



AWMA 2023

RECAP

The Do's and Don'ts

AOI, AOIC, and 95% UCL-AM

Area of Investigation Defined

- ▶ (RECAP Section 2.6.1) The Area of Investigation (AOI) is the zone contiguous to, and including, impacted media defined vertically and horizontally by the presence of one or more constituents in concentrations that exceed the limiting standard applicable for the Option being implemented.

Identification of the AOI

- ▶ For a SO or MO-1 assessment, the limiting SS shall be used to identify the AOI.
- ▶ The Limiting Screening Standard (LSS) is used to define the boundaries of the AOI.
 - ▶ Soil - Lower of Soilni/Soili and Soilgw
 - ▶ Groundwater - GWss

Identification of the AOI

DO

- ▶ Identify the AOI using a LSS or LRS
- ▶ Re-evaluate the AOI for new exposure areas if land use changes and the original AOI is subdivided
- ▶ Re-evaluate the AOI if land use changes result in soil removal or movement

DO NOT

- ▶ Assume entire property is the AOI
- ▶ Divide the property into AOIs based on historical/former uses of the property

Identification of the Soil AOIC

- ❑ AOIC = Max or 95%UCL-AM Concentration

- ❑ When to use the Max
 - ✓ Screening option
 - ✓ Too few data points to calculate a 95%UCL-AM
 - ✓ Too many ND results to calculate 95%UCL-AM (usually post-remediation)
 - ✓ 95%UCL-AM > Max

- ❑ When not to use the Max
 - ✓ Max > LRS
 - ✓ There are sufficient data points to calculate 95%UCL-AM

- ❑ 95%UCL-AM dataset should only include the data points on or within the boundaries of the AOI

- ❑ Need more info? Refer to Section 2.8

Calculating the AOIC – 95%UCL-AM

- ▶ EPA's ProUCL 5.2 <https://www.epa.gov/land-research/proucl-software>
- ▶ Include all data points on or within boundaries of AOI
- ▶ Minimum of 10 -15 observations needed (incremental composite sampling)
- ▶ Excel - import/export

Soil AOIC 95%UCL-AM: ProUCL common mistakes

- ▶ Censored vs non-censored data sets
- ▶ Nondetects: Enter the full (not ½) reporting limit
- ▶ Not enough data points
- ▶ Too many ND in dataset
- ▶ Using a 95%UCL-AM value other than the recommended UCL
- ▶ Not including the worksheet with input values and/or output summary with recommended UCL in the submittal
- ▶ Not using the 95%UCL-AM - using the max concentration as the AOIC
- ▶ Ignoring warnings provided in output summary

Soil AOIC 95%UCL-AM

DO

- ▶ Include data points on or within the boundaries of the AOI
- ▶ Include input and output worksheets in a submittal
- ▶ Identify non-detects as full reporting limit
- ▶ Use a minimum of 10 data points

DO NOT

- ▶ Utilize data outside the AOI
- ▶ Include output worksheets only
- ▶ Use ½ reporting limit for non-detects
- ▶ Ignore warnings provided in output summary

Land Use - Soil Exposure

Why is land use important?

- ▶ Land use determines exposure potential
 - The greater the exposure potential, the lower the risk-based standard
- ▶ **Non-industrial Land Use**
 - Residential exposure
 - ↑ exposure frequency/duration; child receptor
 - Recreational, trespasser, etc
- ▶ **Industrial/Commercial Land Use**
 - Worker exposure
 - Conveyance Notice
- ▶ Land use
 - North American Industry Classification System (NAICS)
 - RECAP Section 2.9 and Appendix E

Land Use

- ✓ Current and future land use should be considered
- ✓ If land is undeveloped/future use is not known:
 - Zoning/development plans
 - Surrounding land use
 - Assume non-industrial
- ✓ **Change in land use**
 - May change exposure potential: EF/ED, exposure pathways, receptors
 - May warrant additional site evaluation, investigation, and remediation
 - Almost always changes AOI and AOIC
- ✓ Meeting non-industrial RS within the AOI \neq unrestricted property use

