Topic	Comment	EPD Response
1. General		
1.1 Practical Implementation	While the draft guidance acknowledges the primacy of legal requirements and does not rule out cost efficiency as a consideration, presentations by EPD seeking input on the guidance suggest that neither compliance with legal obligations nor achieving practical cost-efficient outcomes were primary considerations driving development of the document. It is proposed that EPD reevaluate the guidance document with a view toward ensuring that the risk assessment process never loses sight of the ultimate goal of achieving effective and efficient clean ups. It is suggested that the purpose statement of this guidance (Page 1, Section 1.0) be revised as follows: The purpose of this guidance is to help qualified risk assessors develop human health and/or ecological risk assessments that are acceptable to meet the regulatory requirements of the Georgia Environmental Protection Division (EPD) and support effective and efficient clean ups."	EPD has revised the purpose to: The purpose of this guidance is to provide regulated facilities and environmental professionals with a framework for developing human health and ecological risk assessments that support effective and efficient clean ups. Please note that EPD has not included the phrase "qualified risk assessor" because there is no accepted definition of this term and it is not required that risk assessments be performed by any particular type of professional. EPD has reviewed the guidance with this comment in mind.Whilethe draft guidance presents a framework for conducting scientifically defensible human health and ecological risk assessments, it is not intended to replace or diminish the primacy of legal obligations or the consideration of practical implementation.
1.2 One Size Fits All	We agree with Georgia Environmental Protection Division's (GaEPD) statement that risk assessment is not a one-size-fits-all process. We understand that the guidance document's laudable intention is to help streamline the preparation, review, and timely approval of human health and ecological risk assessments. It is also important to allow Responsible Parties sufficient flexibility to complete risk assessments that reasonably reflect site-specific conditions and (if needed) implement remedial goal options (RGO) that practically protect human health and the environment.	The comment is acknowledged and appreciated.
1.3 EPD's Legal Authority	The scope of EPD's legal authority to regulate ecological risks under the Hazardous Site Response Act, the Voluntary Remediation Program, the Georgia Brownfield Act, or the Rules for Hazardous Site Response does not support application of the proposed Georgia Risk Assessment Guidance (GRAG) to sites regulated under authority of those statutes and regulations.	EPD disagrees with the statement that application of GRAG for consideration of ecological risk exceeds the scope of authority under the Hazardous Site Response Act (HSRA), the Voluntary Remediation Program Act (VRPA), the Georgia Brownfield Act (GBA), or the Rules for Hazardous Site Response. HSRA states that its purpose is to protect "human health and the environment" (O.C.G.A. § 12-8-93(a)). HSRA Rules 391-3-19-.07(4)(c) and (d) specifically address ecological and surface water as essential features of the Risk Reduction Standards (RRS), which are incorporated by reference under VRPA and GBA. As noted elsewhere GRAG provides one way of meeting these regulatory requirements, but is not, itself, a requirement.
1.4 Length of Document	Many passages in the document appear written for laypersons with either little- to-no risk assessment or environmental training or experience. As a result, the document is much longer than necessary to provide the desired guidance to the professional risk assessment community that would be expected to make use of the document. It is recommended to remove these sections from the GRAG and, if necessary, develop a separate, standalone risk assessment introduction that a layperson might find more useful.	EPD acknowledges the concern regarding the length of the draft Georgia Risk Assessment Guidance (GRAG). The GRAG was intentionally drafted using plain language to allow accessibility for a wide range of stakeholders; risk assessments are often submitted to EPD by non risk assessors. However, EPD has reviewed GRAG for conciseness and streamlined where possible. Professional risk assessors are encouraged to treat the document as a reference and consult sections only as needed.
1.5 Length of Document (Citing Third Party Sources)	Many of the substantive topics touched upon in the guidance are adequately addressed in existing documents referenced in the proposed guidance. It is recommended to simply cite those third-party sources rather than attempting to summarize their content, wherever possible, and focusing on acceptable practices and approaches that are unique to EPD.	The intent of referencing and summarizing these external resources was to provide context and a standalone document to ensure that users understood how those references apply within Georgia's regulatory framework. That said, EPD recognizes that portions of the draft may contain more background detail than is necessary. GRAG was revised where simple citation of third-party sources is sufficient and summaries streamlined accordingly.
1.6 Background Threshold Values and ProUCL	(p. 25) ProUCL does not recommend BTVs in the BTV output. (Recommendations are only provided for UCLs.) I recommend revising this as suggested in the next column for accuracy, and also to further clarify BTVs versus UCLs as separate calculations in ProUCL.	The GRAG has been revised to clarify the selection of the 95% Upper Tolerance Limit (UTL) is based on data distribution. Additionally, a background section has been added to further clarify BTVs versus UCLs. The new background section describes that background data sets should be used where possible to develop background threshold values (BTVs). These can be calculated using ProUCL, a free statistical program available from the USEPA. In most cases, a 95th percentile upper tolerance limit (UTL) with 95% coverage is a useful statistic for developing a BTV and should be selected based on the underlying data distribution. Consultation with a statistician may be helpful where the choice is unclear (e.g., if the data set fits multiple distributions). The UTL is specific to BTVs and should not be confused with upper confidence limits (UCLs) on the mean, which are separate calculations in ProUCL and represent a measure of central tendency. BTVs, such as UTLs, are generally compared to the highest detected concentrations and should not be compared with UCLs of site data or other estimates of the mean.
1.7 Dissolved versus Total Metals	Recommend clarifying in both the analytical methods and risk assessment sections the use of dissolved versus total metals data for aqueous media. Typically, both would be performed for the analytical methods; however, their application in human health and ecological risk assessment likely will differ.	Text has been added to the guidance document as suggested to clarify the use of dissolved versus total metals and their application in both human health and ecological risk assessment.
1.8 Remove "Requirements"	(p. 52) Please remove the statement in this guidance that certain requirements must be met. A guidance document such as this should only provide advice or information. A requirement is typically considered compulsory. The guide should not be considered to contain a series of compulsory requirements.	EPD concurs that guidance provides one way of meeting regulatory requirements and is not, itself, a requirement. The GRAG has been revised to remove reference to "requirements".
1.9 Clarification on "Qualified Professional"	(p. 52) It would be helpful to clarify the definition of a "qualified professional" conducting site reconnaissance/habitat assessments.	The GRAG has been revised to remove reference to "qualified professional." Revision: "Depending on the extent of site development, the desktop analysis may need to be supplemented with information collected during a site reconnaissance conducted by a an ecologist or other environmental professional with appropriate expertise."
2. Target Organ Specific Hazard (TOSHI)		

2.1 Approach	The potential applicability of a target organ specific hazard index (TOSHI, *e.g.*, p. 41) approach should be included in the Risk and Hazard Box.	The GRAG has been revised to provide clarification on the target organ specific hazard index (TOSHI) approach. Revision: "In the GRAG, non-cancer hazard refers to the potential for adverse health effects, other than cancer, resulting from exposure to chemical contaminants at a site. This hazard is measured using a Hazard Quotient (HQ), which is the ratio of the chemical concentration in an environmental medium (e.g., soil, groundwater, air) to a chemical-specific reference dose or concentration, below which no adverse effects are expected. When exposure involves multiple chemicals, the individual HQs are summed to determine the Hazard Index (HI). In addition, when multiple chemicals may affect the same target organ or organ system, the Target Organ-Specific Hazard Index (TOSHI) approach is used. Under this approach, HQs are grouped by target organ (e.g., liver, kidney, nervous system) and summed separately for each organ system. This provides a more refined evaluation of potential noncancer health effects by identifying whether combined exposures may result in additive toxicity to a specific organ. An HQ, HI, or TOSHI greater than 1 indicates a potential concern for noncancer health effects."
2.2 Pathway/Receptor Specific	(p. 58) Guidance document users should be reminded that for an HQ above 1, a TOSHI (e.g., p. 41) may be calculated for each receptor/pathway scenario.	Please refer to the discussion of the Target Organ Specific Hazard Index (TOSHI) provided in the Risk Characterization section of the GRAG.

3. Interim Measures		
3.1 Number of Contaminants	Interim measure screening using the U.S. Environmental Protection (EPA, 2024a) Regional Screening Level (RSLs) should not be limited to releases of less than ten chemicals, which appears to be arbitrary. We agree that this process should be used to screen a relatively few chemicals. However, the allowable number of chemicals screening at a specific site should be based on an agreement with GaEPD.	Limiting interim measures screening to ten (10) chemicals is not arbitrary but meant to account for the cumulative carcinogenic risk and non-carinogenic hazard. More than ten (10) chemicals at a risk threshold of 1E-05 could cause an exceedance of EPA's risk range of 1E-04 and a hazard index of 1, which would result in unacceptable risk at the site. Clarification has been added to the text of the GRAG.
3.2 Residential versus Industrial	It would be helpful to clarify whether interim measures could apply to residential or industrial settings. GRAG only references residential settings while Slide No. 12 from August 6, 2025, webinar references applicability to residential or industrial settings.	The Interim Measures option applies only to permitted hazardous waste facilities and facilities with a Hazardous Waste Management Act Order. The more conservative residential RSLs can be used to screen soils; however, if the facility has a uniform environmental covenant restricting use of the property to industrial use only, industrial RSLs may be used. Clarification has been added to the GRAG.
3.3 Risk Levels	If the RSLs are set at a target cancer risk of 1E-5 and a hazard quotient of 1 for each chemical, the cumulative risk estimates for the site may exceed the GA cancer and noncancer cumulative risk limits of 1E-5 and 1. Would this be allowed under this Interim Measures scenario?	EPD concurs. More conservative RSLs (e.g., 1E-06/0.1) may be used to ensure that risk and hazard do not exceed EPD's cumulative risk thresholds of 1E-05 and an HI of 1. If the less conservative RSLs are used, additional action may be needed to reduce risk to below EPD's risk thresholds. Text has been added to the GRAG to clarify this issue.

