

## SECTION II

1. **Comment:** “New Suggestion: More discussion on when systematic periodic reporting is required in Environmental Covenants (ECs). As a companion comment to the one for Pg. II-116, I believe that some additional guidance should be given on when systematic periodic reporting of EC requirements are not necessary. The new model EC makes it clear that it is not necessary in all cases. In particular in the situation where the only “remediation” is the placement of the EC, all the requirements for site closure will be documented on the deed of the property and there should be no need to report every 1-3 years. All the other reporting instances in the model EC should suffice.”

**Response:** Updated the incorrect section references for ECs to Section III.E. We will not add examples for reporting requirements in an EC. The UECA Q&A document would be the best place for these types of examples to be included.

2. **Comment:** “Clarify that public notice proof of mailing (certified mail receipts, etc.) needs to be submitted in timely manner after submittal of NIR.”

**Response:** The regulations at § 250.5(f) require reasonable proof of mailings to be submitted at the same time as the NIR. The Department may apply flexibility to the receipt of these items on a case-by-case basis. Remediators should contact the Department representative in the appropriate regional office having jurisdiction over the proposed site if an obstacle exists in submitting proof of mailing.

3. **Comment:** “Language is slightly different for SSS vs. BS and SHS. Should make uniform in both sections. Consider changing the word "encouraged" to "should", to be consistent with language in the SSS section related to the final report summary.”

**Response:** The language is slightly different between SSS and the other two standards because the process is slightly different and the SSS requires more report submissions. We use “encourage” to imply that it is not necessary, but it is helpful for us. We have changed the sentence in the excerpt from II.A.3(d)(ii) to say, “*In addition, remediators are encouraged to include the final report summary with the submission of a final report.*” This edit eliminates the word “should” which can be easily misinterpreted as a requirement.

4. **Comment:** “PAHs are a confounding example to give for a petroleum release so perhaps change to suggested revision.”

**Response:** New Language for this section: “*It is important to note that to receive relief of liability (ROL) for a regulated substance (contaminant), that contaminant should be identified in both the NIR and the approved final report. ROL will not be conveyed for contaminants that are not identified as above, been thoroughly investigated, and have demonstrated attainment. For example, analytical results for propylene glycol are*

*reported by the laboratory as non-detect, or below the reporting limit, on a site with a petroleum release. The propylene glycol is not related to the petroleum release and was not included on the original NIR. The remediator does not compare the propylene glycol to the MSCs. Because the remediator has not included the propylene glycol in the investigation, the remediator will not receive ROL for the propylene glycol.*”

5. **Comment:** “Since not all regulated substances are compounds, this word should be replaced by the words “regulated substance”. The sentence that begins “For example” is not a complete sentence., which will not be corrected by just deleting the word “also”, as previously suggested. The use of PAHs may not be the best example of substances that are unrelated to a petroleum release as PAHs are contained in many petroleum products.”

**Response:** New Language for this section: *“It is important to note that to receive relief of liability (ROL) for a regulated substance (contaminant), that contaminant should be identified in both the NIR and the approved final report. ROL will not be conveyed for contaminants that are not identified as above, been thoroughly investigated, and have demonstrated attainment. For example, analytical results for propylene glycol are reported by the laboratory as non-detect, or below the reporting limit, on a site with a petroleum release. The propylene glycol is not related to the petroleum release and was not included on the original NIR. The remediator does not compare the propylene glycol to the MSCs. Because the remediator has not included the propylene glycol in the investigation, the remediator will not receive ROL for the propylene glycol.”*

6. **Comment:** “On p. II-11, a new paragraph has been added to the site characterization section which includes the following statement: “any compound not carried through the investigation and attainment process cannot be included in the ROL”. This new paragraph is confusing in that the last sentence says you can’t get a ROL without including the compounds “in the investigation” (i.e., the site characterization) but the sentences prior to that say you have to include the compound in both the investigation “and attainment process”. The disconnect is that you can identify a compound in the site characterization and the finding is below the applicable MSC and you should still be able to include that detected compound in the ROL without having to do an attainment demonstration, since it was shown to be below the MSC.”