Data Issues

Most Common Data Issue: Elevated Reporting Limits

- ▶ For COC that are not detected, RECAP requires that the Sample Quantitation Limit (also referred to as the Reporting Limit) be less than the LSS or LRS prior to eliminating the COC from further assessment
 - ✓ Page 29 (Section 2.5): In the RECAP submittal, non-detected results shall be reported as less than the numerical value of the SQL (e.g., < 5 ug/l) and a comparison of the SQL to the limiting SS or RS shall be presented for all constituents reported as not detected to demonstrate that the SQL are less than or equal to the limiting SS or RS prior to eliminating a COC from further assessment.
- ▶ Data gaps due to elevated Reporting Limits should be resolved early in the RECAP process - if possible, determine why and correct
- ▶ Data Evaluation and Useability requirements: Section 2.5

The results of the **data evaluation** shall be presented in the RECAP submittal (RECAP Form 3) and shall address: (1) the appropriateness of the analytical method used and the sample quantitation limits; (2) the results of the blank analyses; (3) the TIC detected; (4) any calibration or matrix spike recoveries outside the acceptable range; (5) the results of the performance evaluation; and (6) the precision of the analyses. **Based on the evaluation of the QA/QC data and the reported results, the Submitter shall make recommendations in the RECAP submittal concerning the usability of the data for RECAP purposes.** Data determined not to be acceptable for RECAP shall be identified and justification for the determination shall be given.

Elevated Reporting Limits

- ▶ Always communicate Reporting Limit requirements with laboratory prior to sample collection
- ▶ If reporting limits are > LRS and results are ND, check with laboratory for reason
- ▶ Common reasons for elevated reporting limits:
 - ❖ matrix interference
 - ❖ presence of one or more COC at high concentrations requiring sample dilution prior to analysis
 - ❖ presence of non-target analytes
- ▶ Nontarget analytes:
 - ❖ request tentatively identified compounds
 - ❖ conduct fingerprint analysis of most heavily impacted area of AOI
 - ❖ resample with extended analyte list based on site history

Elevated Reporting Limits

- ▶ Do not include elevated reporting limits in the RECAP assessment
- ▶ ↑ Reporting Limit \neq AOIC
 - do not use elevated report limits as the AOICs
 - do not use 1/2 elevated report limit as the AOIC
- ▶ Determine the impact of data gaps created by elevated RL in data evaluation
 - ❖ Determine if additional sampling needed for delineation of AOI or evaluation of POE
 - ❖ Other significant data gap

Laboratory Reporting

- ▶ Laboratory report should include results for the full method analyte list
- ▶ Selective reporting could result in only partial characterization
- ▶ Reporting of J values (detections between the Reporting Limit and Method Detection Limit) - **yes!**

Data Issues

DO

- ▶ Provide narrative addressing elevated reporting limits
- ▶ Contact lab for additional information
- ▶ Request full method analyte list
- ▶ Request the reporting of J-values

DO NOT

- ▶ Use an elevated reporting limit as the AOIC
- ▶ Ignore elevated reporting limits
- ▶ Selectively report analytes

Geophysical parameters – MO-2 and MO-3

- ✓ Collect sample in an area of non-impacted soil that is representative of the soil conditions within the AOI

Fraction of organic carbon (f_{oc})

- ✓ Method of analysis - f_{oc} calculation**
 - Heat loss on ignition (ATSM D2974)
 - $f_{oc} = \text{organic matter (\%)} / 174$
 - Total Organic Carbon (SW846 Method 9060 modified)
 - $f_{oc} = \text{TOC (mg/kg)} / 10^6$
- ✓ **Submittal should clearly identify the site-specific f_{oc} and how it was derived**
- ✓ The f_{oc} must be site-specific; an f_{oc} from another site cannot be used; an f_{oc} from literature cannot be used
- ✓ If sample is obtained within AOI, f_{oc} may be biased high
- ✓ Chain of Custody lists the analysis test as " f_{oc} " instead of Method D2974
- ✓ f_{oc} memo on RECAP website

Fraction of Organic Carbon

DO

- ▶ Ensure lab uses ASTM Method D2974 and reports results as Organic Matter in units of percent (%).
- ▶ Place "ASTM D2974" on Chain of Custody
- ▶ Include supporting information on how your site specific FOC was derived
- ▶ Collect FOC/Geotech sample from a non-impacted area

DO NOT

- ▶ Report results as fraction of organic carbon in units of percent
- ▶ Place "FOC" on Chain of Custody
- ▶ Report an FOC without supporting information.
- ▶ Collect FOC/Geotech sample from an impacted area.