4. Conceptual Site Model		
4.1 Figure 6	(p. 44 and Figure 6). The Exposure Model appears to be the same as the conceptual site model (CSM). It might be helpful to rename the Exposure Model the CSM.	The Exposure Model is part of the Conceptual Site Model. The Exposure Model examines individual releases, their fate and transport in environmental media, what receptors may be present, and their potential contact point with the contaminants in the media. The comment is noted, and the GRAG has been revised to clarify that the Exposure Model is part of the Conceptual Site Model.
4.2 Combine Sections	Sections 3.2 and 3.4 are very short and do not seem to be necessary to include as their own individual section headers. Consider putting the statements from Sections 3.2 and 3.4 as points at the end of Section 3.1 rather than as their own sections.	The GRAG has been revised as suggested.

5. Soil-to-Groundwater Pathway		
5.1 USEPA Regional Screening Level Calculator	The EPA (2024a) RSL Calculator does not provide a readily available method to calculate a screening level for only the soil-to-groundwater leaching pathway. However, the screening level for this pathway can be calculated with the Oak Ridge National Laboratory/Risk Assessment Information System (ORNL/RAIS, 2024).	Please note that the USEPA RSL Calculator (https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) does include a soil-to-groundwater leaching calculator, which provides a pathway-specific screening level like the approach available in the Oak Ridge National Laboratory Risk Assessment Information System. To use the soil-to-groundwater leaching calculator on the RSL calculator, select "Soil-to-Groundwater" under "Select Scenario".

5.2 Screening Entire Soil Column	GRAG recommends that the entire soil column from land surface to the groundwater table be sampled to screen the soil-to-groundwater leaching pathway for COPC. Given the conservative, relatively low EPA (2024a) soil screening levels (SSL), this could be challenging for laboratories to generate sufficiently low detection limits. For example, the Agency for Toxic Substances and Disease Registry (ATSDR, 2024) routinely prepares a substance priority list (SPL) of chemicals commonly found at Superfund sites. These substances are determined by ATSDR to pose the most significant potential threat to human health. The EPA (2019) Superfund Contract Required Quantitation Limits (CRQL) were compared to the EPA (2024a) the risk-based SSL (Table 1). Only about one-third of the SPL chemicals had CRQL lower than the EPA (2024a) risk-based SSL (i.e., these chemicals could be routinely detected by the laboratory). Other chemicals could be present in the soil samples at concentrations above the SSL; however, they would not usually be quantified by the laboratory. Except for mercury, all the other SPL chemicals have EPA (2024a) SSL lower than residential screening levels at a TR of 10-6 or THQ of 0.1 and dilution attenuation factor (DAF) of 1. Therefore, under the proposed GRAG approach, soil at residential properties could meet these direct contact risk-based screening levels but still exceed SSL. It is not apparent if this situation would trigger remedial activities at these residential properties.	The intent of recommending that the entire soil column from land surface to the groundwater table be evaluated for the soil-to-groundwater leaching pathway is to ensure that Chemicals of Potential Concern (COPCs) are appropriately screened for potential migration to groundwater. It is recognized that, given the conservative nature of USEPA's soil screening levels (SSLs), it may be challenging for laboratories to consistently achieve detection limits below SSLs. To clarify, the GRAG does not intend for such situations to automatically trigger remedial activities at residential properties when direct contact screening levels are met. Instead, the soil-to-groundwater leaching pathway should be evaluated using available analytical data, professional judgment, and multiple lines of evidence such as site hydrogeology, depth to groundwater, and contaminant-specific properties. In cases where detection limits exceed risk-based SSLs, further evaluation or consultation with EPD may be necessary to determine whether additional sampling, alternative analytical methods, or site-specific leaching assessments are warranted. The guidance document has been revised to clarify the intent and implementation of SSL screening of the entire soil column. Additional evaluation of the soil-to-groundwater pathway may follow EPD's guidance *FAQ for Evaluating the Soil-to-Groundwater Pathway.*
5.3 FAQ for Evaluating the Soil-to-Groundwater Pathway and the Guidance	(p. 58) To clarify, the GRAG should be not specify (*i.e.,* only "determine") that Responsible Parties must only use GaEPD (2019) FAQ for Evaluating the Soil-to-Groundwater Pathway. Prior GRAG statements (p. 1) appear to make use of this and the GaEPD (2025) Guidance for Evaluating the Vapor Intrusion Exposure Pathway discretionary.	It is not the intent of the GRAG, that the *FAQ for Evaluating the Soil-to-Groundwater Pathway* and the *Guidance for Evaluating the Vapor Intrusion Exposure Pathway* serve as the only resources for evaluating these pathways. Other methods may be used but should be discussed with EPD in advance to ensure they meet the necessary requirements.
5.4 Table 4.	(p. 27, table 4) The risk-based SSL for the soil-to-groundwater leaching pathway at a TR = 10-6, THQ= 0.1, and DAF 1 are typically about three orders of magnitude less than the residential RSL (RSLRes) used for screening surface soil samples. The RSLRes are recommended for use in screening the surface soil results. The purpose of this screening is to eliminate those chemicals that do not contribute significantly to risk so that the risk assessment can focus on a manageable number of COPC that may be important for risk management activities (GRAG, p. 22). When EPA (2024a) calculated risk-based SSL for over 700 chemicals, only about 1 percent of these levels exceeded the RSLRes. Therefore, it is expected that essentially none of the tested chemicals would be "screened out" as COPC? Preparing a separate table to screen for leaching COPC would have limited practical utility. The number of chemicals that would have to be carried forward in a subsequent baseline risk assessment would be voluminous. Many of the calculations and models used to estimate leaching are based on numerous assumptions which are often very conservative (i.e., they tend to overestimate leaching from the soil and dilution before the groundwater reaches a point of exposure). Often the best measure of whether chemicals have leached to groundwater is to test for those chemicals in groundwater. If chemicals in the soil were screened for direct exposure and found suitable for residential occupancy, then why would they have to be screened again to assess potential leaching? Is it assumed that a drinking water well would be installed on the residential property? Further, if that well was impacted by chemicals in the soil at concentrations below residential screening levels, would remedial action for this soil could still be triggered?	Please see the response to Comment 5.2. Sites meeting residential direct exposure for all media will not need a leaching evaluation. This screening was meant to apply for permitted hazardous waste facilities or facilities with a HWMA order. It is acknowledged that the risk-based SSLs for the soil-to-groundwater pathway are very conservative and it would be problematic to perform such a screening. The GRAG has been revised to clarify the intent and implementation of SSL screening of the entire soil column. Additional evaluation of the soil-to-groundwater pathway may follow EPD's guidance *FAQ for Evaluating the Soil-to-Groundwater Pathway* which includes multiple lines of evidence approach. Groundwater monitoring data may serve as a critical line of evidence to demonstrate whether chemicals detected in soil are leaching to groundwater.

6. Applicable or Relevent Appropriate Requirements (ARARs)		
6.1 Applicable or Relevent Appropriate Requirements (ARARs)	Applicable or Relevant and Appropriate Requirements (ARARs) have a specific regulatory meaning under Section 121(d) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly known as Superfund). ARARs are unlikely to be applicable factors in a Streamlined Risk Assessment based on EPA (2024a) RSLs. Because ARARs are formally promulgated by federal or state standards (*e.g.,* laws, regulations), they should only be judiciously referenced in GRAG. Also see the comment for page 58.	EPD concurs. While it may be appropriate in some cases to reference alternative standards to guide risk assessments or cleanups, the use of ARARs terminology could be misleading. In response, references to ARARs in the GRAG have been replaced with references to "Regulatory Standard Based Goals."
6.2 Applicable or Relevent Appropriate Requirements (ARARs)	(p. 58) The ARARs have a specific regulatory meaning under Section 121(d) of CERCLA. Briefly, under CERCLA remedial actions must attain ARARs which are promulgated standards, requirements, or limitations under applicable federal or state law. EPA (2024a) RSL and EPA (2024c) National Recommended Water Quality Criteria are not ARARs. They could be considered risk-based remedial goals.	It is acknowledged that ARARs have a specific meaning under CERCLA and that USEPA RSLs and USEPA National Recommended Water Quality Criteria are not ARARs. Please see response to Comment 6.1 above. In response, references to ARARs in the GRAG have been replaced with references to "Regulatory Standard Based Goals".