**Response:** New Language for this section: *“It is important to note that to receive relief of liability (ROL) for a regulated substance (contaminant), that contaminant should be identified in both the NIR and the approved final report. ROL will not be conveyed for contaminants that are not identified as above, been thoroughly investigated, and have demonstrated attainment. For example, analytical results for propylene glycol are reported by the laboratory as non-detect, or below the reporting limit, on a site with a petroleum release. The propylene glycol is not related to the petroleum release and was not included on the original NIR. The remediator does not compare the propylene glycol*

*to the MSCs. Because the remediator has not included the propylene glycol in the investigation, the remediator will not receive ROL for the propylene glycol.”*

7. **Comment:** “Suggest adding the examples from the Q&A Document along with the Act 2 definitions. Although I agree it is redundant to recite definitions from Act 2 within the TGM, I feel this comes up quite frequently and would be a great quick and clear reference for both remediators and regulators.”

**Response:** New language: *“Act 2 defines a residential property as any property or portion of a property which that does not meet the definition of non-residential property. Act 2 defines a "nonresidential property" as any real property on which commercial, industrial, manufacturing or any other activity is done to further either the development, manufacturing or distribution of goods and services, intermediate and final products, including, but not limited to, administration of business activities, research and development, warehousing, shipping, transport, remanufacturing, stockpiling of raw materials, storage, repair and maintenance of commercial machinery and equipment, and solid waste management. This term shall not include schools, nursing homes or other residential-style facilities or recreational areas.*

*Knowledge of the specific use of the property is important because that is what dictates whether a property is residential or nonresidential. For example, most hotels are designed for short-term occupancy such as a few days or weeks which could be considered nonresidential, but other hotels are designed for extended stays of several months which could be considered residential. Discussing specific property use with DEP is the best way to make this determination.”*

8. **Comment:** “I think the statutory definitions would be helpful to add. The examples don't seem to provide much clarity without a bright line to distinguish the two. Perhaps consider instead a discussion of the sensitive exposure pathways and default assumptions, which seem to be soil ingestion and indoor air exposure duration.”

**Response:** See response to comment #7

9. **Comment:** “I believe this addition to the TGM results in some confusion, especially when short-term hotel use “would” be non-residential, but long-term extended stay use “could” be residential. To my knowledge there is no exact number of days that can be used to distinguish hotel use versus extended stay use, and even if there were, it could still be determined to be non-residential. The other situation mentioned on the current Q&A document is recreational use.”

**Response:** See response to comment #7

10. **Comment:** “The term "chemicals of concern" is defined and used consistently throughout Section III of the TGM. The listed pages use the term "constituent(s) of concern", "analyte of concern", "contaminants of concern", or "regulated substances of concern", which I recommend changing to "chemical(s) of concern" for clarity/consistency, if that is in fact the correct term to be used. Note Chapter 250 only uses "substance of concern" and "contaminants of concern", but does not use the term "chemical of concern". Note Act 2 does not use or define any of these terms, but does define the word "contaminant" and use consistently.”

**Response:** Changed the language in II.A.1 to *“The Department will accept notices of intent to remediate (NIRs) for properties on which a release of a contaminant (i.e. regulated substance, constituents or chemicals released to the environment) can be documented, or for properties affected by off-property releases of regulated substances for which the remediator is not responsible.”* This defines all of the other terms we use when referring to contaminants which is defined in the statute.

11. **Comment:** “This seems like it is adding more complexity and opportunity for error/deficiencies/delays than it provides in risk reduction. Are we really concerned with very slight exceedances that would otherwise round into compliance given the inherent uncertainty and conservatism in the standards and the availability of other statistical tests (95%UCL, 75/10x, averaging for lead). HALs are in fact rounded by EPA. What is the distinction between rounding by DEP vs EPA?”

