapor intrusion consideration.

Response: Under the residential Statewide health standard the future use is assumed to have a building present. Therefore the 100 ft exclusion distance is not met. In order to pass the vapor screen, one can apply the options 1 through 4 that are in the middle section of the Decision Matrices. Soil gas samples must be taken as close to the source as possible and to use the maximum concentration when comparing with the screening values. If the sample meets the screening value, then the vapor intrusion pathway presents negligible risk for both the current and future exposure scenarios.

Regulations:

References:

ID#: 11

Category: Vapor Intrusion

Question: The guidance allows that if you take a soil gas sample under a building and fail the screening criteria, you may then take an indoor air sample. What about future conditions?

Response: Future conditions must be taken into account and the current indoor air sample is not necessarily representative of future conditions. Sampling must consider a moving plume and we should not accept a one-time sample. The option of taking an indoor air sample that is not representative of future conditions and getting out should not be allowed. This is one reason that soil gas sampling is preferred.

Regulations:
References:

ID#: 12
Category: Vapor Intrusion
Question: Must soil gas and indoor air samples be analyzed by certified laboratories?

Response: It is our understanding that they must.

Regulations:
References:

ID#: 13
Category: Vapor Intrusion
Question: Two quarterly soil gas samples are required. Can the same geoprobe hole be used to take both samples, or must a new sampling point be installed, requiring re-mobilization of expensive equipment?

Response: If the integrity of the hole (e.g., capping, ensuring that water does not flood the hole, securing against tampering), then the same hole can be re-used. If a hole is re-used then you can't get a vertical profile the second time around.

Regulations:
References:

ID#: 14
Category: Vapor Intrusion
Question: Comment was made that we should advocate a reverse flow radon system for vapor venting rather than an active venting system. Venting could pull vapors toward the building and actually cause a problem. The flow should be reversed to keep the vapor out.

Response: A remediator may propose any mitigation system. Post remediation care must be adequate to demonstrate the effectiveness of the mitigation measure.

Regulations:

References:

ID#: 15

Category: Vapor Intrusion

Question: Does occupied (or inhabited) mean for 8 hours, versus a storage building where someone may just go in to get something?

Response: Under the Statewide health standard a building may be considered to be either residential or nonresidential. If other (e.g., shorter) exposure times are deemed appropriate the site may be evaluated under the site-specific standard.

Regulations:

References:

ID#: 16

Category: Vapor Intrusion

Question: If a spill of home heating oil is within 100 ft of a building and cleanup up to Act 2 standards, there may still be an odor problem which makes residents ill. Will they be required to clean up to no odor?

Response: If a spill is cleaned up using the short list of petroleum products found in Section IV.E of the Technical Guidance Manual there can be no odor nuisance in order to meet the Statewide health standard.

Regulations:

References:

ID#: 17

Category: Vapor Intrusion

Question: Is this guidance enforceable under Chapter 245? Can we force someone to use the guidance by issuing an NOV? There could be a problem if we deny a final report based on a policy rather than a regulation.

Response: The vapor screen is a part of the Statewide health standard, in the same way as the ecological screen is. The procedural requirements of Chapter 245 require that a remediator demonstrate attainment under one of the Act 2 standards. At this time the Department is encouraging use of the vapor screening matrix. The screen is intended to function in the same way as the ecological screen under the Statewide health standard. It closes a loophole to address the vapor intrusion pathway that was not considered in developing the Statewide health MSCs. After gaining experience in implementing the guidance, we envision incorporating it into the Chapter 250 regulations.

Regulations:

References:

ID#: 18

Category: Vapor Intrusion

Question: Can one collect two soil gas sampling events during the same quarter (Fall/Winter)?

Response: To provide flexibility, two separate soil gas samples can be collected from the same quarter (late Fall/Winter) providing that the ambient temperatures are less than the soil temperatures and that the second sampling event occurs within 2-4 weeks after the first event . This is typically 50 degrees F.

Regulations:

References:

ID#: 19

Category: Vapor Intrusion

Question: If the PQL (non-detect) was met in groundwater and there was less than 5 feet soil-like material, is indoor air or soil gas sampling required?

Response: One must have detectable levels of constituents in groundwater, at any depth,

to continue on in the decision matrix.

Regulations:

References:

ID#: 20

Category: Vapor Intrusion

Question: If a soil gas sample is taken close to the surface, could it be "diluted" by the ambient air being drawn into it?

Response: There should be adequate separation distance between the source and the surface to obtain a soil gas sample, and the sampling should be designed based on the conditions of the site.

Regulations:

References:

ID#: 21

Category: Vapor Intrusion

Question: We have a site (former gasoline service station) with a commercial building onsite. A monitoring well very near the corner of the building has SPL on occasion. The well is located near the former fuel oil tank cavity. The only release reported at the site was for unleaded gasoline. During sampling events when no SPL was present, groundwater samples were collected. Dissolved phase constituents are below the Statewide Health Standards. According to the final draft on vapor intrusion, either soil gas sampling or IAQ sampling must be completed where SPL is present close to a building. We prefer to collect an indoor air sample instead of the soil gas sampling. Should we analyze the air samples for the PA unleaded gas parameters and fuel oil parameters for soil & gw (BTEX, MTBE, naphthalene, isopropylbenzene, fluorene, & phenanthrene), or only those listed in bold in the tables (COPIACs)? I am having some difficulty interpreting the regulations, and I need to decide what analyses to run and what sample kits will be needed.

Response: One should only analyze for the individual constituents of concern (BTEX, MTBE, naphthalene, isopropylbenzene, fluorene, & phenanthrene). These are COPIACs and non-COPIACs.

Regulations:

References:

ID#: 22

Category: Vapor Intrusion

Question: If the site is going under the SSS are they still required to do some type of IAQ or soil gas sampling since free product is present.

Response: Yes, it would require some limited soil gas or indoor air sampling.

Regulations:

References:

ID#: 23

Category: Vapor Intrusion

Question: The groundwater levels are fluctuating between 97-102 feet in the site area. The guidance sets >100' as the cutoff to bypass further investigation. How set in stone is this 100 feet?

Response: That 100' distance is a horizontal distance, not vertical distance. For vertical distance greater than or equal to 5' of soil-like materials (except sand and sand-like), a person can use the screen values in tables. We did not provide cutoff vertical distance to bypass further investigation.

Regulations:

References:

ID#: 24

Category: Vapor Intrusion

Question: When and how does the 5 foot variable apply? Is the 5 feet vertical separation distance applied from the ground surface to the water table/source

or from the bottom of the floor (in a basement) or bottom of a slab?

Response: It is based on 5 feet from the bottom of the floor in a basement or bottom of a slab for slab on grade construction.

Regulations:

References:

ID#: 25

Category: Vapor Intrusion

Question: How is the screening procedure applied when a residential property is adjacent to a nonresidential site that has contamination?

Response: For groundwater, the remediator should use the residential screening values when assessing the potential for vapor intrusion because of the possibility of movement of the groundwater plume. For soils, the property boundary should be considered when establishing the 100-foot separation distance between the source and the receptor. If the contamination is within 100 feet of the property boundary the residential screening values should be used to assess vapor intrusion.

Regulations:

References:

ID#: 75

Category: Vapor Intrusion

Question: For sites with many years (5+) of groundwater chemistry data, does one exceedance of a standard kick the site into the vapor pathway analysis (when a receptor has been identified - no LNAP present)? For sites that are using the 75/10x rule for closure, what data would be used in the Decision Matrix for groundwater?

Response: The vapor screen is done using the site characterization data, not the attainment data. The highest value from the site characterization data is used to determine if the screen is passed or not. When screening groundwater concentrations, the decision to proceed in the vapor screen is based on a non-exceedence rule, NOT the use of the 75%/10x rule.

Regulations:

References:

ID#: 76

Category: Vapor Intrusion

Question: Does the vapor guidance have a "depth-to-contamination" (at greater depths) pre-screen that could be used to eliminate the pathway? My site has contaminated groundwater that exceeds the screening vales listed in the guidance but it is at a depth of > 60feet.

Response: No. The guidance does not have a vertical distance to contamination (at greater depths) that would "screen-out" the vapor intrusion pathway. The Department has done extensive conservative modeling of those VOCs listed in the guidance and have found that they should be evaluated regardless of depth.

In the scenario above, according to the vapor guidance, if you exceed the SHS GW standard or J&E screening value at a depth greater than 60 feet, it must be evaluated. That would put you into sampling the soil gas(preferred) or the indoor air. Once you have done that, you compare to the MSCIAQ and at that point it may meet that criteria, putting one out of the vapor pathway without going site-specific.

Regulations:

References:

ID#: 80

Category: Vapor Intrusion

Question: If I have a site where I can demonstrate attainment of soil and groundwater MSCs published in the regulations under the Statewide health standard, but a contaminant fails the vapor screen and I choose to do a site-specific analysis under (B) of the decision matrix in the vapor guidance, which Act 2 standard have I met?

Response: Conducting a site-specific analysis is one option under the guidance for the Statewide health standard, and therefore you have attained the Statewide health standard, not a combination of standards.