7. Selection of Chemicals of Potential Concern (COPC)

7.1 Chemicals of Potential Concern (COPCs) versus Chemicals of Concern (COCs)	After data are organized and their useability verified, the next step is to select chemicals of potential concern (COPC). The GRAG describes a process to select COPCs that follows EPA Region 4 Guidance (EPA, 2018a; Sec. 2.6; page 2-4 *et seq* .). For example, the maximum detected concentration of chemicals in surface soil are typically compared to residential EPA RSL at a target risk (TR) level of 10-6 or a target hazard quotient (THQ) of 0.1, whichever is lower. The surface soil screening table in Appendix A of the GRAG is formatted to follow this example. To minimize potential confusion, the discussion of selecting chemicals of concern (COC) included in Step 4 – COPC Risk Assessment should be moved to Step 5 – Selection of Chemicals of Concern (COC).	EPD concurs. A discussion of selecting COCs has been moved from Step 4 to Step 5.
7.2 Human Health Using Half the Maximim Detection Limit	(p. 22) The description of how to manage test results below the detection limit appears to be inconsistent, particularly during the screening process for COPC. There is an established, long-standing practice in the environmental community of typically using one-half of the detection limit for analytical results reported as non-detect. GRAG should clarify that this common practice will continue. Several examples of these apparent inconsistencies in GRAG are provided in the following paragraphs.	The GRAG is intended to be consistent with the current USEPA Region 4 Human Health Risk Assessment Supplemental Guidance. For human health risk assessments, Region 4 does not recommend the substitution of one-half the detection limit for non-detect values when identifying COPCs. However, professional judgment should be applied to assess whether the chemical is likely to contribute to risk based on site-specific data and historical information. This approach supports defensible risk management decisions while acknowledging the limitations of the analytical dataset. The rationale for excluding or retaining the chemical should be clearly documented in the uncertainty section of the risk assessment.
7.3 Ecological Half the Maximum Detection Limit	(p. 53 and 55) Apparently GRAG is recommended that one-half of the maximum detection limit should be compared to EPA (2018b) ecological screening values (ESV). This approach appears to conflict with prior suggestions. (p. 53) GRAG states that during the Step 2 Screening Level Evaluation the maximum chemical concentration should be compared to the ESV. If the chemical is not detected, then GRAG states that the commonly used one-half of the maximum method detection limits be compared to the ESV. Despite the best efforts by the sampling and laboratory staff, it may not be practical to report detectable chemical concentrations below ESV. There can often be significant differences between the analysis of ideal (in the laboratory) and real-world samples. Elevated detection limits can occur for many reasons including inherent limitations of the analytical instrument, lack of an alternate test method, sample matrix effects, inability of the laboratory to fully extract the chemical, interferences, insufficient sample volume, high dissolved solids, etc. If the chemical concentration initially exceeds the calibration range of the instrument, then the sample is often diluted. This dilution step can increase the detection limit. If the chemical is not expected to be present at the site or is not detected in other samples or media, then it should be reasonable to conclude that the chemical is not present at unacceptable concentrations.	The GRAG is intended to be consistent with the current USEPA Region 4 Ecological Risk Assessment Supplemental Guidance. For ecological risk assessments, Region 4 recommends the substitution of one-half the detection limit for non-detect values when identifying Chemicals of Potential Ecological Concern (COPECs). However, professional judgment should be applied to assess whether the chemical is likely to contribute to risk based on site-specific data and historical information. This approach supports defensible risk management decisions while acknowledging the limitations of the analytical dataset. The rationale for excluding or retaining the chemical should be clearly documented in the uncertainty section of the risk assessment.
7.4 Maximum Detection Limit	(p. 22 and 24) Apparently the maximum detection limit (MDL) for an analyte should be used for screening purposes. The laboratory could still report detectable analytical results that are less than or greater than the MDL. We agree that there are potential concerns over detection limits; however, reasonable resolutions should be considered on a case-by-case basis. The use of an MDL as the concentration for screening would appear to suggest that it is possible that these chemicals could be 100 percent ND. In that case, since there are no detected values, based on Section 4, no EPC calculation would be possible. Therefore, it is recommended that 100 percent ND chemicals (even if an MDL is above the SL) not be screened as COPCs, but rather discussed in the uncertainty section.	EPD concurs. Unfortunately, there was an error in the document where the detection or reporting limit was referred to as the method detection limit. The method detection limit is set by the EPA analytical method; however, once a sample is analyzed, a detection limit or reporting limit higher than the method detection limit may result due to matrix interferences or sample dilution. In these cases, the GRAG has been revised to clarify what actions may be necessary to screen this data. Specifically, the response may be different depending on whether only a few chemicals or an entire subset of chemicals are affected.
7.5 Chemicals without Screening Levels	The COPC screening indicates that chemicals without SLs should be identified as COPCs. For chemicals without SLs that are then selected as COPCs, no further guidance is provided on how to assess these chemicals in the RA. Typically, the reason that a chemical does not have an SL is because there are no relevant toxicity values available with which to evaluate the chemical. As such, risk calculations for the chemical are not therefore possible because toxicity cannot be assessed. Please provide further guidance on evaluating such chemicals. It may be most relevant to discuss them in uncertainty section, as chemicals for which risk cannot be determined based on currently available toxicity information.	Where chemicals do not have screening levels, an appropriate surrogate toxicity should be used to quantify risk. A discussion regarding the over or under estimation of risk should be discussed in the uncertainity section. The GRAG has been revised to clarify the use of surrogates for chemicals without available screening levels or toxicity factors.
7.6 Essential Nutrients	For chemical screening, a statement should be added regarding essential nutrients (Ca, Mg, Na, P), in that these need not be included as COPC in a RA.	EPD concurs. The GRAG has been revised to include clarification that essential nutrients can be excluded from evaluation in the risk assessment.
7.7 Screening Levels Excess Lifetime Cancer Risk (ELCR) and Hazard Quotient (HQ)	The third paragraph is unclear to me as it mentions ELCR then HQ and then has the combined TR/HQ reference. The TR/HQ reference is more generally applicable to the RSL table. Suggest revising as stated in the next column.	EPD concurs. The document has been revised as suggested. Additionally, mention of the terms ELCR and TR in the document were double checked to ensure that the correct terminology was used.
7.8 Residential versus Industrial	(p. 23) Comparing subsurface soil sampling results to residential screening levels is inconsistent with EPA (2018a). Only construction workers are typically considered receptors for potential exposure to constituents in the subsurface soil (Table 2, p. 13). Therefore, EPA (2018a) recommends that industrial screening levels be used for subsurface soil. Comparing subsurface soil, particularly at industrial/commercial sites, to residential screening levels does not eliminate chemicals with an insignificant risk. This proposed more restrictive screening approach is a burden and does not allow the risk assessment to focus on the important factors useful in efficient risk management.	The approach of screening subsurface soil with residential Regional Screening Levels (RSLs) ensures that when subsurface soil is brought to the surface during construction activities, it is evaluated for potential direct exposure by future residents. However, consistent with the EPA guidance, sites that can demonstrate they are and **will remain** industrial through lines of evidence, ie, zoning, industrial history, surrounding land use or the use of institutional controls like environmental covenants, may use industrial screening levels for evaluating both surface and subsurface soil.
7.9 Screening Tools	The GRAG seems to provide only two options for screening data: using EPD's excel template table or EPD's screening tool. Clarifications should be made to allow the regulated community flexibility to create screening tables using existing data management processes to screen the data more efficiently and cost effectively since many of the regulated stakeholders that this guidance may apply to have often been managing data for decades at these sites.	The Screening Tool and the Appendix A screening tables are intended to be helpful tools; other approaches may also be used. EPD recognizes that many stakeholders have established data management and screening procedures that have been used effectively for years. Including all of the necessary information when using alternative screening approaches will help streamline regulatory review.

7.10 Frequecy of Detection	The frequency of detection (FoD) for a chemical should be considered during the screening process. For example, if a chemical with a low FoD is automatically retained (i.e., "screened-in") for further analysis, that chemical is given a disproportionate weight in the final risk calculations. That result could trigger an apparently unacceptable risk leading to expensive and time-consuming remedial efforts in situations where either no or negligible risk because of that low FoD. Although an imperfect analogy, representation in the U.S. Senate could be an example for the importance of considering FoD. All states have two senate representatives; however, each senator has vastly a different weight (*i.e.,* voting power) in the senate. Because of their substantially different state populations, the two senators from Wyoming have nearly 70-times more weight (voting power) than the two senators from California. Rather than our low FoD chemicals having the advantage of Wyomingites, they should be "screened-out." GRAG should set a recommended level for when low FoD chemicals can be screened-out during the COPC selection process.	The GRAG is intended to remain consistent with *USEPA Region 4 Human Health Risk Assessment Supplemental Guidance* . Region 4 does not recommend applying Frequency of Detection (FoD) as a criterion for excluding chemicals during the Chemicals of Potential Concern (COPC) screening process. The purpose of the screening step ensures that all potentially relevant chemicals are carried forward for further evaluation. Chemicals retained at the COPC stage may subsequently be eliminated during the risk assessment process (e.g., through evaluation of exposure pathways, background comparisons, or multiple lines of evidence). Clarification has been added to the document that FoD does not apply to screening.
7.11 Surface Water Screening Levels	(p. 23) It might be helpful to clarify that surface water screening levels do not necessarily apply to "large systems." We believe the intent would be to potentially screen constituents in surface water bodies.	The GRAG has been revised to remove language pertaining to "Large systems" and "potentially potable waters". The Georgia Instream Water Quality Standards (GISWQS) apply to all waters of the State.