**Response:** New language: *“However, the values in the MSC tables that are based on EPA MCL values are not rounded. Since these values are not rounded, remediators should not round concentrations reported by the laboratory for comparison to those MSC values.”*

12. **Comment:** “The proposed revision in the first sentence of this paragraph would have the effect of applying one-tenth the soil-to-groundwater MSCs to permanently saturated soils for the first time in approximately 20 years. That’s because prior to the issuance of a Q&A response about 20 years ago that limited the application of the one-tenth factor to seasonally or periodically saturated soil, it had applied to the entire saturated portion of the soil column without any further distinction for at least six years since the final promulgation of the Chapter 250 regulations and the publishing of the first final version of the TGM in 1997. However, since 1997, only the guidance has changed with respect to this issue. The regulations still reflect the application of the one-tenth factor to the saturated zone without any further distinctions, i.e., throughout the soil column. (first portion of full comment)”

**Response:** New language for this section: *“The remediator must keep in mind that for saturated soils, the generic value to use in this selection process is one-tenth the value listed in the table (see § 250.308(a)(2)(ii) and (a)(4)(ii) of the regulations). The intent of*

*the one-tenth of the generic numeric value provision in the soil-to-groundwater numeric value calculation is to account for the lack of attenuation in saturated soils that would typically occur in unsaturated soils. Attaining this provision in saturated soils does not mean that the SHS has been met for groundwater.”*

13. **Comment:** “Suggest changing project "category" to "type" to be consistent with PNHP website. When selecting a project type in the mapping tool, it does not specify buffer distances until the project is submitted. This can only be found proactively by clicking Project Types in the Help tab. The current applicable category for an Act 2 site with a buffer of greater than 2,500 feet would in most cases be "Hazardous Waste Clean-up, Site Remediation, and Reclamation: Spill (e.g., oil, chemical) or Superfund site (state or federal, proposed or designated)". A remediator may be hesitant to falsely classify their site under either of these categories in the state's system. As such, it is recommended to coordinate a specific category (i.e. PADEP Voluntary Cleanup Program Site), or similar name, with PNHP to incorporate into their system if possible and reference directly within the TGM.”

**Response:** PNHP developed a new project category. The new language for this section: *“If the remediator chooses to perform a PNDI, it is important to select the appropriate project category (or project type) that determines the presence of any endangered or threatened species within a radius of 2,500 ft of the site. Each project category has a specific radius (screening area buffer) associated with the type of project. The Pennsylvania Natural Heritage Program website provides a list of the project categories and the associated radius (screening area buffer). The recommended project type for these evaluations is “Hazardous Waste Clean-up, Site Remediation, and Reclamation, Voluntary Cleanup (Act 2 and Chapter 250).”*

14. **Comment:** “I believe this revision can be strengthened by changing the words “...do not require a cleanup plan (CP)” to “...do not require any remediation other than institutional controls”. This addition to the TGM should be read in concert with the second subsection of the TGM that follows the insert which states “The cleanup plan is not required if no current and probable future exposure pathways exist. The cleanup plan is also not required if the approved baseline risk assessment report indicates that the site does not pose unacceptable risks to human health and the environment under current and planned or probable future conditions”. On numerous occasions sites have been closed under Act 2 with the combination of baseline risk assessment showing no current unacceptable human health or ecological risk, but the need for deed restrictions on future groundwater use and/or future residential use (usually neither of which would be expected.) Thus a simple CP documenting that the deed restriction will be placed in the form of the environmental covenant is submitted. In these cases, a Final Report provides no new information from the CP and becomes a superfluous document and results in a delay in closure. I think the DEP should consider this as a means of streamlining closures where no physical remediation is required.”

**Response:** We will not be adopting this change. The proposed change is not requiring that the CP is submitted separately. We are simply stating that we advise that the CP is submitted and approved prior to remediation and the final report. In the case where the remedy is limited to an EC, a CP is still required by the regulations, but may be able to be submitted with the final report. This is why the last sentence of this edit suggests working with the regional PO from the beginning and frequently throughout the process.