Regulations:

References:

ID#: 89

Category: Vapor Intrusion

Question: Can one do a site-specific analysis (Option B) in next steps for a potentially complete pathway of the vapor screen matrix within the context of complying with the Statewide health standard and if so, what information does one have to present to justify J&E parameters other than the default values?

Response: (Part 1): Yes, as long as the risk range is 1.0E-05 and HQ <1.0, (on a substance by substance basis), and using the same toxicological factors as specified in Chapter 250, Appendix A, Table 5 (relating to Physical and Toxicological Properties of substances).

Part (2): The Land Recycling Program has confidence in the J&E model as an analysis tool under the Statewide health standard, even when site-specific parameters are used. The objective should be to present values and the associated justification for, that are reasonable (and have built-in a safety factor) for the site-specific situation as determined by the environmental professional. In some cases it is advisable to provide site-specific measurements for input for the J&E analysis. This means that if a non-default value for a parameter is chosen, that parameter should be determined by best professional judgment (along with rational) including a safety factor, or be directly or indirectly measured along with a re-analysis of other parameters which may vary from the default if the chosen parameter is indeed changed (e.g. the "crack area" is modified based on site specific measurements in the building--Then the soil-building pressure differential is assumed to be changed and a reasonable value with safety factor utilized.). If any of the seven sensitive J&E parameters listed below are changed, the DEP is particularly interested that careful analysis and clear justification be made for the new values. This analysis can optionally can be done through calibration with soil gas analysis data. The Land Recycling Program will be monitoring the use of site-specific data on sites and if determined necessary, will offer more guidance in the future.

J&E Sensitive Parameters

Soil Water filled porosity
Capillary Zone Soil water filled porosity
Thickness of capillary zone
Average vapor flow rate into a building

Soil vapor permeability
Soil to building pressure differential
Crack to total area ratio

Regulations:

References:

ID#: 90

Category: Vapor Intrusion

Question: Definition of a separate phase liquid….10,000 mg/kg of each component or is it for a product such as diesel?

Response: Separate Phase Liquid is the total constituents of 10,000 mg/kg. See the definition of SPL in the Vapor Intrusion Guidance document, page 52.

Regulations:

References: Vapor Intrusion Guidance, page 52

ID#: 92

Category: Vapor Intrusion

Question: Is the analytical method for Summa canisters TO-14 or TO-15? There are significant quality control differences between them.

Response: The TO methods were developed for ambient air studies but can easily be adapted for use in conducting air studies. TO-14 and TO-15 methods are the most commonly used methods as well as others (e.g. TO-1, TO-2, TO-17) for indoor air measurements. The remediator must carefully choose the appropriate the analytical method that will meet the data quality objectives of the site characterization.

Regulations:

References:

ID#: 93

Category: Vapor Intrusion

Question: Does a complete IAQ analysis have to be included in all Site Characterization Reports under Chapter 245? If so, will there be some softening of the 180-day requirement?

Response: The IAQ analysis must address the contaminants of concern that are related to the release. The IAQ analysis is to be submitted with the Site Completion Report; there is no extension of the 180-day requirement.

Regulations:

References:

ID#: 94

Category: Vapor Intrusion

Question: Is a mobile home (on blocks w/ a crawl space beneath) considered an “occupied space”?

Response: The crawl space is not an occupied space, however it constitutes a potential source, unless it is open to the outside.

Regulations:

References:

ID#: 95

Category: Vapor Intrusion

Question: If fractured bedrock is within 30 feet (i.e., less than 30 feet of soil) of surface, is this a preferential pathway?

Response: Fractured bedrock is a preferential pathway if the fractures pass with 30 feet of the source and pass directly through the receptor. See the definition of a vapor source in the guidance document (Vapor Intrusion Guidance, pg. 53).

Regulations:

References: Vapor Intrusion Guidance, page 53

ID#: 96

Category: Vapor Intrusion

Question: For groundwater, if COPIACs present exceed the groundwater MSC but non-COPIACS meet nonuse aquifer MSCs, do you just ignore the COPIACs or may they be compared to nonuse MSC? (as with non-COPIACs)? Or can the nonuse aquifer MSC option not be used for COPIACs?

Response: No, the COPIACs are not ignored because the screening process is applied to each regulated substance individually. The options available for COPIACs under the "determine if a potential pathway exists" option in the GW matrix are all but the second option, that of comparing to the nonuse aquifer MSC. The nonuse aquifer MSC option under the "determine if a potential pathway exists" of the GW matrix is not available for COPIACs and only available for non-COPIACs.

Regulations:

References:

ID#: 97

Category: Vapor Intrusion

Question: If the source of contamination is >100' from the receptor, must you still perform soil gas sampling in the area of the source w/ the highest concentration?

Response: If the vapor source (as defined in the guidance, Vapor Intrusion Guidance, pg. 53) is > 100 feet from the receptor, the pathway is incomplete or presents negligible risks and there are no further IAQ issues.

Regulations:

References: Vapor Intrusion Guidance, page 53

ID#: 98

Category: Vapor Intrusion

Question: Can all the soil gas and IAQ sampling be foregone by installing a radon mitigation system and still receive release of liability under Act 2?

Response: Yes. Mitigation is allowed in place of conducting the screen. However, documentation that the mitigation is effective must be provided.

Regulations:

References:

ID#: 99

Category: Vapor Intrusion

Question: I need some additional clarification on sites where depth to water is less than 5'. Do you automatically default to site-specific or how may you stay with Statewide health?

Response: If contamination is less than 5 feet, the screening values do not apply. Soil-gas or indoor air would have to be sampled or the site-specific analysis may be conducted (which is still considered to be under the Statewide health standard).

Regulations:

References:

ID#: 100

Category: Vapor Intrusion

Question: For soil, if a COPIAC is present, must you automatically evaluate the next steps for potentially complete pathways if one of the other options under pathway determination applies?

Response: For COPIACs in soil, all options are available under the pathway determination portion of the soil matrix, with the exception of the comparison to the soil to groundwater value, which is available only for non-COPIACs. One is not automatically put into sampling in "next steps for a potentially complete pathway" of the soil matrix.

Regulations:

References:

ID#: 101

Category: Vapor Intrusion

Question: Can you clarify “2 quarterly” samples - 2 samples for each of 2 seasons?

Response: For indoor air sampling, one sampling event must be collected in the spring and one on winter (Vapor Intrusion Guidance, see pg. 37). For soil-gas sampling (Vapor Intrusion Guidance, see pg. 38), one must collect a sample in the spring and winter however; one can collect two soil-gas sampling events within the same season as long as they are 2-4 weeks apart.

Regulations:

References: Vapor Intrusion Guidance pages 37 and 38

ID#: 102

Category: Vapor Intrusion

Question: Is the J&E model applicable for preferential pathway sites? If not, just do sampling (indoor air) and compare to MSCIAQ? Or are there other options?

Response: The J&E model is unreliable for preferential pathway vapor lateral transport. If preferential pathways exist, one conducts soil-gas or indoor air sampling or chooses the site-specific option which one can apply the modeling of the vapors that are vertically emanating into the occupied building.

Regulations:

References:

ID#: 103

Category: Vapor Intrusion

Question: How does the new vapor intrusion guidance apply to special industrial areas?

Response: The vapor guidance applies if the vapor pathway presents an imminent, immediate, or direct threat that would prevent the property from being used

for its intended purpose.

Regulations:

References:

ID#: 104

Category: Vapor Intrusion

Question: If a SPL is identified in either the soil or groundwater at a site, but has no MSC in the Act 2 tables, are further IAQ issues required?

Response: If a regulated substance does not have an MSC in the tables in Appendix A to the regulations, then the Statewide health standard is not available for that substance, and a remediator must attain either the background or site-specific standard. The vapor screening guidance only applies to the Statewide health standard.

Regulations:

References:

ID#: 105

Category: Vapor Intrusion

Question: Please confirm if a winter-04 and then a spring-05 IAQ or soil gas sample schedule is required for example, or can a spring-04 event be followed by a winter-04-05 event

Response: Either one of those scenarios is acceptable as long as the ambient air temperatures are lower than the soil temperature.

Regulations:

References:

ID#: 106

Category: Vapor Intrusion

Question: Would PELs apply to sites that operate as a gas station/convenience store and does not include a garage/service area?

Response: It is our understanding that the OSHA PELs would not apply to a gas station being that gasoline is a product that is being dispensed.

Regulations:

References:

ID#: 107

Category: Vapor Intrusion

Question: Is there any way to convert passive soil gas measurements to concentrations (weight/volume)?

Response: Typically air concentrations of VOCs can either be expressed as mass per unit volume or as volume of gas per volume of air. The conversion is: mg/m3 = ppmv * Molecular Weight/24.45

Regulations:

References:

ID#: 108

Category: Vapor Intrusion

Question: Do the tables reflect no-exceedance? If so, would it be possible to pass 75%/10x but fail vapor screening for the same MSCIAQs?

Response: When screening groundwater and soil concentrations, the decision to proceed in the screen is based on a non-exceedance rule, NOT the use of the 75%/10x rule. Sampling requirements for vapor are not limited to the point of compliance as is demonstration of attainment.

Regulations:

References:

ID#: 109

Category: Vapor Intrusion

Question: Also, if groundwater attainment is for 4 or 8 quarters, do you obtain the max levels for vapor screening from the full 4 or 8 quarters, or just the last events?