8. Background		
8.1 Fact Sheets	The discussion on sampling background locations, while very useful, is not directly related to risk assessment. Therefore, it is recommended to create separate Fact Sheets for background, including a list of established acceptable background concentrations of inorganic compounds in soil in Georgia. The detail provided on the methodology used to establish a background concentration for arsenic is helpful but should also be endorsed for other inorganic compounds.	Providing a discussion regarding background soil sampling in the guidance gives useful context in evaluating naturally-occurring metals present in Georgia's soils. The Technical Advisory Committee determined that arsenic poses unique issues for risk assessment in Georgia and requested the development of a Georgia specific sreening level. Developing state specific background concentrations for all inorganic compounds would require resources that EPD does not currently have. Perhaps this can be accomplished in the future.
8.2 Site-Specific versus Georgia Specific Screening Background Value	(p. 25) The recommendation to determine a site-specific background concentration for arsenic could confuse some Responsible Parties. Section 5.4 – Background Levels already proposed to simplify screening by allowing use of a state-wide 9 milligrams per kilogram (mg/kg) background concentration for arsenic.	The EPD screening value for Arsenic may be used when there is no site-specific background value. The GRAG has been revised for clarification that either a site-specific background value for Arsenic <u>or</u> the EPD background screening value may be used.
8.3 PAH Backgrouond	(p. 26) We support use of the default arsenic background concentration of at least 9 mg/kg. Using similar information, such as from the U.S. Geological Survey (USGS), EPA, or other sources, Responsible Parties should have the option of developing background concentrations for other chemicals. The GRAG (p. 16) describes polycyclic aromatic hydrocarbons and pesticides as common background chemicals.(p. 59) Background comparisons should not be limited to only inorganics. According to the GRAG (p. 16) certain organics (e.g., polycyclic aromatic hydrocarbons) are examples of anthropogenic background chemicals. Responsible Parties should be allowed to determine background concentration for these are potentially other constituents.	Polycyclic aromatic hydrocarbons (PAHs) and pesticides are common anthropogenic organic chemicals. As stated in the USEPA document *Frequently Asked Questions About the Development and Use of Background Concentration at Superfund Sites: Part One, General Concepts* (OLEM Directive 9200.2-141 A, March 2018, https://semspub.epa.gov/work/HQ/100001657.pdf), anthropogenic background concentrations, whether site-specific or regional, should not be used to exclude these chemicals from the risk assessment process. However, background information may be considered during the risk management phase to help inform decisions regarding the necessity and extent of corrective action.
8.4 Arsenic Background Data Set	(p. 26) All of the soil samples used to calculate the background concentration for arsenic were collected from 0 to 5 centimeters below land surface (See App. B – Derivation of Default Background Arsenic). None of these samples were collected from 0 to 11 inches below land.	The data set for calculating the Arsenic background screening value has been updated to include an additional dataset from the USGS report *Geochemical and Mineralogical Data for Soils of the Conterminous United States* known as Horizon A. Horizon A contains soil sampling data varying in depth from 0-30 centimeters (0-11.8 inches). The GRAG has been revised to reflect the depths from both of the datasets.
8.5 Arsenic Background Outliers	In calculating the EPD-specific Arsenic screening value, a statistical outlier of 26.7 mg/kg was removed from the dataset. EPA guidance states that statistical outliers should only be removed from background datasets when they represent contamination; however, the specific sample that was removed from the Arsenic dataset was obtained from an undisturned forested area that did not appear to be contaminated.	EPD concurs. After careful review of the detailed analysis of the arsenic background dataset, including the evaluation of statistical outliers, EPD agrees with the technical basis and recommendations for including the potential outlier in the dataset. Following this review, the dataset was further evaluated and it was determined that Horizons A and B should be included in the statewide surface soil background value. Based on these revisions and using the USEPA statistical software, ProUCL, the 95% UTL was determined to be 9 mg/kg.
8.6 Reference Area Criteria	(p. 58) What are the criteria for determining if site-specific background concentrations are ". . . not well-documented or attainable . . . "and thus apparently becoming Reference Areas. Prior GRAG statements (p. 17) appear to imply that References Area are to be used as background for ecological risk assessments, releases and natural geochemical heterogeneity is too great to allow a small site-specific dataset to adequately represent background conditions. Generally, reference areas are used in ecological risk assessments, but can also be utilized in human health risk assessments.	EPD agrees that reference areas are typically used in ecological risk assessments, but can also be utilized in human health risk assessments. Reference area background refers to chemical concentrations measured in off-site locations with similar geologic, hydrologic, soil, and land-use characteristics, that are not impacted by site releases or influenced by other site releases. Reference area data provide a proxy for background, but may introduce additional uncertainty because of natural heterogeneity between sites. Reference area background may be used with justification and documentation demonstrating similarity of conditions. Reference areas are used when site-specific background concentrations are not available, not well-documented, or not attainable. There are many criteria that indicate that site-specific background concentrations are not well documented or attainable such as the following: site-specific background sampling is limited in number, spatial coverage, or temporal representativeness such that the dataset cannot reliably characterize natural conditions; samples are biased by inappropriate sampling locations, or otherwise do not meet data usability objectives; it is not possible to identify on-site locations that are reasonably free of influence from releases given the extent of site-related contamination; and/or natural geochemical heterogeneity is too great to allow a small site-specific dataset to adequately represent background conditions. Revisions distinguishing site-specific background and reference area background along with clarification of "well-documented or attainable" have been added to the GRAG.

9. Table 1. Differences Between Baseline Risk Assessment and Streamlined Risk Assessment		
9.1 Exposure Point Concentrations (EPCs)	(Table 1, p. 8) Responsible parties should not be required to only use the EPA (2022) ProUCL software to calculate the exposure point concentration (EPC). There are other reliable methods to determine EPC.	The comment is acknowledged. While ProUCL is identified as a statistical tool for deriving Exposure Point Concentrations (EPCs), the GRAG does not intend to require ProUCL as the sole acceptable method. Alternatively, technically sound statistical approaches (including programs or software) may be considered, provided they are scientifically defensible and acceptable to EPD. The GRAG has been revised to reflect that other methods may be utilized to derive EPCs.
9.2 Toxicity Values	(Table 1, p. 8) The GRAG appears to state that only toxicity values from EPA (2024) RSLs can be used. However, the GRAG (p. 36) also states that other credible and relevant toxicity values may be used. Responsible Parties should be able to select toxicity values from a range of credible and relevant sources.	The intent of Table 1 is to highlight the differences between a Streamlined Risk Assessment and a Baseline Risk Assessment. Under the Streamlined Risk Assessment, toxicity assessment is performed using the USEPA Regional Screening Level (RSL) calculator, which incorporates toxicity factors consistent with the USEPA's recommended toxicity hierarchy. This approach provides a standardized and efficient method that facilitates review and approval. However, as noted in the now revised Section 7, the GRAG also provides for the use of other credible and relevant toxicity values in the context of a Baseline Risk Assessment, provided they are scientifically justified and acceptable to EPD. The streamlined approach is therefore intended to rely on the RSL calculator for consistency and efficiency, while the Baseline Risk Assessment framework retains flexibility for the use of alternative toxicity sources as appropriate.
9.3 Soil Screening Levels	Table 1. Comparison of Chemical Detection Limits, Resident Soil Screening Levels, and Risk-Based Soil Screening Levels. Example from ATSDR (2024) Substance Priority List of Chemicals. EPA (1996a and b) typically uses a default DAF of 20 in its soil screening level calculations to account for natural processes that reduce contaminant concentrations as they migrate from soil to groundwater. GRAG should incorporate a similar default DAF.	Evaluation of the leaching pathway should be consistent with EPD's *Frequently Asked Questions for Evaluating the Soil-to-Groundwater Pathway* . In that document, an alternative Dilution Attenuation Factor (DAF) of 20 may be used for sources of less than half of an acre, or a site-specific DAF may be developed to more accurately reflect site conditions. Because EPD has a separate guidance document addressing leaching, this information was not intially added to the GRAG. However, for clarification, the use of a DAF of 20 has been included in the GRAG.

10. Table 2. Contaminated Environmental Media and Potential Receptors		
10.1 Current versus Future Scenarios	Table 2 is a simplification as it does not differentiate between current and future scenarios. In Section 5.1, it says that the combined soil from 0-10' may be excavated and brought to the surface. Therefore, under current conditions 0-1' soil would be the applicable soil horizon for exposure to receptors other than the construction worker, but in the future, this could be 0-10' for these receptors. Suggest adding a check mark with a note for all receptors other than a construction worker for subsurface soil that explains that exposure to this soil is a potential future exposure scenario.	EPD concurs. Table 2 has been revised as suggested.
10.2 Potential Subsurface Soil Exposure	(Table 2, page 13). GRAG describes the potential exposure by construction and/or utility (excavation) workers to constituents in soil down to 10 feet below land surface (ft bls) or to the groundwater table, whichever is shallower. This approach is consistent with EPA Region 4 Guidance (EPA, 2018a; Sec. 2.2.1; page 2-3) and appears to be reasonable.	EPD concurs.
10.3 Subsurface Soil Receptors	It would be helpful to clarify Table 2, which identifies only construction worker exposure to subsurface soil (1 to 10 feet bgs). Under future land use, is it necessary to evaluate additional receptors potentially contacting subsurface soil deeper than 1 foot especially if subsurface soils have the potential to be moved to the surface?	EPD concurs. Table 2 has been revised to include other receptors contacting subsurface soils brought to the surface.
10.4 Soil Horizons	Table 2 is a simplification as it does not differentiate between current and future scenarios. In Section 5.1, it says that the combined soil from 0-10' may be excavated and brought to the surface. Therefore, under current conditions 0-1' soil would be the applicable soil horizon for exposure to receptors other than the construction worker, but in the future, this could be 0-10' for these receptors. Suggest adding a check mark with a note for all receptors other than a construction worker for subsurface soil that explains that exposure to this soil is a potential future exposure scenario.	EPD concurs. Table 2 has been revised to include other receptors contacting subsurface soils brought to the surface.
10.5 Sediment	It would be helpful to clarify Table 2, which identifies the sediment exposure pathway as potentially complete but quantitatively insignificant pathway; however, the guidance also states that exposed sediment, which is not always covered by surface water, may need to be evaluated as a potentially complete exposure pathway.	EPD concurs. Table 2 has been revised to clarify that the sediment exposure pathway may need to be evaluated if sediment is exposed (not covered by water).
10.6 Groundwater to Surface Water	It might be helpful to clarify that recreators or anglers would not be potentially exposed to constituents in the hyporheic zone. The hyporheic zone is a subsurface region beneath and alongside a stream or riverbed where surface water and groundwater mix. This zone can serve as a potential transport pathway for constituents to migrate from groundwater to surface water. Recreators or anglers could then be potentially exposed to constituents in surface water, rather than in the hyporheic zone .	EPD concurs. The GRAG has been revised to remove the hyporheic zone as a potential human exposure pathway. Recreator exposure to surface water, however, is a potential human exposure pathway.
10.7 Potential Groundwater Exposure for Construction Workers	Table 2 (p. 13) appears to suggest that construction workers could be exposed to constituents in groundwater to a maximum depth of 15 ft bls. This seems unusual that construction workers might be exposed to constituents in groundwater that could be up to 5 feet deeper than the maximum 10-foot depth of their excavations typically used for risk assessment purposes. The maximum depth of potential exposure to constituents in soil and groundwater should be the same (*i.e.,* 10 ft bls).	This was a typographical error. The GRAG has been revised to state that the construction worker should be evaluated for exposure to soil and groundwater from 0-10 feet below ground surface.