### Section III

1. **Comment:** “One issue that arises at Act 2 sites concerns the need for installing/sampling off-site wells when the plume extends beyond the property line. The purpose of doing a fate and transport model is to evaluate the distance that a plume is likely to travel after a certain number of years. My comment is that this Section of the TGM should also include some discussion of when a fate and transport model can eliminate the need for off-site wells to be installed, if certain conditions are met. For example, if the groundwater aquifer being sampled is a deep aquifer where there is no risk of vapor intrusion given separation distances, and the area where the site is located is one where there are no drinking water wells within the plume area as shown by the F&T model, then the F&T model should be adequate and no off-site wells should be needed to confirm the results of the model. That is something I’d want the Department to consider.”

**Response:** As indicated in Pa. Code §250.705, to demonstrate attainment in aquifers that are not used or currently planned to be used as in the instance in the commenter’s example, a scientifically valid and applicable fate and transport analysis, based on sufficient sampling and monitoring data to *calibrate fate and transport model* is required to determine contaminant transport distance. The calibration of a fate and transport model is accomplished via the installation of well(s) and collection of groundwater sample(s) downgradient of a contaminant source within the plume to determine if the model inputs are valid for a particular site. It is not feasible to predict whether calibration points would be required on a site or if the plume migration would require offsite sample collection. It is recommended that this issue be discussed with the Act 2 project officer to determine the ideal course of action in this case.

2. **Comment:** “Another subject I think can be addressed in Section III.A is that sampling can be done within the surface water body as an alternative way of demonstrating attainment for surface water quality criteria, by collecting samples from the surface water body above the point of diffuse discharge and below the point of diffuse discharge to determine the level of contamination arising from releases on the site and whether any exceedances in the surface water body are due to releases on the site. Page III-27, subsection c, the last sentence mentions “actual in-stream sampling”, but that’s really the only mention of that. I’d like to see several sentences added that clarify that this

alternative is available for demonstrating attainment with surface water quality criteria.”

**Response:** The Chapter 250 regulations, Pa. Code §250.406, *Relationship to surface water quality requirements*, states in part that a regulated discharge to surface water shall comply with the applicable provisions of Chapter 91-96, 97, and 102-105, including antidegradation requirements. In-stream sampling may be utilized to demonstrate attainment of a Chapter 250 cleanup standard as long as the provisions in the referenced regulations are followed. Implementation of surface water quality standards are regulated by Pa. Code Chapter 96. It is important to note that the surface water quality standards are governed by certain designed stream flow applications, including Q7-10 (defined as the lowest 7-day average flow that occurs once every ten years). Raw surface water sampling data may need to be subject to mass balance calculations/techniques in order to model proper flow of the receiving water body flow characteristics and associated contaminant concentrations at the time of sampling.

3. **Comment:** “At the end of the KOC bullet, clarify that zero should be used for inorganics (as opposed to Kd values or otherwise). This language is based off a direct question I asked to Frank once, as well as the 2014 QD User's Manual.”

**Response:** Added at the end of the bullet: “*K<sub>oc</sub> for inorganic compounds is generally assumed to be zero.*”

4. **Comment:** “The f<sub>oc</sub> term is defined in this section as the “fraction of organic carbon in unsaturated zone soil”. Additional language in this section also refers specifically to soil. Is discussion of the f<sub>oc</sub> in bedrock most appropriately discussed in the unsaturated zone modeling section of the TGM?  
Suggest the following: Remove reference to bedrock f<sub>oc</sub> in this section. If the Department wishes to include it in Section III.A.2(a) (Fate and Transport in the Saturated Zone), consider also adding language recommending that the user confirm that the selected model is appropriate for modeling in bedrock.”

**Response:** The reference to f<sub>oc</sub> in bedrock that was added in the previous edit has been removed.

5. **Comment:** “This is not an accurate definition of hydraulic conductivity. Unlike (intrinsic) permeability, the hydraulic conductivity parameter contains properties of both the medium and the fluid (water). Also suggest clarifying the information in the second clause of first sentence and the second sentence. Believe the Department’s view of hydraulic conductivity in saturated modeling is captured in the QD User’s Manual Section 3.7 and Appendix A.2.2.”