Response: Use the maximum concentration that was found in the most recent samples of all characterization wells that are no older than one year.

Regulations:

References:

ID#: 110

Category: Vapor Intrusion

Question: If groundwater is less than 5 ft bgs, matrix can't be used and soil gas/indoor air samples are needed. However, soil gas sampling must be collected >5 ft bgs to avoid ambient air short-circuiting. This scenario excludes use of matrix? (tough to collect soil gas from saturated zone?

Response: If groundwater is encountered < 5 feet, the soil gas sample will have to be collected <5 feet. Soil gas samples collected < 5 feet must be sealed in a fashion to prevent ambient air from short-circuiting the sample. As another option, an indoor air sample can be collected.

Regulations:

References:

ID#: 111

Category: Vapor Intrusion

Question: API recommends collecting soil gas samples nested at different depths, and evaluating worst case future and current use through the deepest probe over the hot spot. PADEP is requiring many more samples, why can't the worst case sample (closest to hot spot) be the only sample collected to evaluate future and current under PADEP as API recommends?

Response: A soil gas sample closest to the source (hot-spot) is recommended, however it is recommended to obtain a vertical profile to confirm a concentration gradient from high to low.

Regulations:

References:

ID#: 112

Category: Vapor Intrusion

Question: Please provide clarification on preferential pathways. Is gravel sub-base (under asphalt) a preferential pathway? Guidance definitions suggest it isn't, unless within 30 ft of source. If this is true, ALL UST sites will be required to do soil gas/indoor air sampling. Preferential pathway evaluation seems to be the most subjective part of this process. There seem to be inconsistencies between evaluating gravel sub-base, shallow bedrock, and sandy soils as preferential pathways.

Response: The guidance indicates that the presence of crushed stone beneath a slab (or asphalt in this case) is not a preferential pathway. [See Vapor Intrusion Guidance, Preferential exposure pathway definition pg. 51 & 52]

Regulations:

References: Vapor Intrusion Guidance, pages 51-52

ID#: 114

Category: Vapor Intrusion

Question: If a site initially has exceedances in soil vapors, but is then excavated or remediated, is there a requirement, like soils, where a certain number of samples must be below limits (i.e., 8 quarters of clean data)? Or is one set of clean values enough?

Response: The vapor screening may be conducted using the highest concentrations found in the most recent sampling events. Including post-remediation sampling. This screening uses the no exceedance rule, not attainment tests like the 75%/10X rule which allow some exceedances of the screening value.

Regulations:

References:

ID#: 115

Category: Vapor Intrusion

Question: Are there plans to make the guidance for vapor intrusion from groundwater and soil under Act 2 into a regulation? If so, what is the time frame?

Response: Yes. The time frame is currently estimated at five years.

Regulations:

References:

ID#: 116

Category: Vapor Intrusion

Question: Define “source” as in does a preferential pathway pass through or within 30’ of a source.

Response: The following definition of vapor source (see Vapor Intrusion Guidance, pg. 53) is found in the guidance document:
The vapor source is the contaminated soil or groundwater with volatile constituents at concentrations equal to or above the limits related to PQLs as specified in 25 Pa. Code, Section 250.4 at a depth less than 5 feet beneath a receptor. Soil or groundwater at concentrations exceeding the acceptable levels specified in this document if present at a depth of greater than five feet below or within 100 feet of a receptor.

Regulations:

References: Vapor Intrusion Guidance, page 53

ID#: 117

Category: Vapor Intrusion

Question: Site – VOCs, no NAPL, nonuse aquifer. How do you assess potential vapor

(IAQ) risks to residential properties upgradient of site? The potential pathway is through impacted groundwater entering a combined sewer/storm sewer that passes through an area of contamination prior to entering POTW.

Response: The criteria in the matrices apply regardless of the direction from the receptor. If the source is within 100 ft of the receptor in any direction, the pathway is potentially complete and must be evaluated.

Regulations:

References:

ID#: 118

Category: Vapor Intrusion

Question: Some slides in notes (handouts) are too small to read text. Are or can these be made available on web?

Response: A copy of the PowerPoint presentation is available on the Land Recycling web site.

Regulations:

References:

ID#: 119

Category: Vapor Intrusion

Question: Can you restate the lack of applicability for vapor evaluation under background standard?

Response: Background is the concentration of a regulated substance present on a site that is not related to the operations carried on that site. Demonstrating that the regulated substances on the site meet this criterion is sufficient to demonstrate attainment of the background standard. This is not a health-based standard. The vapor screening process presented in the guidance applies only to the Statewide health standard.

Regulations:

References:

ID#: 120

Category: Vapor Intrusion

Question: Ventilation of homes for 24-hour period when sampling indoor air. Is this done prior to or during the acquisition of the indoor air sample?

Response: Ventilation of the home must be done prior to the sampling event. The home would then be closed and allowed to equilibrate for 24-48 hours before the sample is taken.

Regulations:

References:

ID#: 125

Category: Vapor Intrusion

Question: Site specific analysis can still result in SHS. Does this mean that I can change some J&E input parameters and as long as resulting risk is $<10^{-5}$ and HQ<1, I can qualify for SHS?

Response: Yes, one can do a site-specific analysis in the vapor screen matrix within the context of complying with the Statewide Health Standard as long as the risk range is 1.0E-05 and HQ <1.0, (on a substance by substance basis), and using the same toxicological factors as specified in Chapter 250, Appendix A, Table 5 (relating to Physical and Toxicological Properties of substances).

The Land Recycling Program has confidence in the J&E model as an analysis tool under the Statewide health standard, even when site-specific parameters are used. The objective should be to present values and the associated justification for, that are reasonable (and have built-in a safety factor) for the site-specific situation as determined by the environmental professional. In some cases it is advisable to provide site-specific measurements for input for the J&E analysis. This means that if a non-default value for a parameter is chosen, that parameter should be determined by best professional judgment (along with rationale) including a safety factor, or be directly or indirectly measured along with a re-analysis of other parameters which may vary from the default if the chosen parameter is indeed changed (e.g. the "crack area" is modified based on site specific measurements in the building--Then the soil-building pressure differential is assumed to be changed and a reasonable value with safety factor utilized.). If any of the seven sensitive J&E parameters listed below are changed, the DEP

is particularly interested that careful analysis and clear justification be made for the new values. This analysis can optionally can be done through calibration with soil gas analysis data. The Land Recycling Program will be monitoring the use of site-specific data on sites and if determined necessary, will offer more guidance in the future.

J&E Sensitive Parameters

Soil Water filled porosity
Capillary Zone Soil water filled porosity
Thickness of capillary zone
Average vapor flow rate into a building
Soil vapor permeability
Soil to building pressure differential
Crack to total area ratio

Regulations:

References:

ID#: 126

Category: Vapor Intrusion

Question: For sites with former UST pits that are now backfilled with gravel – do they automatically fail the "soil-like" material requirement?

Response: No, one would not automatically fail. The 5 foot criteria applies to the vertical distance directly underneath the receptor, so a site with a tank pit that has been backfilled with gravel would only fail the criteria if a building was constructed over the pit area. Gravel would not meet the definition of "soil-like material" as defined in the guidance.

Regulations:

References:

ID#: 127

Category: Vapor Intrusion

Question: If I do site-specific analysis for possible future site buildings, do I need to run both slab-on-grade and basement exposure scenarios to ensure no deed restriction?

Response: Under the site specific analysis in context with the SHS for an area with no building or a vacant lot, a deed notice would be placed on the property indicating where contamination is located. If a building were to be constructed, it would include a mitigation measure. Yes, both scenarios can be run using the site-specific analysis under SHS.

Regulations:

References:

ID#: 128

Category: Vapor Intrusion

Question: Does the DEP have default J&E model input parameters for a basement exposure scenario?

Response: The default J&E model input parameters for a basement would be the EPA Draft Guidance for Evaluating the Vapor Intrusion To Indoor Air Pathway From Groundwater and Soils.

Regulations:

References:

ID#: 129

Category: Vapor Intrusion

Question: For soil samples with COPIACs or non-COPIACs at concentrations > soil-to-groundwater MSC but from saturated soil – should they be eliminated from further soil evaluations and pass into GW evaluation? Obviously, these saturated soil samples will not emanate vapors.

Response: If the saturated soil is determined to be groundwater, then it should pass into the groundwater evaluation. Saturated soils containing contaminants could emanate vapors based on their physical properties.

Regulations:

References:

ID#: 130

Category: Vapor Intrusion

Question: If the groundwater is contaminated at a well within 100’ of a residence can we use a groundwater model to estimate a concentration under the building and then use the J&E model using the projected groundwater concentration? Not under SHS, but as a valid SSS approach?

Response: If the SHS is not going to be used, the SSS approach can be used to conduct fate & transport analysis on the groundwater (using the highest concentration) to predict the concentration under the building and then use the J&E model to predict the indoor air concentration in the building.

Regulations:

References:

ID#: 131

Category: Vapor Intrusion

Question: If the J&E modeling is used, and sampling is still required (for confirmation?) when would anybody model? We model to obtain estimates of, say, soil gas concentrations under conditions other than those that are being measured. Therefore, what “other” conditions would be modeled? Seems like modeling would be performed instead of rather than in addition to monitoring.