11. Table 3. Pathways to be Considered per Contaminated Environmental Media

11.1 Biota	Table 3, what is implied by the "x" for biota under ecological? Would this suggest food chain modeling or similar? Perhaps it could be indicated that the biota/eco pathway would be relevant for a specific scenario that involves food chain modeling?	The "X" (which is now represented by a checkmark for consistency with other tables) under Biota was intended for both direct exposure (i.e., plants, soil invertebrates) and indirect exposure through the ingestion of prey organisms; the latter being where food chain modeling would enter the evaluation. Table 3 has been revised to clarify the relevant pathways for biota.
11.2 Human Health Direct Contact Pathway	Table 3. For human health, are potable use pathways considered to be adequately addressed by indicating this as a "human health direct contact" pathway for groundwater? (e.g., VI is also volatilization to indoor air but is shown separately)	EPD concurs. Table 3 has been revised as suggested.

12. Section 4.0 Data Collection Guidelines and Evaluation Before the Risk Assessment		
12.1 Retaining of Section 4.	We strongly agree that this section should be retained in the GRAG. Collecting and testing samples to conduct an effective risk assessment is not the same as those activities used to determine the nature and extent of regulated substances.	EPD concurs.
12.2 Sampling and Laboratory Analysis	Section 4 appears to create a different standard for sampling and laboratory analysis than applies to other aspects of the assessment at RCRA/HWMA sites to which the guidance might apply. EPD should consider deleting Section 4 and either simply referencing the USEPA Region 4 guidance https://www.epa.gov/quality/quality-system-and-technical-procedures-lsasd-field-branches or producing a freestanding guidance document setting forth all requirements for sampling and analysis.	Insufficient and incomplete sampling data is a major source of EPD questions and comments in reviewing risk assessments. The intent of this section is not to set requirements, but rather to clarify the information EPD will be looking for in a review. It is intended to supplement the USEPA Region 4 guidance.
12.3 Certain Chemicals	The heading paragraph in Section 4.1.1.1 mentions mercury, arsenic, chromium, PCBs, dioxins, and VOCs; however, the section only discusses mercury, chromium, and VOCs. Recommending adding references to guidance for these other chemicals, or adding information for these, since otherwise it is unclear what such considerations should be made.	EPD concurs. The GRAG has been revised as suggested.
12.4 Age of Data	Section 4.3 indicates that surface soil data older than one year is questionable, and that groundwater, surface water and sediment data should not be used if it is older than three years. We are aware of no basis for automatically discounting older data unless it is reasonable to assume concentrations would have increased, which is not the case at most existing sites. This will add a significant and unjustified burden on the regulated community resulting in the expenditure of time and money in the continual re-characterization of site conditions.	The GRAG has been revised to remove numerical time limits on the age of data and provide guidelines on use of historic data on a case-by-case basis considering the following: contaminant properties, media type, contaminant mobility, ongoing or historical source contributions, land disturbances, and concentration trends.
12.5 Sampling Across Horizons	It would be helpful to clarify the text in Section 4.1.1, which states: Sampling across the surface and subsurface soils may complicate a risk assessment; therefore, please consult with your risk assessor prior to sampling to ensure that the proper samples are collected. Does this text refer to samples collected from both the surface and subsurface depths (i.e., 0 to 3 feet bgs)? Please clarify how a soil sample collected from 0 to 3 feet bgs should be evaluated in the risk characterization in accordance with the guidance. Would this type of sample be included in both surface soil and subsurface soil datasets for screening and EPC calculations?	Yes, the text is referring to samples collected for example from 0-2 feet bgs or 0-3 feet bgs. A 0-2 feet bgs soil sample can be considered a surface soil sample, as surface soil was once defined by EPA and EPD as 0-2 feet bgs. A 0-3 feet bgs sample contains an additional foot of what is considered to be subsurface soils and a larger vertical profile that may dilute surface soil concentrations, and therefore, should be considered a subsurface soil sample. Text has been added for clarification.
12.6 Background Sample Size	(p. 17) Several graphical and/or numeric approaches can be used to make these comparisons. Based on the data quality objectives (DQO) of the project, it is not appropriate to suggest that a one-size-fits-all number of samples should be collected. It may not always be reasonable to use certain software tools [*e.g.,* EPA (2022) ProUCL software], which impose strict (default) minimum sampling requirements.	EPD concurs. The text has been revised to state that the number of background samples that are collected should be site-specific and should be sufficient to support statistically valid comparisons with site data.
12.7 Background Comparisons	(p. 17) There are several different reliable methods available to decide on how many background samples to collect. EPA's (2022) ProUCL software should not be the sole method for determining enough background samples to collect. Further the 95% upper tolerance level (UTL) should not be the only method available to estimate background concentrations. There are a range of other numeric and graphic approaches to effectively compare site-related samples to background.	EPD concurs. The guidance document has been revised to include a discussion of statistical methods other than ProUCL to calculate background concentrations.
12.8 Nephelometric Turbidity Units (NTUs)	GRAG (p. 16) states that groundwater sampling techniques should be utilized so that turbidity is below 10 nephelometric turbidity units (NTUs). However, despite low flow or other sampling techniques, the turbidity of groundwater samples occasionally cannot be reduced to less than 10 NTUs. EPA Region 4 Guidance (EPA, 2018a; Sec. 2.4; page 2-4) states that groundwater samples with greater than 10 NTUs are not recommended for use in risk assessments. A similar appearance should be allowed in the GRAG.	High turbidity in groundwater can sometimes be resolved by calibrating the turbidity meter, utilizing low flow purging and sampling techniques, or by redeveloping the groundwater monitoring well. The use of groundwater samples where turbidity cannot be reduced to 10 NTUs or below is not recommended in risk assessments. A duplicate filtered sample may assist in determining the source of the turbidity problems; however, filtered samples are not recommended for use in the risk assessment. The GRAG has been revised as suggested with additional clarification.
12.9 Section 4. Mercury Speciation	Mercury speciation, as recommended at the bottom of page 18, is rarely performed. Recommend revising this point to state that mercury analysis should be determined on a site and/or medium-specific basis. Methyl mercury analysis is realistically only relevant for surface water, sediment, and fish tissue analyses (and potentially a limited subset of groundwater, if there is a point of discharge of groundwater to surface water).	EPD concurs. The GRAG has been revised as suggested.
12.10 Section 4. Mercury Forms Methods	We agree that several different forms or species of mercury can exist in the environment. These forms can exhibit different toxicities to humans. EPA Method 3200 is an initial sequential extraction and separation procedure used to later quantify different forms of mercury. Subsequent quantification of mercury in the different fractions may be performed using, for example, EPA Methods 6800, 7473, 1631, 7470 and 7471.	To reduce confusion in selecting the acceptable method, analytical methods have been removed from the document.
12.11 Section 4. Hexavalent Chromium	(p. 19) We agree that testing hexavalent chromium should only be conducted in areas that handle materials containing hexavalent chromium. At other areas that did not handle hexavalent chromium, this testing should not [sic] have to be conducted.	Ideally, both total and hexavalent chromium data will be available. However, where hexavalent chromium data is unavailable and it is known that hexavalent chromium was used at the site, then the assumption should be that all chromium onsite is hexavalent chromium until further speciation can be conducted. If it can be demonstrated that site processes did not use hexavalent chromium, then it may be possible to support evaluation as trivalent chromium. This should be discussed with EPD in advance of the risk assessment.

12.12 Section 4. Volatile Organic Compounds (VOCs) Vapor Intrusion	Relative to VOCs, it could be useful to reference GA's VI Guidance here relative to analytical methods for VOCs in media such as soil gas and indoor air.	To reduce confusion in selecting the correct method, the analytical methods have been removed from the document. Soil gas and indoor air analytical methods can be found in EPD's *Guidance for Evaluating the Vapor Intrusion Exposure Pathway.*
12.13 Section 4. Volatile Organic Compounds (VOCs) Sampling Methods	(p. 19) The use of EPA Method 5021A should not be restricted to the follow-up use of only EPA Method 8260. EPA Method 5021A repeatedly states that, in addition to using EPA 8260, EPA Methods such as 8015 and 8021 can be used.	To reduce confusion in selecting the correct method, the analytical methods have been removed from the document.
12.14 Setion 4. Clarification of Reporting Limits Exceeding Screening Levels	In the second paragraph of Section 4.1.2, it should be useful to clarify the second sentences by adding the following text: "when reporting limit(s) are above media-specific screening level(s), …."	EPD concurs. The GRAG has been revised as suggested.
12.15 Setion 4. Data Validation	Regarding the list on page 20, a risk assessment is not a data evaluation report, and some of these items may not typically be provided in environmental reports (e.g., sampler's field notes, photographs of sampling locations). Putting the burden of data quality on the risk assessment is not appropriate as risk assessors are not data validators. Suggest that this section should clarify that data managers/data validators should work with risk assessors to identify the data sets used in the risk assessment, after data managers/data validators have reviewed the data. In addition, clarify whether it was EPD's intent that all of the listed documentation should be provided as part of the risk assessment or whether it can be submitted separately and then referenced in the risk assessment.	EPD concurs. Usually, the information requested to verify data can be found in the RCRA Facility Investigation Report. As such, it does not need to be submitted in the risk assessment. Text has been added to the document to clarify this recommendation.

13. PFAS Sampling Methods		
13.1 PFAS Sampling Methods	(p. 60) The 2024 reference to EPA's PFAS Methods and Guidance for Sampling and Analyzing Water and Other Environmental Media, EPA/600/F-17/022h appears to be incorrect. This Technical Brief was published in January 2020 and is not posted to the current (active) EPA website.	EPD concurs. The GRAG has been revised to remove the reference.