Polychlorinated Biphenyls (PCBs)

- ▶ Congener data vs Aroclor data
 - An Aroclor is a mixture of PCB congeners
 - Aroclor 1260: 12 = 12 carbons and 60 = 60% chlorination
 - Due to weathering, the composition of the mixture changes over time
 - Analytical method for Aroclors is based on pattern recognition, therefore, Aroclor data is nonspecific and may underestimate amount of PCB present due to weathering
 - Congener data is very specific, better assessment of presence and toxicity
 - Congener data more expensive than Aroclor data
 - Compromise: analyze for WHO 12 PCB DLC (risk drivers)
 - Media - soil, sediment, fish, GW₁, etc.
 - Pathway - especially important for bioaccumulation pathway
 - Reporting limits:
 - ❖ Aroclors 50 ppb
 - ❖ PCB congeners <10 ppt

Polychlorinated Biphenyls

- ▶ PCB congener approach requires a two-fold assessment
 1. Total PCB congener concentration is compared to PCB RS
 2. A Total TEQ is calculated for the WHO 12 PCB congeners compared to 2,3,7,8-TCDD RS
- ▶ Aroclor data is compared to PCB RS

Polychlorinated Biphenyls (PCBs)

DO

- ▶ Request total PCB congeners and compare to PCB RS.
- ▶ Report WHO 12 PCB congeners separately and calculate a total TEQ for comparison to 2,3,7,8-TCDD RS.

DO NOT

- ▶ Request Aroclor data

Soil and Groundwater SS and RS should not be applied to media or material other than soil or groundwater

- ✓ Should only be applied to soil and groundwater under SS or MO-1 or MO-2
- ✓ SS and RS are NOT applicable to waste! (e.g., sludges, ash, etc)
- ✓ Soil standards should not be applied to other media such as sediments, plants, debris, etc.
- ✓ Groundwater standards should not be applied to other media such as surface water or rinsate

Resampling: When is it appropriate? When is it not?

▶ Re-sampling of locations with exceedances

- ❖ What medium? Soil vs Groundwater
- ❖ What type of COC(s) and time since last sampling?
- ❖ “Remediation” via re-sampling - **No**
- ❖ When a sample location is “re-sampled”, the data from the re-sampling supplements **NOT** replaces the existing data for that location

Resampling - When is it warranted?

- ▶ Resampling data replaces existing data when:
 - A RS for a TPH mixture is exceeded and TPH fractionation data are obtained for that location
 - Soil has been removed or moved and existing data are no longer representative
 - Existing data are not valid or are questionable based on QA/QC data or other technical factor (e.g. matrix interference, elevated SQL, etc)
 - Existing data is very old and likely not representative of current site conditions, i.e., benzene in surface soil or groundwater and available data is 15 years old
 - Other valid technical or analytical reason

Site-Specific Background

- ▶ Can be established for any environmental medium and biota
- ▶ Data collection must be outside of the area of concern and share similar characteristics as the AOI
- ▶ Minimum 4 discrete samples
- ▶ ≤ 7 discrete samples → use arithmetic mean as background
- ▶ ≥ 8 discrete samples → use the arithmetic mean + 1SD as background
- ▶ AOI arithmetic mean not 95%UCL-AM is compared to background
- ▶ State soil background for arsenic (Soil_{ni} and Soil_i) should be compared to arithmetic mean not 95%UCL-AM concentration
- ▶ Site-specific background levels are subject to Dept approval

Site-Specific Background

- ▶ If the LRS < background, then BG is used as LRS
- ▶ Use of Literature values - **maybe**
 - ✓ USGS
 - ✓ New Orleans studies PAHS, some metals (not Pb)
- ▶ Background vs Intended Use - Is a chemical present due to an intended use?
 - ✓ Was sample collected adjacent to a creosote piling? asphalt paving?
 - ✓ Be mindful of potentially confounding findings when selecting sampling locations

RECAP

Submittal Requirements

Submittal Forms

- ▶ **Use them!**
- ▶ Appendix C
- ▶ Forms serve to standardize submittals and assist the team leader's review
- ▶ Please don't create forms with different formats
- ▶ Submittal Requirements: Sections 3.4, 4.3, 5.4 and 6.9

Location and AOI Maps

- ▶ Topographic map with the AOC or the AOI labeled and name of quadrangle (USGS)
- ▶ Vicinity map with adjoining properties, cross streets and land use
- ▶ Site map with all significant features
- ▶ Detailed AOC or AOI map with **identification of all sampling locations and the boundaries of the AOI**

- ▶ Submittal Requirements: Sections 3.4, 4.3, 5.4 and 6.9

Addressing Additive Health Effects

What is Additivity?