Response: The Land Recycling Program has confidence in the J&E model as an analysis tool under the Statewide health standard, even when site-specific parameters are used. The objective should be to present values and the associated justification for, that are reasonable (and have built-in a safety factor) for the site-specific situation as determined by the environmental professional. In some cases it is advisable to provide site-specific measurements for input for the J&E analysis. This means that if a non-default value for a parameter is chosen, that parameter should be determined by best professional judgment (along with rational) including a safety factor, or be directly or indirectly measured along with a re-analysis of other parameters which may vary from the default if the chosen parameter is indeed changed (e.g. the "crack area" is modified based on site specific measurements in the building--Then the soil-building pressure differential is assumed to be changed and a reasonable value with safety factor utilized.). If any of the seven sensitive J&E parameters listed below are changed, the DEP is particularly interested that careful analysis and clear justification be made for the new values. This analysis can optionally can be done through

calibration with soil gas analysis data. The Land Recycling Program will be monitoring the use of site-specific data on sites and if determined necessary, will offer more guidance in the future.

J&E Sensitive Parameters

Soil Water filled porosity
Capillary Zone Soil water filled porosity
Thickness of capillary zone
Average vapor flow rate into a building
Soil vapor permeability
Soil to building pressure differential
Crack to total area ratio

Regulations:

References:

ID#: 132

Category: Vapor Intrusion

Question: Can we make an analogy between soil gas and groundwater? That is – can we monitor soil gas at the downgradient (with respect to groundwater) property boundary rather than offsite? If the soil gas at the property boundary is below MSCs can we assume that soil gas further removed from the site will also be below MSCs – and thus avoid offsite sampling?

Response: No, if the SHS is being used soil gas is not to be monitored at the property boundary. Soil gas samples are to be collected closest to the source exhibiting the highest concentration (e.g. on-site) and at the receptor (e.g. off-site). This would represent current and future conditions. One must consider plume stability and movement and the possible vapor impacts now and into the future.

Regulations:

References:

ID#: 133

Category: Vapor Intrusion

Question: If we have SPL within 100’ of a building, but it is moving laterally to the

building – and the SPL is not adjacent to the building – ad the groundwater has greater than 5' between it and the building is it screened out? If not, what do you suggest as a way to develop a site-specific standard?

Response: If there is SPL within 100 feet laterally of a building, regardless of the movement, you would have to sample soil-gas or indoor air or conduct a site-specific analysis and/ or mitigate under the vapor screen.

Regulations:

References:

ID#: 134

Category: Vapor Intrusion

Question: IAQ - 2 samples collected, one pass, one fail. What should I do?

Response: You need to consider the potential background concentrations for the indoor air due to the sources other than the subsurface vapor intrusion. If you cannot pass the screening values in Tables 1,2, 4 and 5 of the guidance, you can still consider soil gas sampling, site-specific analysis or mitigation options under the Statewide Health standard.

Regulations:

References:

ID#: 135

Category: Vapor Intrusion

Question: You mention odor thresholds are found to be higher than MSCs about 90% of the time. What are the constituents making up the remaining 10%?

Response: The constituents that have odor thresholds lower than the MSCiaq are found in Table 3 of the guidance. The vapor guidance does not address those remaining 10% of constituents. If odors are present, the remediator is to take the necessary steps to resolve them.

Regulations:

References:

ID#: 136

Category: Vapor Intrusion

Question: How do you apply guidance to a former UST pit that has been backfilled with pea gravel?

Response: The 5 foot criteria applies to the vertical distance directly underneath the receptor, so a site with a tank pit that has been backfilled with gravel would only fail the criteria if a building was constructed over the pit area. Gravel would not meet the definition of “soil-like material” as defined in the guidance.

Regulations:

References:

ID#: 137

Category: Vapor Intrusion

Question: What indoor air quality testing will PADEP accept?

Response: The guidance suggests the typical air methods TO-14/TO-15 (see page 50; IAQ Sampling), however other methods are acceptable (i.e. -, Appendix A in guidance) as long as they meet the data quality objectives, analyze for the contaminants of concern, and meet the MSCiaq and detection limits. Also, take into account the background levels when sampling indoor air.

Regulations:

References:

ID#: 138

Category: Vapor Intrusion

Question: Is HVAC operation considered?

Response: Yes, HVAC operation can be considered as a condition for sampling and can be operating as normal if the situation warrants. Once a mitigation measure

or system is in place, documentation is required to measure its effectiveness.

Regulations:

References:

ID#: 139

Category: Vapor Intrusion

Question: Should you develop a sampling plan for indoor air sampling?

Response: A sampling plan for indoor air should be developed to include, but not limited to, defining the goals, establish data quality objectives, quality assurance/quality control, and sampling methods. Establish communication with all parties involved to avoid problems in sampling efforts.

Regulations:

References:

ID#: 140

Category: Vapor Intrusion

Question: How can I address the vapor intrusion pathway under SHS without soil gas survey or indoor air sampling, if soil source is separated from receptor by <5 feet vertically and 95’ laterally? Also, how can I achieve SHS vapor with benzene @ 380 ug/kg residential at 5’ vertical, 90’ horizontally without active sampling?

Response: If the contamination is less than 5 feet, the vapor screening values in Tables 1, 2, 4 & 5 do not apply. You can conduct site-specific analysis using vertical separation distance of <5’ along with other modified J&E input parameters with proper justifications. Other validated fate and transport model, if available, may be used to account for the lateral movement. Sampling and mitigation are optional choices.

Regulations:

References:

ID#: 141

Category: Vapor Intrusion

Question: Please consider this case: 3 gas stations at one intersection. “my” gas stations investigate release and pursues vapor guidance, the other 2 are not doing anything. My site fails screen, has to sample soil gas between source and receptor (90’ from my site, no preferential pathways but receptor is 50’ from other station with preferential pathways – unknown to me). Now I did the sampling and will be responsible for offsite remediation when in effect a different approach (permission of <5’ vertical, <100’horizontal) would have prevented this.

Response: You can still consider to conduct site-specific analysis under the Statewide Health standard using modified J&E input parameters with proper justifications. Other validated fate and transport model, if available, may be used to account for the lateral movement from your property. Other potential sources have to be investigated and reported to the Department which has responsibility under the Storage Tank Act and regulations.

Regulations:

References:

ID#: 142

Category: Vapor Intrusion

Question: The vapor guidance is a good first step. Please work with us consultants to modify.

Response: The Department is always open to comments on our guidance documents. Any changes to this guidance will be issued for public comment prior to being incorporated into the guidance.

Regulations:

References:

ID#: 143

Category: Vapor Intrusion

Question: In the guidance documents I saw no reference to the applicability of syringe type samples for soil gas testing, yet in the presentation it was stated that they are acceptable. It is our concern that this type of sampling is neither regulated, validated nor accepted by EPA as generating quality data. Please explain your position.

Response: Gas-tight syringes for soil gas sampling are acceptable and are often used in real-time sampling with direct injection into a portable field GC. See MADEP guidance that is referenced in our guidance. Gas-tight syringes in conjunction with the evacuated glass vials are acceptable for field hot-spot determination only with direct injection into a portable field GC on-site analysis.

Regulations:

References:

ID#: 144

Category: Vapor Intrusion

Question: Appendix A of the guidance document states analytical methods and collection media. In the presentation it was stated that syringes were an acceptable sampling method. Syringes do not allow for proper analysis of samples by TO-13, TO-14, or TO-15. How can this be an acceptable sampling media?

Response: Syringes are not a sampling media. They are collection devices that are used for real time sampling and analysis in the field. Syringes are not allowed for proper analysis by TO-13/14/15.

Regulations:

References:

ID#: 145

Category: Vapor Intrusion

Question: Naphthalene falls between VOC and SVOC scans- requires 2 analyses – some labs list it in one scan – any thoughts?

Response: Naphthalene does fall between a VOC & SVOC. We do not require two

analyses for naphthalene, however it is imperative to consult with the laboratory as to method selection and analysis and as long as the detection limits are achieved.

Regulations:

References:

ID#: 146

Category: Vapor Intrusion

Question: If COPIACs present at my site, do I have to sample soil gas or indoor air directly? Or do I have any other option?

Response: One can use the J&E screening values as long as one has the separation distance of > 5 feet of soil-like material.

Regulations:

References:

ID#: 147

Category: Vapor Intrusion

Question: If vapor source is within 5’ vertically from the basement floor, what options do I have in Step 2 of the decision matrices?

Response: If the vapor source is within 5 feet vertical distance from the basement floor, sample the soil-gas or indoor air or conduct a site-specific analysis under SHS.

Regulations:

References:

ID#: 148

Category: Vapor Intrusion

Question: For saturated soil, which is in groundwater aquifer, do I have to use the soil screening values in Tables 4 and 5? Or the groundwater screen using Tables 1 and 2 is sufficient?

Response: If this is “saturated” soil and this is defined as groundwater, then use the GW Tables 1 & 2 in the guidance.

Regulations:

References:

ID#: 149

Category: Vapor Intrusion

Question: Is the vapor screen applied to pre-remedial or post-remedial conditions of the site?