14. Exposure Assessment		
14.1 Construction Worker versus Utility Worker	(p. 32). Construction workers are described as being potentially exposed to chemicals in the soil from the land surface down to 10 ft bls, or down to the groundwater table. Utility/excavation workers are described as being potentially exposed to chemicals in the soil from the surface to 4 ft bls, or down to the groundwater table. However, on page 35, excavation/construction workers are described as being potentially exposed to chemicals in the soil from the surface to 10 ft bls, or down to the groundwater table for a short period of time. It would be helpful to clarify that construction, utility, and/or excavation work could extend to 10 ft bgs.	A text box has been added to the document to clarify the difference between the construction, excavation and untility workers. Exposure parameters for these workers are site specific.
14.2 Exposure Routes and Receptors	(p. 33) Suggest specifying that the exposure routes as specified in the bulleted list can be receptor-specific and not all exposure routes may apply to all receptors	EPD concurs. The GRAG has been revised to clarify that not all receptors and exposure pathways will be complete at every site.
14.3 Exposure Routes and Receptors	(p.33) The bulleted list includes "ambient air"; however, the last point in Section 6.1.2 says that inhalation in ambient air is not typically a medium of concern. In this case, it seems that it should not be included in the bulleted list above, unless there are other ambient air scenarios (e.g., trench air) that are implied by the statement in the bulleted list.	Air discharges from permitted hazardous waste facilities are regulated by EPD's Air Protection Branch and therefore, are not included in risk assessments. The "Ambient air" in the bulleted list was meant to indicate contaminated trench air from the volatilization of VOC contaminants present in soils or groundwater in a trench (i.e., trench air). The GRAG has been revised to clarify that trench air was meant and not ambient air.

15. Exposure Point Concentrations		
15.1 Surface Water and Sediment	(p 33-34) The EPC section does not discuss surface water or sediment specifically. Recommend specifying in the first part of Section 6.1.3.1 that UCLs can be calculated for any media (assuming that that is the case) or specify which media to which the discussion applies.	EPD concurs. The GRAG has been revised as suggested.
15.2 ProUCL Sample Size	(p. 34) In the yellow box, recommend clarifying that if number of samples is fewer than 10 or number of detects is fewer than 6, then it is recommended to use the maximum detected concentration (MDC) as the exposure point concentration (EPC).	EPD concurs. The GRAG has been revised as suggested.
15.3 Different Aquifers	(p.34) In the last paragraph of Section 6.1.3.1, please clarify if/whether the groundwater aquifer is referring exclusively to aquifers from an area perspective or if this can also reference different aquifers from a vertical perspective (e.g., overburden vs bedrock).	EPD defines "aquifer" as any stratum or zone beneath the surface of the earth capable of containing or producing water from a well; therefore, the aquifer is usually defined based on the vertical stratum or layer transmitting the water. The GRAG has been revised to clarify that deriving Exposure Point Concentrations (EPCs) for groundwater should be based on the aquifer from the vertical perspective.

15.4 Multi-depth Wells	(p. 34) Recommend reconsidering the recommendation to use the highest values for multi-depth wells. This would seem to be overly conservative given that the wells that are being included in the EPC calculation are already focused on the core of the plume. Suggest revising to suggest that in addition to using the maximum, that data from the multiple depths could instead be combined into the data set as individual results; this will also provide a more robust data set for the calculation of EPCs. It would also be important to mention that either of these approaches (using max or using each data point) assumes that there is mixing of the vertical aquifers across the well depths, such that each depth is representative of the potential exposure point. If there are other specific scenarios such as a clean water lens, an aquitard, or DNAPL, then this assumption may not be valid.	The EPA guidance document Determining Groundwater Exposure Point Concentrations (OSWER Directive 9283.1-42, February 2014) states, "When the monitoring network provides sample concentrations from multiple sample depths at a given location within a plume (e.g., nested, paired, and/or multiport monitoring wells in the same aquifer), OSWER recommends using the highest detected concentration from such samples at each location to calculate the GW EPC for each aquifer (e.g., if there are two samples from different depths in a two-port well in the same aquifer at a given location within the plume footprint, it is recommended that the higher of the two sample concentrations be used in the EPC calculation, along with concentrations from other wells in the aquifer)." EPD recommends the use of EPA's guidance in developing EPCs for groundwater. However, we realize there may be other scientifically supported approaches that may be used when justified by the site conceptual site model. An issue with averaging the data within the same aquifer for multi-depth wells is that there may be different transmissivities from each of the zones monitored; therefore, the data from the most transmissive zone may be diluted by averaging. Additionally, using multiple data points from the same location may unfairly weigh the EPC toward a certain area. Different approaches should be discussed with EPD prior to implementation.
15.5 Vapor Intrusion	While the 2014 OSWER directive is a useful tool for determining groundwater EPCs, the discussion of groundwater exposure point concentrations (EPCs) in this section is incomplete because the OSWER directive is generally intended to represent a potential EPC in the scenario where a single potable well is installed in the core of the plume, thereby representing the maximum potential exposure for that scenario. However, this is not realistic for other exposure pathways that are relevant to groundwater such as vapor intrusion and direct contact for a construction worker, which would usually be evaluated using shallow groundwater. Please consider adding further context to the discussion of groundwater EPCs regarding EPCs for scenarios other than potential potable use.	In evaluating vapor intrusion from groundwater, analytical results from the closest well(s) to the building in question or the proposed building in question should be used to evaluate vapor intrusion. Therefore, the EPC would be the closest well concentrations. Please see EPD's *Guidance for Evaluating the Vapor Intrusion Exposure Pathway* for more information on evaluating the vapor intrusion pathway. The EPC for a construction worker contacting groundwater within a trench would be the same as the shallow aquifer groundwater EPC.
16. Toxicity Assessment		
16.1 Hierarchy	(p.35) Toxicity values used in risk assessments should be based on the best available science (EPA, 1989; Sec. 7.4.1; p. 7-13). EPA recognized that available toxicity values should be placed into a hierarchy of data quality. The best quality toxicity values should be at the top of this hierarchy (EPA, 2003; Tier 1). EPA's IRIS database is the highest quality, Tier 1 preferred source of toxicity values. Values of lower quality and greater uncertainty used in the risk assessment are placed in lower hierarchies (*i.e.,* Tiers 2 or 3). To provide context for risk managers and the public, information should in provided on the relative quality of toxicity values used in a risk assessment. It might be helpful to include summary tables containing the toxicity values [*e.g.,* reference dose (RfD), cancer slope factor (CSF)] for chemicals in the assessment. These could be brief tables similar EPA (2018a) Tables 5.1 and 6.1. The source and/or tier level of toxicity values would be included. Information would be provided on the uncertainty/modify factors for non-carcinogenic chemicals and weight-of-evidence (WoE) narratives/categories for carcinogenic chemicals.	The comment is noted and appreciated. However, because toxicity factors are periodically reviewed and revised, the GRAG will not include toxicity tables. Instead, toxicity factors should be obtained in accordance with the current toxicity hierarchy to ensure use of the most up-to-date values.
16.2 IRIS	(p. 35-36) Recommend removing the last sentence in the first paragraph of Section 6.2, as IRIS only provides information for a limited group of chemicals and is not exhaustive. The first paragraph on page 36 appears to suggest that values used from any source except IRIS requires additional consideration. It would seem to be more accurate to state that IRIS is recommended and the other sources listed in the section are also acceptable, but that other sources will be considered on a case-by-case basis.	The GRAG has been revised to remove this reference and to clarify that the tiered sources for obtaining toxicity factors are acceptable. Other sources for obtaining toxicity factors will be considered provided they are credible and relevant on a case-by-case basis.
16.3 Arsenic	(p. 36). Arsenic RBA is mentioned both as part of the EPC calculation and in the toxicity value section. While it is reasonable to mention it in both applications, it may be prudent to specify that RBA should be applied either at the EPC or tox value stage, so that it is not inadvertently applied in both places.	EPD concurs. The GRAG has been revised as suggested.
16.4 Vinyl Chloride	(p. 37). It would be helpful to clarify the use of the applicable toxicity cancer for vinyl chloride. We understand that the oral slope factor of 7.2 x 10-1 per milligrams per kilogram per day (mgkg-day) is used in the EPA (2024a) RSL Calculator to account for continuous lifetime exposure only during adulthood. To account for continuous lifetime exposure from birth EPA (2000) recommends use of a twofold increase in the oral slope factor to 1.4 per mg/kg-day. This higher oral slope factor is not provided by EPA (2024a). The EPA (2024a) RSL Calculator uses a unit risk estimate of 4.4 x10-6 / micrograms per cubic meter [(µg/m)3] to account for continuous lifetime exposure only during adulthood. EPA (2000) recommends a twofold increase to 8.8 x 10-6/ (µg/m)3 to account for continuous lifetime exposure from birth. This higher oral slope factor is listed by EPA (2014a).	The GRAG has been revised to provide clarification regarding the evaluation of Vinyl Chloride as discussed in your comment. The RAIS calculator utilizes the correct approach for calculating risk or screening values for Vinyl Chloride. The RSL calculator has yet to be revised to correctly evaluate Vinyl Chloride.