- ▶ RECAP Definition: For non-carcinogens, it is assumed that simultaneous subthreshold exposures to several constituents that elicit the same critical effect or affect the same target organ/system could result in an adverse health effect.
- ▶ Simply put: Additivity addresses the exposure to multiple constituents which elicit non-carcinogenic effects on the same organ/organ system.

TABLE G-1
Critical Effects and Target Organs/Systems ¹

CONSTITUENT	CAS #	CRITICAL EFFECT(S)/TARGET ORGAN(S) ²
Acenaphthene	83-32-9	Liver toxicity
Acetone	67-64-1	Liver effects (increased weight); Kidney toxicity
Aldrin	309-00-2	Liver toxicity
Aniline	62-53-3	Spleen toxicity
Anthracene	120-12-7	No observed effects
Antimony	7440-36-0	Decreased longevity; Decreased blood glucose; Altered blood cholesterol levels
Arsenic	7440-38-2	Skin effects (hyperpigmentation and keratosis); Vascular effects
Barium	7440-39-3	Kidney effects (increased weight)
Benzene	71-43-2	Bone marrow toxicity (lymphocytopenia) ³
Benz(a)anthracene	56-55-3	NA ⁴
Benzo(a)pyrene	50-32-8	NA
Benzo(b)fluoranthene	205-99-2	NA
Benzo(k)fluoranthene	207-08-9	NA
Beryllium	7440-41-7	Gastrointestinal effects (erosion and inflammatory lesions); Beryllium sensitization; Respiratory system (chronic beryllium disease - chronic inflammatory lung disease)
Biphenyl,1,1-	92-52-4	Kidney toxicity
Bis(2-chloroethyl)ether	111-44-4	NA
Bis(2-chloroisopropyl)ether	108-60-1	Hematological system effects (red blood cell toxicity/destruction and decreased hemoglobin)
Bis(2-ethyl-hexyl)phthalate	117-81-7	Liver effects (increased weight)
Bromodichloromethane	75-27-4	Kidney effects (cytomegaly)
Bromoform	75-25-2	Liver effects

Additive Health Effects

- ▶ Additive Health Effects - RECAP Appendix G.
 - ▶ Various Examples.
 - ▶ TPH examples in Appendix D.
- ▶ Only applicable to risk based standards
 - ▶ Risk Based = $\text{Soil}_{ni}/\text{Soil}_i, \text{Soil}_{es}, \text{GW}_1, \text{GW}_2, \text{GW}_{es}, \text{GW}_{air}$
 - ▶ Not applicable to $\text{Soil}_{gw}^*, \text{Soil}_{sat}, \text{GW}_3, \text{Water}_{sol}$
- ▶ Under MO-1, If more than one noncarcinogenic COC has the same critical effect, the risk-based standard for those COC shall be divided by the number of COC present in the group.

Special Cases and Exceptions

- ▶ If groundwater at the AOI is currently being used as a drinking water source, adjust Soil_{gw} for additive health effects.
- ▶ Standards based on a quantitation limit.
- ▶ Standards based on an approved background.
- ▶ 10,000 mg/kg upper limit for TPH
- ▶ Lead
- ▶ MCL's
- ▶ Carcinogens

- ▶ Use Appendix G. Contact Team Leader and request assistance.

Additivity Example 1

- ▶ Acetone, Styrene, Phenol, and Chlorobenzene exceed the Soil_{ssni}
- ▶ Step 1: Identify the target organ/system for each COC.
 - ▶ Acetone: Liver, Kidney
 - ▶ Styrene: Hematological, Liver, CNS
 - ▶ Phenol: Decreased Weight Gain
 - ▶ Chlorobenzene: Liver

Additivity Example 1

- ▶ Step 2: Organize by organ system/critical effect and Identify Additivity Divisor:

- ▶ Liver: Acetone, Styrene, Chlorobenzene (3)
- ▶ Kidney: Acetone (1)
- ▶ CNS: Styrene (1)
- ▶ Hematological System: Styrene (1)
- ▶ Decreased Weight Gain: Phenol (1)

- ▶ Adjust standards for Additivity:

- ▶ Acetone - Divide Soilni in Table 2 by 3
- ▶ Styrene - Divide Soilni in Table 2 by 3
- ▶ Chlorobenzene - Divide Soilni in Table 2 by 3
- ▶ Phenol - No change