Response: The vapor screen can be applied to either pre-remedial or post-remedial conditions.

Regulations:

References:

ID#: 150

Category: Vapor Intrusion

Question: I have 7 years of groundwater data. How do I apply the requirement to use the maximum concentration in groundwater screen for vapor intrusion?

Response: Use the most recent 1-year of groundwater data and apply the highest concentration.

Regulations:

References:

ID#: 151

Category: Vapor Intrusion

Question: The groundwater plume edge is within 100’ laterally from the receptor, but the location of the maximum concentration is more than 100’ away from the receptor. How do I apply the requirement to use the maximum concentration in groundwater screen for vapor intrusion?

Response: You would have to consider plume stability (current & future) with fate and transport analysis to determine the highest concentration that could be within the 100-foot radius.

Regulations:

References:

ID#: 152

Category: Vapor Intrusion

Question: The indoor air data exceeded MSC but soil gas data are less than 100 x MSC. Does pathway present negligible risk?

Response: You have the option of using either the soil gas data or the indoor air data.

Regulations:

References:

ID#: 153

Category: Vapor Intrusion

Question: Is the site-specific analysis in the decision matrices under the Statewide Health standard or Site-Specific standard?

Response: The site-specific analysis is under the Statewide Health Standard.

Regulations:

References:

ID#: 154
Category: Vapor Intrusion
Question: Does the site-specific analysis require deed notice?

Response: Only if non-residential assumptions are being used.

Regulations:
References:

ID#: 155
Category: Vapor Intrusion
Question: What is the definition of vapor source for both >5’ and <5’ vertically from the receptor?

Response: The vapor source is the contaminated soil or groundwater with volatile constituents at concentrations equal to or above the limits related to PQLs as specified in 25 Pa. Code, Section 250.4 at a depth less than 5 feet beneath a receptor. Soil or groundwater at concentrations exceeding the acceptable levels specified in this document constitute the source if present at a depth of greater than five feet below or within 100 feet of a receptor.

Regulations:
References:

ID#: 156
Category: Vapor Intrusion
Question: Could you provide some examples of preferential pathway?

Response: A preferential pathway is defined as a natural (e.g., shallow rock or vertically fractured soil) or manmade (e.g., buried utilities) feature that creates a sufficiently direct pathway from a source to a receptor to make the use of the default model for predicting indoor air concentrations unacceptable. Such pathways must be shown to significantly reduce the ability of the natural environment to attenuate the concentrations of VOCs at any point from the source to the receptor and to do so in a manner or to an extent that is not

accounted for in the model assumptions and would substantially alter the default model's accuracy in predicting conservative indoor air concentrations. Shallow utilities buried at a depth that is insignificant with respect to the column of soil between the slab and the source do not automatically constitute a preferential pathway, nor should this definition include surface paving outside the building or the presence of crushed stone beneath the slab as normally placed for slab foundation material. If such a feature does not pass through the source, it must occur within 30 feet of the source in order to constitute a potential preferential pathway.

Regulations:

References:

ID#: 157

Category: Vapor Intrusion

Question: Are monitoring wells suitable for soil gas sampling?

Response: Monitoring wells are not suitable for soil gas sampling.

Regulations:

References:

ID#: 158

Category: Vapor Intrusion

Question: What's the minimum purging time before taking soil gas samples?

Response: The minimum purging time should be determined based on one to three purge volumes to flush the probe and sampling line.

Regulations:

References:

ID#: 159

Category: Vapor Intrusion

Question: What's the sampling requirement after mitigation is in place?

Response: Once a mitigation measure or system is in place, documentation is required to measure its effectiveness.

Regulations:

References:

ID#: 161

Category: Vapor Intrusion

Question: Where to determine the maximum concentration for the vapor screen?

Response: Maximum is based on the site characterization for groundwater and soils that occurs within 100 feet of the receptor both current and future.

Regulations:

References:

ID#: 162

Category: Vapor Intrusion

Question: It may be problematic to vent the house during winter season before taking the indoor air samples.

Response: If it is problematic venting the house during the winter season, then there is the option of taking the soil gas sample.

Regulations:

References:

ID#: 163

Category: Vapor Intrusion

Question: My site fails the soil gas screen but passes the groundwater and soil screen. Am I out?

Response: If you pass the groundwater and soil screen of the matrices, then the vapor pathway presents a negligible risk and there are no further IAQ concerns.

Regulations:

References:

ID#: 164

Category: Vapor Intrusion

Question: How deep should the soil gas samples be collected?

Response: Soil gas samples should be collected as close to the source as possible and at a minimum depth of 5 feet.

Regulations:

References:

ID#: 165

Category: Vapor Intrusion

Question: Could you specify the minimum sampling requirements for soil gas and indoor air?

Response: We do not specify a minimum number of samples. These numbers will vary based on characterization data, vertical profiling, and receptors. We have not developed specific guidance of our own but refer to the Mass. DEP guidance.

Regulations:

References:

ID#: 166

Category: Vapor Intrusion

Question: Groundwater contamination includes multiple regulated substances. Is the plume delineation on a substance-by-substance basis?

Response: Yes, this is based on a substance-by-substance basis. This is consistent with the application of other MSCs under SHS.

Regulations:

References:

ID#: 167

Category: Vapor Intrusion

Question: Benzene is the only substance that fails the screen in soil or groundwater. Do I take soil gas or indoor air samples for benzene only?

Response: Yes, if you fail the screen for only one constituent then you only need to sample for that constituent. If the characterization information proves otherwise, then look for other constituents.

Regulations:

References:

ID#: 168

Category: Vapor Intrusion

Question: Can I use alternate model instead of Johnson-Ettinger model for site-specific evaluation on the vapor intrusion pathway?

Response: Yes, another validated model can be used other than the J&E model provided that all input parameters are justified and a copy of the model is given to the Department to review.

Regulations:

References:

ID#: 169

Category: Vapor Intrusion

Question: How to conduct Johnson-Ettinger modeling with a source that is laterally 99' away from the receptor?

Response: The J&E model is not for lateral transport of vapors, only vertical. In order to be conservative, the J&E model places the vapor source under the receptor and models it vertically. Other validated fate & transport models may be used to account for lateral transport and to provide inputs to the J&E model.

Regulations:

References:

ID#: 170

Category: Vapor Intrusion

Question: Are the TCE screen values in the vapor guidance based on the toxicity values in Table 5 of 25 Pa. Code Chapter 250, Appendix A?

Response: The TCE values are based on toxicity values contained in Chapter 250/ Act 2.

Regulations:

References:

ID#: 171

Category: Vapor Intrusion

Question: The indoor air samples pass the screen, but the groundwater plume is moving toward the building. The fate and transport analysis indicates that future indoor air intrusion could be getting worse. Am I out?

Response: No, if the fate and transport indicates that in the future the vapor screen will fail, that will have to be evaluated.

Regulations:

References:

ID#: 189

Category: Vapor Intrusion

Question: I noticed that on Table 8 of the vapor intrusion guidance, the exposure frequency (days/yr) for both soil and groundwater is listed as 350, 250 (for residential, nonresidential). I also noticed that the exposure assumptions used to calculate the inhalation numeric values for groundwater (25 PA Code § 250.307(h)) also lists the exposure frequency as 350 days & 250 days (for residential & nonresidential). But the exposure assumptions used to calculate the inhalation numeric values for soil (25 PA Code § 250.307(d)) lists the exposure frequency as 250 days & 180 days (for residential & nonresidential).

Since soil and groundwater have different exposure frequency assumptions in 25 PA Code §250.307, I am wondering why the soil and groundwater exposure frequencies listed in Table 8 of the Vapor Intrusion Guidance are the same? Would it be wrong to use an exposure frequency of 180 days for vapor intrusion from soil at a non-residential site?

Response: The exposure frequency as 350 days & 250 days (for residential & nonresidential) in the vapor guidance is for indoor air exposures, while the exposure frequency as 250 days & 180 days (for residential & nonresidential) to calculate the inhalation numeric values for soil (25 PA Code § 250.307(d)) is for outdoor exposures. It is not appropriate to apply the outdoor exposure frequency to the vapor intrusion scenarios.

Regulations:

References:

ID#: 190

Category: Vapor Intrusion

Question: For ethylbenzene, the toxicity values listed in Table 9 of the vapor guidance may not be consistent with the toxicity values listed in 25 Pa. Code, Chapter 250, Appendix A, Table 5 (relating to Physical and Toxicological Properties of substances) and the updated toxicity values. Can I conduct site-specific J&E modeling under the Statewide Health standard using the toxicity values specified in Chapter 250, Appendix A, Table 5?

Response: Yes, as long as the risk range is 1.0E-05 and HQ <1.0, (on a substance by substance basis), and using the same toxicological factors as specified in

Chapter 250, Appendix A, Table 5 (relating to Physical and Toxicological Properties of substances).

Regulations:

References:

ID#: 191

Category: Vapor Intrusion

Question: What type of matrix do you use if your water table is different levels onsite and offsite. 2-3 ft below grade (onsite), 9-10 ft (offsite)

Response: It would be the measured water table under the receptor either on-site or off-site.