16.5 Vanadium	(p. 37) The toxicity value (i.e., oral reference dose, RfDo) for vanadium pentoxide used in the RSL Calculator appears to be a Tier 1 Integrated Risk Information System (IRIS) value. The RSL Calculator uses Tier 2 PPRTV for the inhalation unit risk (IUR) and inhalation reference dose (RfDi.). It is not apparent what the "*USEPA Region 4's approach*" is for vanadium pentoxide. This inorganic is not mentioned in EPA (2018a).	The reference used in the GRAG is referring to the USEPA RSL Calculator User's Guide. For clarification, for vanadium (CASRN 7440-62-2), the RSL calculator uses Vanadium Pentoxide as the toxicity basis for inhalation risk, since that is the most studied and toxicologically relevant form. The RSL calculator evaluates Vanadium only for noncancer effects, using very conservative RfD and RfC values.
16.6 Thallium	EPA (2012) completed a provisional peer review of thallium toxicity. EPA concluded that it was inappropriate to derive a sub-chronic or chronic provisional reference dose (p-RfD) for thallium. However, although insufficient (sic) was available to support the derivation of a provisional toxicity value, EPA stated that this information may be of limited use in risk assessments. EPA (2024b) stated that the provisional peer-reviewed toxicity value (PPRTV) for thallium was a screening level RfDo and therefore, the HQs for thallium should not be added to other HQ calculations. No remedial decisions should be made based on risk calculations with this toxicity information on thallium. About 10 percent of the chemicals listed with EPA (2024a) RSL have similar, less robust screening level PPRTV. A similarly cautious approach should be used on the potential use of these toxicity values.	EPD concurs. This comment applies to not only Thallium but to other chemicals with PPTRV screening values. The following text has been added to the GRAG to clarify the use of PPTRV screening values: For certain chemicals, only screening-level PPRTVs are available due to limitations in the toxicological database. These values are developed as interim estimates and carry greater uncertainty than other Tier III toxicity values. Screening-level PPRTVs may be used for initial screening and COPC identification when no higher-tier toxicity value exists. However, they should be applied with caution in the context of corrective action decisions, since they are not intended to serve as definitive regulatory criteria. Documentation in the risk assessment should note when screening-level PPRTVs are used, summarize their limitations, and explain how uncertainty was addressed in the risk management process.
16.7 Trichloroethene	(p. 38) Consider adding a specific discussion to approaching the cancer risk evaluation of TCE, since it is only considered to be mutagenic for kidney cancer and not for NHL/liver cancer. Therefore, it is not necessarily applicable to apply ADAFs directly to the CSF/IUR for TCE, as these values are combined values that represent each of those cancer types.	EPD concurs. The GRAG has been revised as suggested.
16.8 PCBs	(p. 39) The rationale for converting polychlorinated biphenyls (PCB) test results to total PCBs when fewer than 209 congeners are analyzed, was not readily apparent. GRAG appears to recommend that the method detection limit be used for non-detect laboratory results. The reference to EPA (2024a) does not appear to provide additional clarity.	The GRAG has been revised to reflect the following: PCBs should be evaluated using the analytical and toxicity-value framework in the USEPA Region 4 Technical Services Section Issue Paper for Polychlorinated Biphenyl Characterization at Region 4 Superfund and RCRA Sites, February 2013. When Aroclor data are available, assess risk using Aroclor-specific toxicity values and exposure parameters, consistent with the current RSL User's Guide on selecting the appropriate tiered oral slope factor for human health risk assessment. Total PCB toxicity values should be used when samples are analyzed for individual congeners using USEPA Method 1668 and the full suite of 209 congeners is reported. In this case, total PCBs are defined as the sum of all detected congeners. Dioxin-like congeners should be assessed separately. See section 2.3.5 of the RSL User's Guide.
16.9 Dioxins	(p. 38) For dioxins, recommend referencing USEPA's "Use of Dioxin TEFs in Calculating Dioxin TEQs at CERCLA and RCRA Sites" as a reference for using TEFs https://semspub.epa.gov/work/HQ/174558.pdf	EPD concurs. The GRAG has been revised as suggested.

17. Surrogates		
17.1 Surrogates	The use of a number of chemical surrogates (i.e., 1,4-dichlorobenzene, 1,3-dichloropropene, methylcyclohexane, technical chlordane, and technical hexachlorocyclohexane) is inconsistent with current risk assessment practices. Furthermore, standard practice for human health risk assessment evaluates isomers on an individual basis and not by summing concentrations of the isomers and comparing the total concentration to an individual standard.	EPD concurs. The GRAG has been revised as suggested.

18. Table 5. Recommended Default Exposure Parameters		
18.1 Exposure Time Water	(p. 40) For the Exposure Time (ET) - water for a resident, it is unclear how the 24 hrs/day is applied. One may assume that this is the inhalation route for the potable scenario, but that is not specified.	The GRAG is intended to be consistent with the current USEPA guidance. The source for the ET is OSWER Directive 9200.1-120 Attachment 1. Recommended Default Exposure Factors (2014), which considers the whole day as the exposure time for a resident receptor.
18.2 Exposure Time Soil	(p. 40) Since ingestion and dermal contact for soil are evalauted as single exposure events, it is assumed that the "ET - Soil" factor is for dust inhalation. In that case, 24 hrs/day for a resident seems unrealistic even for an RME scenario, since they would likely be outside in order to generate dust. Recommend considering a different value for this EF based on information on outdoor activity time in the EFH.	The GRAG is intended to be consistent with the current USEPA guidance.The source for the ET is OSWER Directive 9200.1-120 Attachment 1. Recommended Default Exposure Factors (2014), which considers the whole day as the exposure time for a resident receptor.

19. Ecological Risk Assessment		
19.1 Scientific Management Decision Points (SMDP)	(p. 48) The ecological risk assessment (ERA) process (EPA, 1997; Exhibit I-2) consists of as many as eight steps. There are as many as six scientific management decision points (SMDP) associated with these eight steps. The SMDP provides an opportunity for the risk manager, risk assessor and other stakeholders to reach a consensus on whether it is necessary to proceed to the next step in the ERA process. Not all the ERA steps and/or SMDP need to be completed for an ecological risk assessment.	EPD concurs. and the GRAG has been revised to provide additional clarification regarding the Scientific Management Decision Points (SMDP).

19.2 Habitat	(p. 48) Apparently, the preliminary phase of an ERA should be completed if there is potential for a habitat where ecological receptors could be potentially exposed to site-related chemicals. According to GRAG, a habitat is a place where an ecological receptor resides or forages. This definition is then expanded to include the place where a population of plants and animals and their surrounds are located, including both living and non-living components (see p. 51). This definition appears vague and sufficiently broad to include essentially the entirety of Georgia. The ERA should be conducted in suitable or valued habitats where ecological receptors could be likely exposed to site-related chemicals. At least two factors should be considered when evaluating the need for conducting an ERA.	The Ecological Habitat Questionnaire was developed to help distinguish areas that meet the definition of "habitat" for ecological risk assessment purposes. Within the GRAG, habitat refers to areas that can support ecological receptors that may reasonably be exposed to site-related contaminants, such as wetlands, surface water bodies, forested areas, or undeveloped uplands that provide food, shelter, or breeding areas. Landscaped, paved, or highly disturbed areas generally do not qualify as habitat for ERA purposes.Completion of the Ecological Habitat Questionnaire documents existing site conditions, identifies potential ecological receptors, and helps determine whether a viable habitat is present that warrants further ecological evaluation. This process narrows the assessment to only those habitats that are suitable for or valued by ecological receptors with potential exposure to site-related chemicals. Habitat suitability can then be confirmed during an EPD site visit or prior to initiating a Screening-Level Ecological Risk Assessment (SLERA), if warranted.
19.3 Habitat Suitability Index	First, it has long been known that not all ecological habitats are equal. Several approaches have been used to evaluate the suitability of different habitats. A common approach is using the Habitat Suitability Index (HSI). This is a numerical score, ranging from 0 (for unsuitable habitat) to 1 (for optimal habitat), that represents how well a particular habitat can support a specific species. Initially, potentially impacted areas could be categorized into a series of land use and land cover (LULC) classes. Each of these LULC classes can be assigned a habitat suitability value.	The Ecological Habitat Questionnaire was designed to simplify this type of assessment. The questionnaire is a first step in evaluating whether a habitat is present in the area of contamination. If no habitat appears to be present (and is verified by EPD) or if a habitat is present and is not impacted by contamination, no further ecological evaluation will be necessary. The evaluation of the ecological habitat suitability can be discussed with EPD during an EPD site visit or prior to the beginning of a SLERA, if warranted.
19.4 Step 3a (Refinement)	(p. 49) It would be helpful to clarify whether Step 3a (Refinement Screening) should be included in the screening level ecological risk assessment (SLERA) or the baseline ecological risk assessment (BERA). Step 3a is described in the GRAG at pages 49, 52, and 54; Figure 7 as part of the SLERA. However, on page 56, Step 3a is also described as being included in the BERA. For simplicity, would it be more appropriate to include Step 3a in the SLERA. Results from this refinement screening of existing sampling data should be communicated in the SMDP at the conclusion of the SLERA.(p. 52) The proposed SLERA apparently consists of three (Steps 1, 2 and 3b), rather than only two.	EPD concurs. There was typographical error in the guidance which included Step 3a in the BERA portion of the Ecological Risk Assessment. The GRAG has been revised to remove Step 3a from the BERA and include in the SLERA.
19.5 Checklist	(p. 52) It would be helpful to clarify that the statement that the Checklist for Ecological Assessment/Sampling occurs as Appendix A (pp. 30 to 49) is included in Appendix B – Representative Sampling Guidance Document, Volume 3: Ecological of ERAGs (EPA, 1997).	Please note that a link to the Checklist for Ecological Assessment/Sampling is provided in the guidance document.
19.6 Referenced Documents	(p. 53). EPA (2018b) ESV can be used; however, this should not be a requirement. Many of the referenced documents were issued several decades ago. Responsible Parties should be allowed to use more recent or other applicable ESV.	The GRAG is consistent with *USEPA Region 4 Ecological Risk Assessment Supplemental Guidance* on the use of Ecological Screening Values (ESVs). Alternative screening benchmarks may be applied during the refinement stages of the SLERA or BERA, provided they are supported with adequate justification and appropriate documentation.
19.7 Screening Benchmarks	(p. 53) The EPA Region 3 BTAG Screening Benchmarks are accessible on a historical EPA website as they existed on January 19, 2017. However, they are no longer updated. The NOAA SQuiRT Tables were last published in 2008. Other sources of replacement screening values may be available from more contemporary sources.	Revisions or updates to the supplemental sources have been made to the GRAG based on the comment. Ecobox and ECO SAR have been added to the guidance document as more recent sources of ecological benchmarks.
19.8 Chronic Georgia Instream Water Quality Standards	(p. 53) We are requesting clarification that only those ESV with chronic Georgia In-stream Water Quality Standards [Para. 391-3-6-.03(5)(e)(ii)] should be used instead of EPA (2018b) guidance.	The GRAG is consistent with the *USEPA Region 4 Ecological Risk Assessment Supplemental Guidance* in that state water quality standards take precedence over Region 4 Surface Water Ecological Screening Values (ESVs). Surface water Chemicals of Potential Ecological Concern (COPECs) should not be eliminated during screening using criteria less conservative than the Georgia In-stream Water Quality Standards (GISWQS). GISWQS represent regulatory standards that should not be exceeded. However, during the refinement stages of the SLERA or BERA, it may be appropriate to consider acute GISWQS values in addition to chronic standards, provided that the rationale is clearly documented and scientifically justified (e.g., short-term exposure).
19.9 Georgia Instream Water Quality Standards Considered Clean up Goals	(p. 55) It would be helpful to clarify that screening values (*i.e.,* chronic Georgia Instream Water Quality Standards) should not automatically become RGOs. EPA (2024a) clearly states that screening levels are not clean-up standards (*e.g.,* ARARs) and should not be used as cleanup levels.	Georgia Instream Water Quality Standards (GISWQS) are enforceable state regulatory standards established under the Clean Water Act and Georgia Rules and Regulations for Water Quality Control (Chapter 391-3-6). While GISWQS are similar to screening levels in risk evaluations, they also function as remedial levels because they are enforceable standards (i.e., "bright line" criteria) for protecting aquatic life and human health. Therefore, if surface water concentrations exceed GISWQS, the chemical should be identified as a Chemical of Concern (COC) for further evaluation or addressed through corrective action.
19.10 Preliminary Chemicals of Potential Ecological Concern (PCOPEC) versus Chemicals of Potential Ecological Concern (COPEC)	It would be helpful to clarify whether the SLERA results in preliminary chemicals of potential ecological concern (PCOPEC) or chemicals of potential ecological concern (COPEC). Apparently, the results of Step 2 of the SLERA may yield PCOPEC (pages 53 and 54) while Step 3A may yield COPEC (pages 54 and 55).	In the SLERA, Step 2 identifies Preliminary Chemicals of Ecological Concern (PCOPECs), while Step 3a applies refined screening to determine the final list of Chemicals of Potential Ecological Concern (COPECs) to be carried forward in the Ecological Risk Assessment. The GRAG has been revised to clarify this.
19.11 Home Range	Second, the home range of the ecological receptor compared to the site should be considered. The home range for an animal is the area they use for forging, resting, breeding, etc. (Powell & Mitchell, 2021). EPA (2018b, p. 3-2) considers whether the size of an impacted area is smaller than the home range of a likely ecological receptor. If the home range is greater, then it does not seem reasonable to conduct an extensive ERA.	EPD concurs. Please note that the evaluation of the home range is typically conducted in the Baseline Ecological Risk Assessment (BERA) stage. A discussion of home range is provided in the BERA section of the GRAG. When conducting a BERA, please consult EPA's *Supplemental Ecological Risk Assessment Guidance* (March 2018).