**Response:** the definition for hydraulic conductivity has been updated to: the ease with which groundwater can move through pore space. Hydraulic conductivity depends upon

permeability of the matrix, degree of saturation, and density of the liquid. Groundwater velocity is controlled by hydraulic conductivity and hydraulic gradient.

6. **Comment:** “Hydraulic gradient is not the slope of the “contours” but is the slope of the surface that the contours are depicting. QD User’s manual Section 3.8 defines hydraulic gradient as “the slope of the potentiometric surface in the direction of groundwater flow”.”

**Response:** Definition updated to: the slope of the water table or the potentiometric surface. It's the change in water level per unit of distance along the direction of maximum head decrease.

7. **Comment:** “Discussion during meeting included request for TGM to include option for direct surface water sampling as an alternative to the modeling.  
‘Comment: Suggest if the Department considers adding this type of information to the TGM, that a working group under the CSSAB be formed at the start due to the complex nature of surface water characterization and the evaluation of surface water analytical results against the Chapter 93 water quality standards (spatial, temporal, and flow-rate considerations).’”

**Response:** As noted in the response to Section III #2 above, direct surface water sampling is an allowable option for groundwater to surface water diffuse discharge characterization. However, surface water sampling data may need to be subject to mass balance calculations/techniques in order to model proper flow of the receiving water body flow characteristics and associated contaminant concentrations at the time of sampling. Implementation of surface water quality standards are regulated by Pa. Code Chapter 96 and are governed by certain designed stream flow applications, including Q7-10 (defined as the lowest 7-day average flow that occurs once every ten years).

8. **Comment:** “Make sure to update SWLOAD Spreadsheet comments to exclude Table III-1 language and update accordingly.”

**Response:** SWLOAD will be edited when the TGM is published as final

9. **Comment:** “Page III-41 comes after III-52. Statistical approach does not corroborate background section.”

**Response:** The second sentence of the added text will be deleted as it alludes to usage of background concentrations not in corroboration with an Act 2 background cleanup standard. Mislabeled page numbers will be fixed upon publication.

10. **Comment:** “Edit to Section III.B.4(b)(i)(c): “If samples have been collected from all suspect locations in the excavation, and the minimum number of samples has not been



collected, or if there are no suspect areas, then the locations to meet the minimum number of samples shall be based on a random procedure.” Should be "systematic" random?”

**Response:** Added “systematic” to the statement.

11. **Comment:** “Text applicable to 75/10X rule stating 4 rounds, but next paragraph contradicts stating eight samples required to use statistical tests.”

**Response:** This statement was moved to the end of the previous paragraph to eliminate association with any specific statistical test.

12. **Comment:** “Change wording to most recent "and defensible" ProUCL version.”

**Response:** We are hoping that the current ProUCL issue is not going to be a repeated issue. We can re-evaluate in the future if it becomes a repeat problem. We don’t want to give the impression that we don’t trust ProUCL in general.

13. **Comment:** “The term "chemicals of concern" is defined and used consistently throughout Section III of the TGM. The listed pages use the term "constituent(s) of concern", which I recommend changing to "chemical(s) of concern" for clarity/consistency, if that is in fact the correct term to be used. Note Chapter 250 only uses "substance of concern" and "contaminants of concern", but does not use the term "chemical of concern". Note Act 2 does not use or define any of these terms, but does define the word "contaminant" and use consistently. Note this term is not used at all in Section II of the TGM.”

**Response:** See the response to comment # 10 on section II

14. **Comment:** “To the extent that it is important for the TGM to be consistent with the statute, the Department may want to replace the sentence added to the TGM paragraph with the exact language from Section 304(i). Notably, to the extent these measures may not be applied to the attainment of the Background or Statewide Health Standard their use in attaining one of these standards is not relevant. However, since the restrictions in 304(i) are strictly associated with the Site-Specific Standard, it would appear that this provision could not be applied to restricting application of these measures to maintain the Background or Statewide Health Standard.”

**Response:** We have revised this statement to clarify. The new language (also clarified in Section II): *“It is important to note that fences or warning signs generally may not be used as the sole means to address a complete exposure pathway. The risk or site-specific cleanup value must be calculated for the area as if the fence or signage do not exist, except in the situation where the fence or signage was present when the release occurred, or a historical release was discovered.”*

## Section IV

1. **Comment:** “The exception is **elemental** mercury which has VI screening values for *indoor air and soil gas* and is permitted to be evaluated under the SHS.”

**Response:** We will make the suggested addition (in italics above), however the word elemental (bold above) will remain in the final version (it was omitted from the suggested revision).

2. **Comment:** “In Section E: “~~Then, relying on~~ Using the results of site characterization and/or postremediation sampling, any areas of contaminated groundwater at the water table and volumes of contaminated unsaturated zone soil that exceed applicable screening values within a proximity distance from an existing or future inhabited building are identified (Figure IV-4).”

The added language is unclear – the preceding sentence says to draw proximity distances from buildings, therefore the structure would always be within the proximity distance. It needs to be removed or flipped to say no applicable screening level exceedances within the proximity distance.”

**Response:** The added sentence was removed for clarity.

3. **Comment:** “When talking about potential VI sources its always relative to SHS screening values. Add SHS before VI screening values.”

**Response:** All of section IV refers to SHS screening values simply as “screening values.” If there are other screening values being referred to, then we mention what those are.

4. **Comment:** “In Section G(2): “~~If a source is less than five feet below a foundation or slab, a near-source soil gas sample may be taken through the foundation or slab to a point near the source.~~””

The second added sentence suggests we should compare this sample to SVns, but shouldn’t it be compared to SVss? Should we just call this a sub-slab sample to avoid confusion?

**Response:** This statement was deleted.

5. **Comment:** “New paragraph in Section G(2): “There may be screening limitations when attempting to sample near-source soil gas points with significant fluctuations in groundwater levels. The near-source soil gas screening values were derived assuming that contamination is at a single depth, and that the sample is collected immediately above the

source. Significant groundwater fluctuations would present a source in the smear zone, which is periodically unsaturated, and another source in the groundwater which can be a few feet deeper. It is reasonable to sample the soil gas point at the top of the smear zone, but the data should be evaluated differently. If the soil gas point is beneath laterally extensive intact pavement, the data can be compared to sub-slab screening values. If not, the data should be compared to indoor air screening values. Alternatively, modeling the soil gas data could be another option.”

We should provide guidance on what constitutes a “significant” groundwater fluctuation. Groundwater elevations always fluctuate, and I’m concerned this will be applied differently across regions. Seeking clarity on what the PADEP's intention is in adding this paragraph and what exactly are they trying to say?”

**Response:** The added paragraph was removed. The paragraph was attempting to address a Q&A. Upon further review, we feel that the Q&A was adequately addressed in other Sections of the TGM.

6. **Comment:** “It would be helpful to explain why the VISL calculator cannot be used to calculate VISLs. Can PADEP clarify exactly what they mean? Ex. USEPA VISL Calculator can't be used because assumptions are different..., etc.”

**Response:** Revised paragraph to say: *“When volatile inorganic compounds are identified in soil or groundwater as a contaminant of concern the vapor intrusion pathway should be evaluated. As with all types of screening within Act 2, site-specific screening values are not permitted to be calculated. If there are no VI screening values listed in Tables IV-3 – IV-5 the remediator may screen indoor air data with the USEPA RSLs (TR = 1E-6, HQ = 0.1). The USEPA RSLs may be converted to sub-slab or near-source soil gas screening values using the appropriate attenuation factors listed in Table IV-A-4. If the data exceeds the appropriate screening values, then a risk assessment should be performed. The Vapor Intrusion Screening Level (VISL) calculator can only be used to calculate inhalation risks using vapor data.”*

7. **Comment:** “Suggest that maybe now is an opportune time to create the PADEP's own "model" pre-sampling survey form as opposed to referencing those of other agencies.”

**Response:** All of the referenced surveys are well-developed surveys for indoor air sampling and a PA-specific one would not add anything to the ones that already exist.