Regulations:

References:

ID#: 192

Category: Vapor Intrusion

Question: Can soil gas be collected as composite 8 or 24 hr?

Response: We recommend that indoor air be sampled as 8-24 hours. Soil gas is collected as a grab sample.

Regulations:

References:

ID#: 193

Category: Vapor Intrusion

Question: How did USEPA come up with 100 foot radius for evaluation of potential impacts to a building?

Response: The distance at which concentrations are negligible is a function of the mobility, toxicity, and persistence of the chemical, as well as the geometry of the source, subsurface materials, and characteristics of the building of concern. The horizontal distance of 100 feet from the source to receptor (inhabited building) was chosen as the criterion to define when sites were close enough and so needed to be addressed for vapor intrusion.

Regulations:

References:

ID#: 194

Category: Vapor Intrusion

Question: Can you recommend guidance for remedial approach to existing buildings with indoor air problems?

Response: Currently, we recommend a mitigation system that would be effective in meeting the indoor air criteria. These systems include, but not limited to, active soil vapor extraction or a system that is similar to the radon venting systems.

Regulations:

References:

ID#: 195

Category: Vapor Intrusion

Question: I have a question concerning certain SVOCS and the application of the vapor intrusion guidance. The Introduction to the guidance states that it is for use in, "...assessing potential subsurface vapor intrusion of volatile organic and semivolatile contaminants...."The first bullet of the Process for Soil section states that "If the volatile organic constituent is not l listed in the tables and is found to be of concern at a particular site, then a site-specific analysis should be used."Do these two statements (above) imply that semivolatile contaminants that are not listed in the tables are not of concern for vapor intrusion (assuming statewide health standard)?

Response: The list of chemicals in the guidance was based on the definition of “volatile compound” in 25 Pa. Code 250.1: “a chemical compound with a boiling point less than 200^{o} centigrade at 1 atmosphere” and the criteria specified in

EPA' Risk Assessment Guidance for Superfund (RAGS), Volume I, Part B: "Chemicals with a Henry's Law constant of 1 x 10^{-5} atm-m^3/mole or greater and with a molecular weight of less than 200 g/mole". Semivolatiles that do not meet these criteria or definition should not need site-specific analysis.

Regulations:

References:

ID#: 196

Category: Vapor Intrusion

Question: I am a bit confused regarding the sample analysis methods employed for the Indoor Air Quality guidance. Section §250.10(f) states, "For air, samples and analyses shall be performed in accordance with Chapters 131 and 139 (relating to ambient air quality standards, and sampling and testing)." As near as I can tell, I believe that this means using a GC/MS method. However, the Act 2 Indoor Air Guidance document does state that you can measure the indoor air samples by "…direct measurement using a FID or PID, adsorption onto activated charcoal…". At one of my sites, the consultant collected two air samples in charcoal tubes at each sample location. They analyzed one of these samples using NIOSH method 1500 or 1501 (GC/FID), and the other sample they analyzed using EPA method 624/8240/8260 (GC/MS). The NIOSH method provided much higher results. For example, sample SV-1-1 resulted in only 2 mg/m^3 of Benzene using the EPA method, but sample SV-1-2 (same location) resulted in 45 ppm of Benzene using the NIOSH method. (Since Table 3 of the Act 2 Indoor Air Guidance is in units of mg/m3, the SV-1-2 would represent 143 mg/m^3 of Benzene) My question is simply: Does Section 250.10(f) allow them to use the NIOSH method or not?

Response: Yes, the NIOSH methods are acceptable as long as the detection limits are low enough to do the comparison on Table 3.

Regulations:

References:

ID#: 197

Category: Vapor Intrusion

Question: Which column in Table 3 of the IAQ guidance is appropriate to use? The

lowest level or the highest level? And wouldn't the OSHA PEL be applicable to all industrial sites?

Response: Table 3 - You will have to determine if it is Residential or Non-residential and pick the appropriate MSC. Most industrial facilities are under OSHA jurisdiction and if that is determined, you can go with the OSHA PEL.

Regulations:

References:

ID#: 198

Category: Vapor Intrusion

Question: Is the vapor intrusion guidance used for attainment samples or characterization samples, or both? The basis for my questions is a site where characterization sampling indicated concentrations of a COPIAC in soilthat meet the statewide health standard for a used aquifer, but exceed the default screening value. However, systematic random attainment sampling indicated all compounds of concern, including COPIACS meet SHS and default screening values. Which set of data should I be evaluating?

Response: In some cases both sets of data need to be considered. Samples taken during the characterization of a site should be used to evaluate the potential for vapor intrusion into buildings. It is most appropriate to apply the screening process for vapor intrusion to the site characterization data in order to determine if intrusion pathways present a significant risk to indoor air. If subsequent remediation activities result in the removal or treatment of those area identified at potentially impacting indoor air, then attainment sample data may be used to demonstrate that vapor intrusion pathways present negligible risk to indoor air. However, for regulated substances identified as COPIACs, either in soil or groundwater, remediation may not address all locations that could present risk of exposure through vapor intrusion. This would apply to areas characterized as not exceeding the selected standard but which do exceed the screening levels in the guidance. For these areas the characterization sampling data are still appropriate for considering the risk posed by the vapor intrusion pathway.

Regulations:

References:

ID#: 199

Category: Vapor Intrusion

Question: A heating oil overspill (at vent pipe) outside the property. Excavation is only 3 X 8 ft and 2 feet deep and adjacent to the home.

I am having difficulty in determining whether there is a potential source and if the matrix is applicable. Based on the definition of vapor source---most of the soil sample results are below detection limits, however these values are above the PQLs. The site is adjacent to the building, however not below the receptor. (the highest reported concentration in 5 attainment samples is 0.107 mg/kg phenanthrene MSC = 10,000 mg/kg PQL = 0.66 mg/kg. In this case, phenanthrene would not be considered a vapor source, however benzene is reported at < 0.1 mg/kg (COPIAC for res. soils) and has a PQL of 0.005 mg/kg.) Is this a potential source?

Do I then go to potential pathways? Would the vent pipe, is described as "located along the front of the structure" which I assume is above grade--would not be considered a pathway and then move you to the middle column of the matrix? This scenario does not easily screen out because samples were only taken at 2 feet below grade...

Response: Since benzene is reported at < 0.1 mg/kg (COPIAC for res. soils) and has a PQL of 0.005 mg/kg, benzene may or may not be a potential source. For example, if the actual benzene concentration was 0.09 mg/kg (nevertheless reported as < 0.1 mg/kg,), this benzene could be a potential source. If the actual benzene concentration was <0.005 mg/kg (nevertheless reported as < 0.1 mg/kg), then this benzene would not be a potential source.

Please note that CSSAB Vapor Intrusion Subcommittee is currently working on the de minimus level issue for vapor sources < 5' below the receptor. Once developed, de minimum levels could alleviate situations like this.

In the mean time, the case could be resolved by conducting site-specific analysis using J-E model under the Statewide Health standard using vapor source concentrations of < 0.1 mg/kg at a depth of 2' below grade. Any visual staining or odor on the foundation walls would warrant further analysis.

Regulations:

References:

ID#: 200

Category: Vapor Intrusion

Question: I have a question regarding p-chloroaniline and vapor intrusion. I am currently conducting a vapor intrusion assessment where p-chloroaniline (CAS no. 106-47-8) is a major dissolved constituent in groundwater. Looking in Table 1 of the vapor intrusion guidance, there are no criteria for p-chloroaniline; however, there are p-chloroaniline groundwater criteria in the Statewide Health Standards Act 2 tables (Appendix A Table 1).

Is p-chloroaniline an organic compound that is exempt from vapor intrusion screening? Is this constituent a COPIAC? Is it a non-COPIAC? If it does have vapor intrusion criteria, please let me know what they are. If it does not, please provide guidance for completing a vapor intrusion assessment for this constituent.

Response: The list of chemicals in the guidance was based on the definition of "volatile compound" in 25 Pa. Code 250.1: "a chemical compound with a boiling point less than 200^{o} centigrade at 1 atmosphere" and the criteria specified in EPA' Risk Assessment Guidance for Superfund (RAGS), Volume I, Part B: "Chemicals with a Henry's Law constant of 1 x 10^{-5} atm-m^3/mole or greater and with a molecular weight of less than 200 g/mole". Semivolatiles that do not meet these criteria or definition should not need site-specific analysis. The estimated Henry's Law constant for 4-chloroaniline based on the aqueous solubility of 3.9g/L at 25^{o}C and vapor pressure of 0.027 mmHg at 26^{o}C is about 1.16 X 10^{-6} atm-m^3/mole. The boiling point is about 232^{o}C at 760 mmHg. Since 4-chloroaniline does not meet the definition or criteria specified above, it is not listed in the guidance and would not need site-specific analysis.

Please note that the reported Henry's Law constant value for 4-chloroaniline in Howard's "Handbook of Environmental Fate and Exposure Data for Organic Chemicals" was erroneous. The estimated value should be 1.07 X 10^{-6} atm-m^3/mole instead of 1.07 X 10^{-5} atm-m^3/mole.