Additivity Example 1

COC	x Soil _{ni}	Additivity Divisor	Final x Soil _{ni}	Soil _{GW3}	DF3	Final Soil _{GW}	x Soil _{es}	Additivity Divisor	Final x Soil _{es}	Soil _{sat}	Limiting MO-1 RS
Acetone	1700 mg/kg	3	570 mg/kg								
Styrene	5000 mg/kg	3	1667 mg/kg								
Phenol	13000 mg/kg	1	13000 mg/kg								
Chlorobenzene	170 mg/kg	3	57 mg/kg								

Note: Additivity adjustments for Soiles can be added to RECAP Form 11

Concepts

COC	x Soil _{ni}	Additivity Divisor	Final x Soil _{ni}
Acetone	1700 mg/kg	3	570 mg/kg
Styrene	5000 mg/kg	3	1667 mg/kg
Chlorobenzene	170 mg/kg	3	57 mg/kg

- Acetone:
- 1700 mg/kg represents the maximum allowable concentration based on liver effects.
- 570 mg/kg represents 33% of the maximum allowable concentration based on liver effects.

$$HQ = \frac{570 \text{ mg/kg}}{1700 \text{ mg/kg}} = 0.33$$

Concepts

- ▶ Hazard Quotient: the ratio of the AOIC for a noncarcinogenic COC to the risk based standard for that COC.

$$\text{Hazard Quotient (HQ)} = \frac{\text{Area of Investigation Concentration (AOIC)}}{\text{Risk Based RECAP Standard (RS)}}$$

- ▶ Hazard Index: the sum of more than one hazard quotient for multiple noncarcinogens

$$\text{Hazard Index (HI)} = [HQ1 + HQ2 + HQ3 + \dots + HQi]$$

Concepts

Acetone: $HQ = \frac{570 \text{ mg/kg}}{1700 \text{ mg/kg}} = 0.33$

Styrene: $HQ = \frac{1667 \text{ mg/kg}}{5000 \text{ mg/kg}} = 0.33$

Chlorobenzene: $HQ = \frac{57 \text{ mg/kg}}{170 \text{ mg/kg}} = 0.33$

Hazard Index (HI) = 0.33 + 0.33 + 0.33 = ~1

Additivity Example 2

- ▶ COCs: Toluene, Ethylbenzene, Aliphatics $C_{>6}-C_8$, Aliphatics $C_{>8}-C_{10}$, Aliphatics, $C_{>10}-C_{12}$, Aromatics $C_{>8}-C_{10}$ and Aromatics $C_{>10}-C_{12}$
 - ▶ Toluene: Liver, Kidney, CNS, Nasal Cavity
 - ▶ Ethylbenzene: Liver, Kidney, Fetal Effects
 - ▶ Aliphatics $C_{>6}-C_8$: Kidney
 - ▶ Aliphatics $C_{>8}-C_{10}$: Liver, Hematological System
 - ▶ Aliphatics, $C_{>10}-C_{12}$: Liver, Hematological System
 - ▶ Aromatics $C_{>8}-C_{10}$: Decreased Body Weight
 - ▶ Aromatics $C_{>10}-C_{12}$: Decreased Body Weight
- ▶ STOP! Appendix G3.3:
 - ▶ When accounting for additivity for TPH fractions, the following fractions should be treated as individual COC: aliphatics $C_{>6}-C_8$, aliphatics $C_{>8}-C_{16}$, aliphatics $C_{>16}-C_{35}$, aromatics $C_{>8}-C_{16}$, and aromatics $C_{>16}-C_3$

Additivity Example 2

- ▶ Toluene: Liver, Kidney, CNS, Nasal Cavity
 - ▶ Ethylbenzene: Liver, Kidney, Fetal Effects
 - ▶ Aliphatics $C_{>6}$ - C_8 : Kidney
 - ▶ Aliphatics $C_{>8}$ - C_{16} : Liver, Hematological System
 - ▶ Aromatics $C_{>8}$ - C_{16} : Decreased Body Weight
-
- Liver: Toluene, Ethylbenzene, Aliphatics $C_{>8}$ - C_{16} (3)
 - Kidney: Toluene, Ethylbenzene, Aliphatics $C_{>6}$ - C_8 (3)
 - CNS: Toluene (1)
 - Nasal Effects: Toluene (1)
 - Fetal Effects: Ethylbenzene (1)
 - Hematological: Aliphatics $C_{>8}$ - C_{16} (1)
 - Decreased BW: Aromatics $C_{>8}$ - C_{16} (1)

Additivity Example 2

COC	x Soil _i	Additivity Divisor	Final x Soil _i
Toluene	4700 mg/kg	3	1567 mg/kg
Ethylbenzene	1300 mg/kg	3	433 mg/kg
Aliphatics C6-C8	10,000 mg/kg ^{***}	3	3333 mg/kg
Aliphatics C8-C10	8800 mg/kg	3	2933 mg/kg
Aliphatics C10-C12	10,000 mg/kg ^{***}	3	3333 mg/kg
Aromatics C8-C10	5100 mg/kg	1	5100 mg/kg
Aromatics C10-C12	10,000 mg/kg ^{***}	1	10,000 mg/kg

- A RS of 10,000 ppm for TPH shall not be adjusted to account for additive health effects. If there is potential for additive health effects, the risk-based RS for a TPH fraction or mixture shall be adjusted to account for additivity and then compared to the 10,000 ppm cap.

Additivity Example 2

► Appendix H Worksheets!

COMPOUND	DA (cm ² /s)	VFi (m ³ /kg)	Soili C-O (mg/kg)	Soili C-I (mg/kg)	Soili N-O (mg/kg)	Soili N-I (mg/kg)	min value (C or N)	Soili (mg/kg)	
Aliphatics C6-C8	1.40E-03	2.99E+03	NA		8.03E+04		8.0E+04	1.0E+04	O,T
Aliphatics >C8-C10	3.22E-04	6.23E+03	NA		8.83E+03		8.8E+03	8.8E+03	N
Aliphatics >C10-C12	6.28E-05	1.41E+04	NA		1.96E+04		2.0E+04	1.0E+04	O,T
Aliphatics >C12-C16	1.37E-05	3.02E+04	NA		3.77E+04		3.8E+04	1.0E+04	O,T
Aliphatics >C16-C35	1.03E-06	1.10E+05	NA		6.87E+05		6.9E+05	1.0E+04	O,T
Aromatics >C8-C10	3.94E-05	1.78E+04	NA		5.12E+03		5.1E+03	5.1E+03	N
Aromatics >C10-C12	7.31E-06	4.13E+04	NA		1.10E+04		1.1E+04	1.0E+04	O,T
Aromatics >C12-C16	1.40E-06	9.45E+04	NA		2.14E+04		2.1E+04	1.0E+04	O,T
Aromatics >C16-C21	1.11E-07	3.36E+05	NA		1.75E+04		1.7E+04	1.0E+04	O,T
Aromatics >C21-C35	1.04E-09	3.47E+06	NA		2.52E+04		2.5E+04	1.0E+04	O,T
TPH-GRO (C6-C10)							5.1E+03	5.1E+03	
TPH-DRO (C10-C28)							5.1E+03	5.1E+03	
TPH-ORO (>C28)							2.5E+04	1.0E+04	

Additivity Example 2

COC	x Soil _i	Additivity Divisor	Final x Soil _i
Toluene	4700 mg/kg	3	1567 mg/kg
Ethylbenzene	1300 mg/kg	3	433 mg/kg
Aliphatics C6-C8	80,300 mg/kg	3	10,000 mg/kg
Aliphatics C8-C10	8800 mg/kg	3	2933 mg/kg
Aliphatics C10-C12	19,600 mg/kg	3	6533 mg/kg
Aromatics C8-C10	5100 mg/kg	1	5100 mg/kg
Aromatics C10-C12	10,000 mg/kg***	1	10,000 mg/kg

- If the adjusted risk-based value is less than 10,000 ppm, then the risk-based value shall serve as the risk-based standard. If the adjusted riskbased value is greater than 10,000 ppm, then the upper limit of 10,000 ppm shall be used as the RS.

- ▶ “The information herein does not, and is not intended to, constitute legal advice. Instead, all information, content, and materials are for general informational and/or educational purposes only. You should contact an attorney to obtain advice with respect to any particular site and/or legal issue. Should you decide to act upon any information contained in this presentation, you do so at your own risk. In addition, the information provided is intended only as general overview of the topic. Specific sites may have additional conditions that require consideration. Please contact the site’s Team Leader for additional assistance.
- ▶ While the information provided has been verified to the best of the Department’s abilities, the information is being provided “as is.” The Department does not make any representation that the presentation is error-free. Further, if any information contained in the presentation conflicts with the Department’s statutes or regulations, then the statutes or regulations will prevail.”