20. Appendix C. Habitat Questionnaire

20.1 High Suitability Index	(p. 48 & 51) The *Ecological Habitat Questionnaire* should only have to be completed for potential high suitability habitat (*i.e.,* high HSI) at or near the site. If site-related chemicals have migrated off-site, then the questionnaire should only be completed for those additional off-site areas. The site owner/operator (Responsible Party) should not be responsible for conditions at other areas more distance from the site.	The Ecological Habitat Questionnaire should be completed to evaluate the presence of viable habitat and potential receptors at sites and in any off-site areas impacted by site-related chemicals. While high-quality habitat (high HSI) may be the most sensitive to potential impacts, the ecological evaluation should not be limited solely to these areas. The Responsible Party is not responsible for conditions in off-site habitats that are not affected by site-related releases.
20.2 Undeveloped Terrestrial Areas	Appendix C: (p. 1). Other than apparently not included landscaped areas or agricultural land, it would be helpful to provide a practical definition of "undeveloped" terrestrial areas.	The GRAG has been revised to include clarification of "undeveloped" terrestrial areas.
20.3 Determination of Wetlands	(p. 1) Will responsible parties have to make a formal determination if potential wetlands, marshes, swamps and/or vernal pools are jurisdiction wetlands?	The Ecological Habitat Questionnaire is not intended to require formal determination of potential wetlands, swamps and/or vernal pools. Rather, the questionnaire should be used to document whether ecological habitat and potential receptors are present at the site and in areas that may be affected by site-related contaminant migration.
20.4 Determination of Source Areas	(p. 2) Will responsible parties have to determine if source areas, contaminant extent, migration pathways occur within a 3-mile radius (i.e., 28 square miles) of the site?	The Ecological Habitat Questionnaire is not intended to require responsible parties to evaluate all ecological habitats within a fixed radius (e.g., 3 miles) of the site. Rather, the questionnaire should be used to document whether ecological habitat and potential receptors are present at the site and in areas that may be affected by site-related contaminant migration. The spatial extent of the evaluation should be based on site-specific conditions and known or reasonably anticipated contaminant migration pathways.
20.5 US Fish and Wildlife Service National Wetland Inventory Maps	(p. 2) We understand that the U.S. Fish and Wildlife Service (USF&WS) National Wetland Inventory maps for Georgia have not been updated since the 1980s. Will Responsible Parties still be expected to rely on these maps?	Comment acknowledged. The current U.S. Fish and Wildlide Service Wetlands Mapper provides the most recent and comprehensive digital resource for identifying potential wetlands and can be accessed at https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper. The GRAG has been revised to add this source for wetland maps.
20.6 Species	(p. 2) The resource list from the USF&WS Information for Planning and Consultation (IPaC) tool can include many categories of listing statuses for species. Information on critical habitat, bald and golden eagles, migratory birds, and wetlands is also provided. Will Responsible Parties be expected to address all these listed species and other resources?	The U.S. Fish & Wildlife Service Information for Planning and Consultation (IPaC) tool provides a resource list of federally listed, proposed, or candidate species, critical habitat, bald and golden eagles, migratory birds, and wetlands. While this list is a useful screening resource, Responsible Parties are not expected to address every species or resource identified by IPaC. Instead, evaluations should focus on species, habitats, and resources with potential for exposure to site-related contaminants. Critical habitats and listed species near the site must be considered, while other categories (such as migratory birds or eagles) may require further evaluation only if suitable habitat and complete exposure pathways exist.
20.7 Site Related Contaminants	(p. 3, Question 3.2) Site-related "contaminants" (regulated substances) may have been delineated; however, that does necessarily mean they need to be controlled if their concentrations are below harmful levels.(p. 4, Question 3.3 and p. 5, Question 3.5) Just because site-related "contaminants" (regulated substances) are detected above background concentrations but below harmful levels, does not necessarily mean that additional action is required. (p. 4, Question 3.4) Just because site-related "contaminants" (regulated substances) have migrated to an aquatic habitat below harmful levels, does not necessarily mean that additional action is required.	EPD concurs.

21. Determining Remedial Goal Options (RGOs)		
21.1 Cumulative Excess Lifetime Cancer Risk (ELCR)	(p. 58) The draft GRAG guidance states that GaEPD generally sets an upper limit for the cumulative ELCR at one in one hundred thousand (10-5). However, at page 3 of the GRAG it states that EPA generally considers an ELCR as high as one in ten thousand (10-4) to be within an acceptable range. EPA (1991) uses a "target range" within which the agency strives to manage carcinogenic risks as part of a remedial action. However, the upper boundary of this range is not a discrete bright line at 10-4, although EPA generally uses 10-4 for making risk management decisions. In certain cases, EPA may consider risk estimates slightly greater than 10-4 to be protective. Because the GRAG is applicable to projects completed under the EPA's Resource Conservation Recovery Act (RCRA) corrective action program and GaEPD's Hazardous Waste Management Act, which is largely based on the federal program, EPA guidance on an acceptable ELCR range should be incorporated into the GRAG.	The comment is noted; however, EPD has established this cumulative target risk range to ensure consistency within EPD regulatory programs, including with the Hazardous Site Response Act (HSRA).
21.2 Preferred Methodologies	Section 9 on Determining Remedial Goal Options (RGOs) is a critical part of the risk assessment process, however, as currently drafted, lacks the level of detail needed to adequately explain the information that is presented.	The selection of Cleanup Goal Options (CGOs) are site specific and should be developed in conjunction with the applicable EPD program, not the risk assessment team. This section was intended to be a list of possible options that may be explored in those discussions. This section has been revised to further clarify the different CGOs listed in the text.
21.3 The Use of USEPA Regional Screening Levels (RSLs)at Cleanup Goal Options (CGOs)	Use of USEPA Regional Screening Levels (RSLs) for RGOs may be inappropriate. USEPA indicates in the RSL User's Guide that the RSLs "are chemical-specific concentrations for individual contaminants…that, if exceeded, may warrant further investigation…It should be emphasized that SLs are not cleanup standards and should not be used as cleanup levels". It is recommended that Section 9 be expanded to include clarification that screening levels should be re-evaluated for appropriateness of use as clean up goals and should be renamed as RGOs.	EPD agrees that USEPA Regional Screening Levels (RSLs) are screening values intended to identify contaminants that may warrant further investigation and are not regulatory cleanup standards. Their inclusion as a reference in the GRAG was intended to support interim measures and provide a streamlined approach for sites with small releases, reducing the time and resources needed for initial evaluations. EPD also concurs that screening levels must be evaluated for site-specific appropriateness before being applied as cleanup goals. The GRAG has been revised to clarify that RSLs may serve as an initial reference point, but that selection of Cleanup Goal Options (CGOs) must consider site-specific conditions, exposure pathways, and statutory requirements.

24. References

24.1 Organization of References	It would be helpful if the references were organized by the author of the document and then placed in chronological order.	EPD concurs. Organization of the references has been revised, as suggested.

25. Metadata		
25.1 Use of RSL Calculator Metadata	Over 30% of the information in the meta data was incorrect. For example, check out acetone. The meta data identifies acetone with a chronic target organ system of "neurological" and a chronic RfD critical effect of "neuropathy". But when you check the IRIS profile, acetone is identified with a target organ system of Urinary with a basis of Nephropathy (kidney damage/disease).	EPD has reviewed the RSL Calculator metadata for accuracy and has determined that about 23% of the information provided in the calculator is incorrect. The GRAG has been revised to recommend obtaining target organ systems from the primary source such as IRIS or ATSDR.