Regulations:

References:

ID#: 201

Category: Vapor Intrusion

Question: An underground tank was removed and filled with clean backfill (or gravel). There are still soils at the soil/bedrock interface 20'-30' below the ground surface that have SWH exceedences. The plan is to go SSS, using pathway elimination and deed restrictions. If any buildings ARE ever put over top of this former tank pit, then their deed notice says that a sub-slab ventilation system would be required to be incorporated into the construction. Is that

sufficient?

Response: From the experience of radon mitigation, sub-slab ventilation system could reduce the exposures, but could not eliminate the exposure pathway for vapor. Under the Statewide Health standard, they could still use the screening values in the guidance or conduct site-specific analysis. Under the Site-Specific standard, they still need to establish a site-specific numeric standard in soil, indoor air, and/or groundwater (if necessary) using site-specific risk assessment. Once the sub-slab ventilation system is in place, they will need to document that the system is effective to reduce the vapor exposure for the vapor intrusion pathway to an acceptable level.

Regulations:

References:

ID#: 202

Category: Vapor Intrusion

Question: Can field screening results (PID results) be used to assess the vapor screen for an UST removal?

Response: According to the DEP's Closure Requirements for Underground Storage Tank Systems, We can accept PID as a field screening tool during tank excavation to determine if there is obvious contamination. In addition, confirmatory samples are required, even without obvious contamination. Confirmatory sampling and analysis using EPA method(s), such as 5035/8260B would need to be conducted. It appears that PID cannot be used for delineation of contaminated soil without additional confirmatory sampling.

Regulations:

References:

ID#: 209

Category: Vapor Intrusion

Question: I have several questions regarding the Department’s approach to evaluating the potential for vapor intrusion.

1. There remains a little confusion on the 5 foot variable and when and how

it actually applies. Is the 5 feet requirement from ground surface to the water table/source or from the bottom of the floor (in a basement) or bottom of a slab (for a slab on grade structure)?

2. Is there a minimum depth between the structure floor (whether subsurface or slab on grade) and the water table for collecting soil gas? As we understand it, soil gas should not be collected in the saturated zone.

Response: 1. It is based on 5 feet from the bottom of the floor (in a basement) or bottom of a slab (for a slab on grade structure).

2. There is no minimum depth. The sample should be taken as long as it is not in the saturated zone. This sample should be part of the vertical profile. We also do not expect that you can obtain any soil gas sample from the saturated zone.

Regulations:

References:

ID#: 213

Category: Vapor Intrusion

Question: At a former gasoline/automotive service station, there are still a few locations of residual benzene concentrations in soil (7 to 14' bgs) following removal of all USTs and associated soils. The site has been completely paved and the one remaining building is for used for commercial purposes. The residual benzene concentrations are less than the Direct Contact MSC, 2-15', nonresidential. The locations of the residual soil concentrations are within 100' of the remaining building. Using the Soil IAQ Decision Matrix (Figure 2), since benzene is not a COPIAC in a nonresidential setting (Table 5), the matrix appears to lead to the conclusion that the IAQ pathway is incomplete or presents negligible risk and that there are no further IAQ issues for soils. Is this the correct interpretation ? Or, must benzene be evaluated as a non-COPIAC? In this case, the residual benzene concentrations exceed the MSCsoil-gw, used aquifer, nonresidential and the USEPA-PA default nonresidential volatilization to indoor air screen, suggesting the need for soil gas sampling.

Response: In your situation benzene in soil (nonresidential) must be evaluated as a non-COPIAC. It appears that you have failed Option 2 and 3 in the soil decision matrix and that would put you over into 1) Perform soil gas or or indoor air sampling(preferred), or 2) Perform site-specific analysis or mitigate.

Regulations:

References:

ID#: 217

Category: Vapor Intrusion

Question: In cleaning up soils that fail the vapor intrusion pathway screen, is it permissible simply to dig the offending soil up and move the pile to a location elsewhere on the site for use > 30 feet from preferential pathways and > 100 feet from inhabited buildings, in order to pass the vapor screen? This could allow a remediator to meet residential SHS in some cases where soil contains between 5.7 and 70 mg/kg ethylbenzene and/or 55 to 1000 mg/kg xylenes, for example. Alternatively, moving contaminated soils elsewhere onsite could be one component of a SSS for soils.

As an interesting option, it appears that soils meeting Table FP-1a values but failing vapor screening values could be hauled offsite for use as clean fill, if it can be shown that there would be no “public nuisance” or odor problem. Is the vapor intrusion screen used to evaluate “public nuisance” potential, and is it done in addition to a subjective evaluation of odor? I’m thinking in terms of soils from UST cleanups, which occasionally reek of petroleum contamination even when contaminant levels don’t exceed soil MSCs.

Response: In theory it would be possible to do as you suggest. However, keep in mind that when considering the potential for vapor intrusion, the future use of the property must be considered in addition to the current conditions. On many large properties, it is often uncertain where future structures may be located so that prediction of the impacts of soil contamination on indoor air is not possible.

Soil that meets the Table FP-1a values may be used in an unrestricted manner except for being placed in waters of the Commonwealth. The only caveats are that there must be no free liquids present and the material cannot cause a public nuisance such as odors. Material that reeks of petroleum odor cannot be used as clean fill. The vapor screen is not used to make a determination of public nuisance.

Regulations:

References:

ID#: 218

Category: Vapor Intrusion

Question: What are the QA/QC requirements of SUMMA canister sampling for evaluating vapor intrusion pathways?

Response: First, with respect to blank samples taken during vapor sampling, a field blank (or more appropriately, a background [ambient air] sample) is of value if someone suspects that there may be an upwind contribution to vapor concentrations within a structure of concern. The need for this type of sample is generally up to the discretion of the consultant. A trip blank, however, is a different story. If a consultant chooses not to take a trip blank, and the results come back clean (nothing above the MSCIAQs) then not having the blank wouldn't be that big of a deal. If, however, the results come back hot (something in excess of an MSCIAQ) then the Department must err on the side of caution and assume that there is indeed an onsite problem and that cross contamination is not the issue. The remediator would have to either remediate, mitigate, or resample following standard QC procedures which include a trip blank. So the question really is "would you rather spend the extra money now and come out clean or try to save this money, have the results show a problem, and then have to spend a lot more money resolving a problem that may not actually exist?". In the long run, it is prudent to take the blank.

Field duplicates are required (10%-20%) for each sampling event, and if collected properly, can provide assurance that the field sampling procedures were performed adequately. For air sampling, a field duplicate sample is a second sample collected simultaneously in the field at the same sampling point. These are typically collocated and at the locations where upscale but not offscale values are to be expected. The primary and field duplicates must be collected from a common inlet. A T-junction must be used with stainless steel or Teflon tubing and certified clean canisters. For soil gas, a duplicate sample is a second sample collected immediately after the original sample at the same location and depth.

The results of a field duplicate sample may be compared with the primary sample results using relative percent differences (RPDs) to provide information on the consistency and reproducibility of the field sampling procedure. Acceptable criteria for the field duplicate results should be clearly specified in the site-specific quality assurance plan, which is a part of the site-specific sampling and analysis plan. For example, RPD is less than 30%. Corrective actions for failure to meet the acceptable criteria should also be identified in the site-specific quality assurance plan.

For soil gas sampling, care should be taken to avoid short circuiting, i.e., atmospheric air being drawn into the sample along a preferential pathway on the outside edge of the sampling well This short circuiting effect often produces a sample that is not representative of the soil gas conditions (i.e., the sample is actually a mixture of soil gas and atmospheric air).

In the case of a trip (transit) blank, a certified-clean "trip blank" Summa

canister is evacuated, and delivered to the field in a box with the sample canisters. The valve is closed and the cap tightened so the interior of the canister and its contents are never exposed to outside conditions. When analyzed, the “trip blank” is pressurized with dry, zero air, which is a matrix that may not match the sampled air.

An air field blank is a sample collected from a certified air source in the field. The laboratory delivers high purity nitrogen to the field in a Summa canister at a positive pressure of 10 pounds per square inch (psi). The nitrogen is transferred in the field to a second certified-clean canister. Stainless steel or Teflon tubing and a certified-clean regulator and canisters must be used. Analysis of a field blank may provide information on the cleanliness of the decontamination procedures conducted in the field.

Regulations:

References:

ID#: 219

Category: Vapor Intrusion

Question: I am reviewing a consultant’s vapor intrusion screening evaluation in which the consultant has compared “average” groundwater concentrations to the Step 1 screening levels for the identified COPIACs and non-COPIACs. The averages are apparently based upon the constituent-specific concentrations most recently detected in three existing monitoring wells located approximately 50 feet, 50 feet, and 20 feet from the off-property residence with a basement. [NOTE: The first two monitoring wells are located topographically and hydraulically upgradient of the residence while the third well is located downgradient of the residence.] In addition, the consultant has averaged the depths to groundwater in these three wells, which are approximately 9 feet, 9 feet, and 3 feet below ground surface, respectively, and concludes that the average depth to groundwater exceeds 5 feet in the “soil-like” material classified as sandy silt. Overall, the consultant concludes that because the average constituent concentrations in groundwater do not exceed the applicable used aquifer residential groundwater MSCs, the nonuse aquifer residential groundwater MSCs, or the PA default value when it is greater than the MSC, no further evaluation is required.

I have found nothing in the Vapor Intrusion guidance that speaks to whether “averaging” the depths to groundwater and/or the constituent concentrations for monitoring wells located around a receptor is or is not permissible when conducting the vapor intrusion screening evaluation. Therefore, my questions are:

1. Is “averaging” the constituent concentrations and/or the depths to

groundwater as outlined above permissible?

2. If “averaging” is not permissible, should the evaluation be based on (a) only the depth to water and constituent concentrations in the monitoring well located closest to the receptor regardless of the hydraulic relationship or (b) only the depth to water and constituent concentrations in the closest upgradient monitoring well?

Response: Averaging of the constituent values is not permitted under the vapor screening guidance. The guidance specifies that the highest concentration from the site characterization is used to compare to the screening values.

Similarly, the guidance specifies that there must be a minimum of five feet of soil-like material between the source and the receptor in order to use the screening values in the tables. Using an average value for the depth to groundwater does not meet this criterion.

If the vapor intrusion pathway is being evaluated under the site-specific standard, and therefore not using the screening values or procedures from the guidance, the 95% UCL value may be used to evaluate the potential for vapor intrusion.

Since vapor movement does not depend on hydraulic relationships, the evaluation does not use the closest well, but rather the well within 100 feet of the receptor that has the highest concentration is used, regardless of its location relative to the receptor.

Regulations:

References:

ID#: 220

Category: Vapor Intrusion

Question: According to what was described at the client workshops, the 2004 PA DEP vapor intrusion guidance allows for some site-specific J&E modeling under the Statewide Health Standard. If a client chooses this option (site-specific modeling under the SHS), do the resultant hazards/risks need to be summed as required under the SSS, or can the hazard/risk from each individual chemical be compared to the 1.0 or 1x10-5 benchmarks. This latter option would be more consistent with the regulations under the SHS.

How does the DEP determine when the site-specific J&E modeling falls under the SHS vs. the SSS?

Also, the vapor intrusion guidance provides a list of COPIACs that should be

evaluated for potential indoor air exposures if detected at a site. However, the tables provided in the document list numerous other chemicals that are not COPIACs. In what instances would the non-COPIACs to be evaluated for vapor intrusion exposures?

Response: When conducting an evaluation of the potential for vapor intrusion under the Statewide health standard, the requirements of that standard must be met. This means that the potential is evaluated for each regulated substance individually, and there is no cumulative risk level calculated.

In order for an evaluation to be considered to have been done under the Statewide health standard, but with site-specific inputs, only certain parameters in the J&E model may be changed. These are listed as sensitive parameters, and justification must be provided for the values chosen. The cancer risk level must remain at the Statewide health level of 1 x 10-5 and the hazard quotient must remain at 1. Toxicity values used must be those presented in Table 5 a or 5b of the Chapter 250 regulations.

All substances encountered in the site characterization must be compared to the screening values in the tables. The difference between COPIACs and nonCOPIACS is that for COPIACS, although the concentrations may meet the Statewide health MSCs, the screening values are not met and there is still the potential for vapor intrusion problems.

Regulations:

References:

ID#: 227

Category: Vapor Intrusion

Question: I have a question regarding application of the soil screening tables (Tables 4 and 5) in the January 24, 2004 Vapor Intrusion Guidance. Do the soil screening tables apply to soils both above and below the water table, or just to soils above the water table? I have site data where my groundwater VOC concentrations pass the Table 2 screening values, but there are some saturated soil data that do not pass Table 5. What takes precedence?

Response: There is no precedence – if either the soil or groundwater fails the screen you have the other options available. The soil screening tables apply to soils both above and below the water table. If the soil samples cannot meet the screening value, you have options to conduct soil gas sampling, indoor air sampling, site-specific analysis, or mitigation.

Regulations:

References:

ID#: 240

Category: Vapor Intrusion

Question: Which indoor air quality standard would apply for a business such as an insurance company or dry cleaner that occupies a space with potential indoor air problems: nonresidential or OSHA PELs? Also, when an indoor air sample is collected from these businesses, what would be the appropriate sample duration, 1hr, 8hr, 24hr?

Response: First you or the business will have to determine if OSHA has jurisdiction and its regulations are fully implemented and documented in the workplace. This means that there is a Hazard Communication Plan in place , MSDS sheets may be posted, and personal protective equipment may be in use. Once that is established, then apply PELs if they are under OSHA.
Indoor air samples are to be taken 8hr-24hr. duration.

Regulations:

References:

ID#: 244

Category: Vapor Intrusion

Question: I have several questions on when it is appropriate to collect soil gas samples at different depths at the same location to generate a vertical profile of soil gas concentrations. I recognize that the guidance recommends vertical profiling; however, most of the sites we've collected soil gas samples from have had shallow groundwater that limited the ability to collect multiple depth samples. When we do have the opportunity to collect multiple depth samples, how do you recommend doing this? Would we install microwells side-by-side? Is there a minimum/maximum horizontal distance apart the samples should be collected?

In many instances we want to collect soil gas samples for the purpose of evaluating the need for building restrictions for future site use, therefore, there is not an existing building in place (or there is, but we want to characterize the entire site). Is it necessary to collect samples at multiple depths in areas where soil and/or concentrations are non-detect for volatile constituents? Would it make sense to only collect samples at multiple depths in the areas of highest visual or analytical impacts?

Lastly, is there a minimum/maximum vertical distance apart that soil gas samples should be collected for vertical profiling?

Response: The main purposes for soil gas vertical profile are to determine the soil gas concentration gradient and to evaluate the optimum sampling depth. The major consideration regarding the minimum vertical or horizontal distance apart is to ensure that independent samples can be collected from neighboring sampling points. The minimum distance apart would depend on the sampling volume and soil characteristics (such as air-filled soil porosity). For soil gas sampling using 6-liter summa canisters, I would suggest a minimum distance apart of 5 feet. In other words, for the neighboring sampling points A1 and A2 with the 3-D coordinates of (x1,y1,z1) and (x2,y2,z2) respectively, the square root of the calculated value of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$ would be greater than or equal to 5 feet.

The maximum horizontal/vertical distance apart should be determined on a site-specific basis. It depends on the nature and extent of soil vapor distribution. Sampling and analysis costs may be considered also. You should take a sufficient number of samples so that the nature and extent of soil vapor distribution can be defined sufficiently for the site remediation decisions.

It may not be necessary to collect samples at multiple depths in areas where soil and groundwater concentrations are non-detect for volatile constituents. It makes sense to collect samples at multiple depths in the areas with known soil or groundwater contamination, particularly, in the areas with the highest visual or analytical impacts.

Regulations:

References:

ID#: 247

Category: Vapor Intrusion

Question: I have run into a question regarding vapor intrusion under the Statewide health standard and the use of institutional controls to meet the standard. I have a commercial site where they can't use the screening values to evaluate the vapor intrusion pathway because they do not meet the criteria. They do not want to do any sampling or a site specific J&E model. They are proposing to put a deed notice on the property. The current owner is bankrupt and the property is up for sale so we don't know what the future use of the property will be.

Act 2 Section 303(e)3 states that Institutional controls such as fencing and future land use restrictions on a site may not be used to attain the Statewide health standard. Institutional controls may be used to maintain the Statewide health standard after remediation occurs. I am not sure which category this site falls into since they have not done any remediation regarding vapor and the only remediation they have performed for groundwater has been free product removal. We don't really know at this point if the vapor will be an issue since they don't want to evaluate it further through testing or modeling.

Any guidance you can provide on what the intention on Act 2 Section 303(e) 3 would be beneficial.

Response: If they elect not to address the vapor pathway at all, they will not get relief of liability for it. It is unclear which standard they are intending to remediate to, but they should address all pathways. They do have the option of jumping right into mitigation.

Regulations:

References:

ID#: 41

Category: Waste Interface

Question: Is it permissible to move waste on a site that is in the process of going through the voluntary cleanup process? e.g. consolidation of a large area into a smaller “footprint” (e.g. landfill).

Response: Yes. The fundamental issue is when does a party become a generator of waste when excavating contaminated media and non-media solids. Our policy is that a party may move contaminated soils and non-media solids within the area of contamination associated with the release (AOC). This may be done with or without resort to Act 2. If the remediator wishes to move the contaminated media and non-media solids outside the AOC he may do so when the SSS standard is used so long as the remediator qualifies for the redisposition of the material under §287.101(e) and the redisposed material is not hazardous waste.

Regulations:

References:

ID#: 43

Category: Waste Interface

Question: Is Act 2 applicable to unpermitted waste piles that ceased disposal before September 7, 1980?

Response: Yes, pursuant to 250.9(a). Solid waste management areas or facilities that were not permitted or did not have an approved closure plan which ceased disposal activities before September 7, 1980 may be closed in-place by covering, grading, revegetation, and related closure activities for waste left in place consistent with best management practices to eliminate the pathway of exposure under the Site Specific Standard and to prevent pollution, odors, and other public nuisances. Areas of media contamination outside the cover may be remediated under any one or a combination of Act 2 standards. For clean closures where non-media solids are removed, impacted soil and groundwater may likewise be remediated to any one or a combination of Act 2 standards.

Regulations: 250.9(a)

References: