

## **HSRA DIALOGUE PROCESS**

### **DRAFT FINAL REPORT**

**Draft # 1 -- October 30, 2002**

This is a Draft Final Report of the results of a consensus-building process to address ways of improving the cost-effectiveness of Georgia's implementation of the Hazardous Site Response Act (HSRA) while maintaining its goals of protecting human health and the environment.

This report will:

- Summarize the process;
- Summarize the process objectives;
- List the participants;
- Summarize agreements reached, if any;
- Summarize disagreements remaining, if any; and
- Summarize issues that the participants recommend addressing further.

### **SUMMARY OF THE PROCESS**

During the past year, members of the regulated community have suggested that the HSRA program relies on streamlined exposure assumptions that cause larger volumes of soil and ground water to be subject to corrective action requirements and that the principal corrective action required for those larger volumes is off-site removal of soils and treatment of all groundwater to meet drinking water standards. Because of this combination of larger volumes of contamination and the preference for off-site removal of soils and treatment of all groundwater, the regulated community believes that HSRA is more expensive than necessary to adequately protect human health and the environment from exposure to harmful contamination, and more expensive than programs in other states (and USEPA) where on-site engineering measures and institutional controls are used to reduce reliance on more expensive off-site removal.

These suggestions lead to a recommendation for a joint committee study to address cost effectiveness of the Hazardous Site Response Act (HSRA) program. Following up on this recommendation, various regulated community stakeholders and the Environmental Protection Division (EPD) proposed that a facilitated dialogue be held to determine whether consensus can be achieved on regulatory or administrative revisions to the program or recommended revisions to the HSRA. Funding for the process was provided by the Georgia Environmental Protection Division and the Georgia Industry Environmental Coalition GIEC, a group comprised of entities that fall within the regulatory ambit of HSRA. A facilitator, Matthew A. Low, of TLI Systems, was retained under contract to EPD and GIEC to carry out the process.

The process consisted of a Convening Phase and a Dialogue Phase. During the Convening Phase, the facilitator interviewed approximately 60 individuals representing diverse stakeholder interests. The purpose of these interviews was to identify potential Participants in the Dialogue Phase and to identify and refine issues that various stakeholders believed should be included in the Dialogue.

Following these interviews, the facilitator recommended a list of possible participants in the Dialogue. The facilitator requested comments on this list from representatives of GIEC, EPD and other identified stakeholders. The final determination of the Participant list was made by the facilitator.

The Dialogue discussions were conducted over six meetings of the Dialogue Group. The Dialogue was structured to allow participants to discuss their respective interests and understanding of the HSRA program, develop additional information that would help shed light on the costs and benefits of the HSRA program, and address possible revisions that might help reduce costs while maintaining HSRA's protection goals. Prior to the first meeting, the facilitator developed a framework for discussions and an agenda. (See Attachment \_\_\_\_). During the first meeting, the Dialogue Group discussed groundrules for the Dialogue and the issues that should be addressed in the Dialogue. Groundrules were approved at the second meeting. (See Attachment \_\_\_\_). The facilitator prepared detailed summaries of each of the six meetings (See Attachments \_\_\_\_ - \_\_\_\_). These summaries provide a record of the discussions and the positions expressed by various Participants. Participants are not referred to by name.

At the conclusion of the second meeting, the facilitator requested that representatives of the regulated community (industry, commercial development, municipalities) prepare a discussion paper outlining certain issues and proposed recommendations that would be used as a basis for discussions. This Discussion Paper (Attachment \_\_\_\_) was distributed to the Group and was the basis for discussions at the third and fourth meetings. After the third meeting, the facilitator asked representatives of the environmental and community interests to prepare a discussion paper outlining certain issues and proposed solutions that they believed were appropriate. This Discussion Paper (Attachment \_\_) was distributed to the Group and was the basis for discussions at the fourth meeting. Following the fourth meeting, the facilitator asked Participants to draft strawman language that captured consensus or potential consensus realized during the first four meetings. EPD volunteered to do this and EPD's draft strawman language (Attachment \_\_\_\_) served as a basis for discussion during the fifth and sixth meetings.

## **OBJECTIVES OF THE DIALOGUE**

The stated purpose of the Dialogue was to determine whether consensus can be achieved on regulatory or administrative revisions to the HSRA program or recommended revisions to the Act that would result in making the program more cost-effective while maintaining its protectiveness. The Dialogue was intended to build a foundation for consideration and action by EPD. The expectation of the EPD

Participants and a number of other Participants was that the Dialogue would provide for exposition and consideration of cost information that would shed light on whether the HSRA Program is not cost-effective, in whole or in part. During the course of the Dialogue, it became apparent that detailed and comprehensive cost data were not available and thus, it would not be possible for the discussions to yield any consensus on whether, and, if so, to what extent, the HSRA Program is not cost-effective. Actual case examples and generic examples provided a limited basis for qualitative consideration of the cost-effectiveness of various elements of the HSRA Program.

Since some of the regulated community and the EPD had exchanged preliminary thoughts on certain elements of the HSRA program that might merit attention, one focus of the Dialogue was on a series of proposals offered by the regulated community to make investigation and remediation more efficient, less costly, and ultimately more cost-effective. During the Convening Phase of the project, the facilitator identified additional issues raised by representatives of environmental and community stakeholders relating to the need for more aggressive enforcement by EPD to reduce or eliminate abuse of the program, the need to enhance the number and quality of EPD resources that can be applied to the program, and ways to improve access to information.

Under the groundrules for the Dialogue, the Final Report will be presented to the Director, EPD, who will forward it, as written, to the Board of Natural Resources and the Georgia General Assembly, along with any separate recommendations that he may wish to include.

## **PARTICIPANTS**

A Participant List is included as Attachment \_\_. Participants were drawn from various affected stakeholders. They included representatives from industry, attorneys with experience representing a variety of commercial, industrial and development interests, representatives from environmental groups and community-based organizations, one representative from the public health sector, technical consultants who have worked on behalf of industrial and commercial interests, technical consultants who have worked in support of community and environmental interests, representatives of cities and counties and EPD officials. The facilitator did not attempt to achieve a "numerical" balance in representation, but rather strove to include Participants who he believed would articulate the positions of the affected constituencies. No votes were taken on any issues during the meetings. Attempts to obtain additional Participants representing the public health viewpoint continued after the final list was issued by the facilitator, but ultimately proved to be unavailing.

## **SUMMARY OF AGREEMENTS**

The Group qualitatively addressed elements of the HSRA Program that potentially can be made more efficient, less costly, and ultimately, more cost-effective. These discussions have led to the proposals outlined below on which there appears to be consensus.

### **1. EPD Staffing**

The EPD must be staffed with a sufficient number of qualified trained staff. Retention of qualified personnel through salaries commensurate with comparable positions in the private sector and US EPA should be the first step in improving the efficiency of the EPD HSRA Program.

### **2. Supplementary Funding by Responsible Parties for Type Site Specific Plans**

Funding for EPD staff and experts to review Type 5 site-specific plans should be paid for by the responsible party(s) presenting the proposal. To the extent that greater flexibility is provided for site-specific plan review, there must be assurance that necessary funding will be available in advance to fully and adequately staff review of such plans.

### **3. More Aggressive Enforcement by EPD**

Using current statutory and regulatory authorities, the EPD should pursue more aggressive enforcement against [recalcitrant] responsible parties who have not submitted adequate or timely CSRs, or who are not in compliance with the terms of unilateral administrative orders, administrative consent orders, or corrective action plans.

### **4. Greater EPD Involvement in Work Plans and Sampling and Analysis Plans**

Because over 90% of CSRs are issued a Notice of Deficiency (NOD) due primarily to inadequate Work Plans or Sampling and Analysis Plans (SAPs), EPD should expand its current practice of informal efforts to clarify for each HSRA site, early on, the scope and nature of acceptable Work Plans and/or SAP. This should include an offer by EPD in the CSR call-in letter, to meet with responsible parties, at an appropriate point in the CSR development process, to go over the responsible party's proposed Work Plan and SAP. The EPD community liaison representative should participate in such meetings for the purpose of identifying potential issues likely to affect the surrounding community in order to provide community representatives notice of such issues prior to submission of the CSR.

**5. Responsible Party Reimbursement of EPD Costs to Fund Review of Inadequate CSRs**

Authority (by statutory revision) should be provided to the EPD to be reimbursed for the level of effort required to review CSRs after a second NOD has been issued to a responsible party. Alternatively, EPD should include a provision in consent orders requiring responsible parties to reimburse EPD for review of revised CSR submissions required by such consent orders.

**6. Electronic Submission of Site-Related Documents and On-Line Availability**

HSRA regulations should be amended to require the electronic submission of site-related documents, for the purposes of making such documents available on-line.

**7. Imaging Site-Related Documents for On-Line Availability**

To the extent funding is available, after satisfying funding needs for additional staff as recommended in Item 1, EPD should backfile image site-related documents. The highest priority is for documents relating to Type 5 Sites and Sites on the HSI that do not have an approved corrective action plan. Sites that have approved corrective action plans demonstrating compliance with Types 1-4 standards are lower priority.

**8. Availability of Hard Copies of Site Related Documents**

EPD should take under advisement the recommendation that hard copies of site-related documents should be made more readily accessible to local communities. At the very least, such documents should be held at local repositories for 120 days.

**9. Adding a Definition of Source Material to HSRA Regulations**

In order to improve the efficiency of CSR submissions and cost-effectiveness of proposed corrective actions, the HSRA regulations should be amended by adding a definition of the term "source material." The language proposed is:

*Source material means any material that includes or contains regulated substances that act or may likely act as a reservoir for migration of regulated substances to groundwater, soil, surface water, or air, or acts or may likely act as a source for direct exposure.*

**10. Designating Sites Being Cleaned Up Under a Corrective Action Plan as a New Category (Class V) on the Hazardous Site List (HSI) and Distinguishing Between Groundwater and Soils Cleanups**

In order to de-stigmatize sites that are in the process of being cleaned up pursuant to an approved Corrective Action Plan (CAP), and thereby enhance the efficiency and cost-effectiveness of bringing properties to commercial development, the HSRA regulations should establish a Class V category on the HSI for sites that are not yet in

compliance with the risk reduction standards but that are in compliance with an approved CAP.

The relevant language to be included in Section 391-3-19-.06(2) and (2)(d) (with additional conforming changes to other sections) is:

*Class V applies to any site or individual property at a site which has been listed on the Hazardous Site Inventory for which the Director has made a determination pursuant to Rule 391-3-19-.06(6)(b)5 that the site has had a known release needing corrective action and at which corrective action is being performed in compliance with a corrective action plan approved by the Director which will bring the site into compliance with the risk reduction standards. If the Director determines that corrective action is not being performed in compliance with the approved corrective action plan, the site may be reclassified to Class I.*

As a further measure to improve the efficiency and cost-effectiveness of securing financing necessary to bring properties to commercial development, the EPD should distinguish those sites that are meeting soil standards, and are just implementing a CAP to address groundwater issues by including additional language in the description of the sites on the HSI. EPD updates the HSI list for publication annually. Updates are available on-line as soon as they are made.

#### **11. Adding an Option for Delineation to Type 1 or Type 3 Standards in Certain Circumstances**

In order to address problems identified by EPD and added costs incurred by responsible parties in trying to delineate to background for certain types of contaminants in areas affected by non-specific human behavior, the HSRA regulations should be amended to allow delineation to the Type 1 or Type 3 Risk Reduction Standards (RRS) instead of background for naturally occurring substances originating from wide scale, non-specific human activity not related to the site. The proposed change will make site characterization more efficient and cost-effective.

The relevant language to be added to Section 391-3-19-.06(3)(b)(2) is as follows:

*If a release involves soil contamination, a complete definition of the horizontal and vertical extent of such soil contamination. Satisfactory evidence of a complete definition of the horizontal and vertical extent of soil contamination shall consist of an appropriate number of data points at sufficient locations with concentrations at background concentrations. An acceptable determination of background concentrations shall be made from samples that are representative of soil conditions not affected by a release of a regulated substance. To the extent that releases of regulated substances that are naturally-occurring have originated from wide scale, non-specific human activity not attributable to the site, satisfactory evidence of a complete definition of the horizontal and vertical extent of soil contamination may consist of an appropriate number of data points at sufficient locations with concentrations at the Type 3 risk reduction standard for non-residential properties or at the Type 1 risk reduction standard for residential properties and any impacted adjacent or proximate properties (whether residential or non-residential). Where a property has been delineated to the type 3 risk reduction standard, annual certification shall be required from the owner of such property that the property remains non-residential. If the property has been changed to residential, delineation to Type 1 risk reduction standards will be required. Nothing in this language is intended to convey any additional rights to current or former owners or tenants of property that may be a source of contamination on or under adjacent or proximate properties or to abrogate any rights or causes of action of former or current owners or tenants of such impacted adjacent or proximate properties to recover damages associated with contamination. Nothing in this language is intended to establish any minimum level of contamination that would constitute a basis for determinations of whether contamination constitutes a nuisance under Georgia law.*

## **12. Make Type 4 Soil Exposure Depth Assumptions consistent with Type 3**

In order to correct an inconsistency in the regulations and improve the cost-effectiveness of requirements for complying with Type 4 RRS, the HSRA regulations should be amended to make Type 4 soil exposure depth assumptions consistent with Type 3 RRS. The generic Type 3 non-residential standards currently are based on long term exposure only to surface soil, while the Type 4 non-residential standards are based on long-term exposure to the entire soil column. This change would respond to proposals from the regulated community that, at the very least, Type 3 and Type 4 standards be made consistent and be based on exposure only to surface soils. For the purposes of calculating a health-based exposure level, this proposed change allows the depth of exposure to be set based on site specific exposure factors instead of the entire soil column from ground surface to groundwater. In addition, the HSRA regulations should be changed to allow a responsible party to use either the Type 3 or Type 4 groundwater criteria to derive Type 4 soil-leachate standards. This is to correct a problem that EPD has had where the Type 4 groundwater value sometimes results in a lower cleanup criteria for soil than Type 3. The relevant language to the affected sections is as follows:

The relevant language modifying Section 391-3-19-.07(9)(d) is as follows:

*Criteria for soil. Concentrations ~~at any point above the uppermost groundwater zone~~ in soil that has been affected by a release shall not exceed the least of the concentrations in Items ~~1, 2, 3, and 4~~ 1 and 2 below, or, for those substances for which said concentrations cannot be calculated, the highest of concentrations in Table 2 of Appendix III, background concentrations, or detection limit concentrations:*

*Concentrations in soil ~~at any point above the uppermost groundwater zone~~ which will not cause contamination of ground water at levels which exceed Type 3 or 4 groundwater concentration criteria, ~~whichever is higher~~, as determined by any laboratory test and/or fate-and-transport model recognized by USEPA and approved by the Director, at a point of exposure defined as any point at which a drinking water well could be installed.*

*Concentrations in surface soil shall meet the criteria of Item 1 above and shall not exceed the lower of the concentrations in Item (i) through (iii) below. The depth of soil considered surface soil may be based upon site specific exposure factors approved by the Director, or assumed to be the top two feet of soil. In no event shall compliance be achieved by applying clean soil or any other barrier onto surface soil.*

In addition, the HSRA regulations should be amended to allow use of the higher of Type 1 or Type 2 groundwater criteria in establishing cleanup criteria for soil that is protective of groundwater. This is to address the same problem with Type 2 mentioned above. This revision will result in less soil cleanup at some sites without compromising protectiveness.

The relevant language, modifying Section 391-3-19-.07(7)(c)(1) is as follows:

*Criteria for soil. Concentrations at any point above the uppermost groundwater zone in soil that has been affected by a release shall not exceed the least of the concentrations in Items 1 through 4 below, or, for those substances for which the calculations cannot be made, the highest of the concentrations in Table 2 of Appendix III, background concentrations, or detection limit concentrations:*

*Concentrations which will not cause contamination of ground water at levels which exceed Type 1 or 2 groundwater criteria, ~~whichever is higher~~, as determined by any laboratory test and/or fate-and-transport model recognized by USEPA and approved by the Director, at a point of exposure defined as any point at which a drinking water well could be installed.*

### **13. Type 5 Standards for Groundwater**

In order to make groundwater remediation more cost-effective for sites subject to Type 5 RRS, the HSRA regulations should be amended to allow Type 5 standards for groundwater. Type 5 cleanups currently only apply to soils and source material. Contaminated groundwater must still be cleaned up to Type 1-4 standards outside the immediate perimeter of the Type 5 area. The proposed change responds to requests by the regulated community for greater flexibility to move the groundwater compliance point out to a more practical point, perhaps the boundary of the property, or perhaps the

boundary of the plume, as long as the responsible party can demonstrate the plume is under control and being reduced. Under this provision, at Type 5 sites where all source and soil that can contribute to groundwater contamination is removed, then groundwater requirements will be satisfied if it can be ensured that the groundwater contamination will not spread beyond the engineering and institutional controls or increase in concentration or toxicity, and that human health exposure routes are eliminated. If all soil and source material that can contribute to groundwater contamination is not removed, then groundwater will have to be removed and treated at the down gradient limit of the source and soil engineering controls, and it must be ensured that, beyond the engineering controls for source and soil, engineering and institutional controls will prevent migration, increases in toxicity or exposure.

The relevant language amending Section 391-3-19-.07(10)(d)4 is as follows:

*For groundwater contaminated with regulated substances that the responsible party demonstrates is technically impracticable, cost prohibitive or otherwise not appropriate to remove or treat to the Type 1 – 4 standards, the criteria under Items (i) and (ii) below shall be met.*

*If all source material and soil is removed, or treated to concentrations that are protective of groundwater as specified in Rule 391-3-19-.07(6)(c)(1), (7)(c)(1), (8)(d)(1)(i), (9)(d)(1), whichever are applicable, engineering and institutional controls shall be used to ensure:*

*Groundwater contaminated with regulated substances in excess of Type 1-4 standards will not migrate beyond the limits of the engineering and institutional controls;*

*Regulated substances in groundwater will not increase in concentration or toxicity at the limits of the engineering or institutional controls; and*

*Exposure to regulated substances in concentrations in excess of Type 1-4 standards in groundwater will not occur.*

*If all source material and soil is not removed or treated to concentrations that are protective of groundwater as specified in Rule 391-3-19-.07(6)(c)(1), (7)(c)(1), (8)(d)(1)(i), or (9)(d)(1), whichever are applicable, removal or treatment of groundwater shall be implemented at the hydraulically downgradient limit of the engineering controls used to control source material and soil to prevent or eliminate the horizontal and vertical migration of regulated substances in excess of Type 1-4 standards beyond the hydraulically downgradient limit of such engineering controls. Beyond the engineering controls for source material and soil, engineering and institutional controls for groundwater shall ensure that the criteria specified in Items 4. (i)(I) – (III) above are met.*

## 14. Exposure Area Averaging for Soil at Type 5 Sites

In order to make soil remediation more cost-effective at Type 5 sites, the HSRA regulations should be amended to allow the use of exposure averaging to determine compliance with the Type 5 cleanup requirements for soil where engineering and institutional controls will be used to maintain exposures consistent with those used to calculate site-specific, risk-based criteria for soil. This change will not permit exposure area averaging to demonstrate compliance with Type 1-4 standards (as requested by regulated community interests), but will allow the methodology to be used at Type 5 sites and allow the EPD to gauge how application of this methodology will impact staff resource requirements.

The relevant language amending Section 391-3-19-.07(10)(d)5 is as follows:

*Soil. ~~The measures shall not leave, beyond the effective control of engineering control measures, concentrations of regulated substances in soil that exceed the soil criteria for Type 1-4 standards, as applicable.~~ For soil contaminated with regulated substances at sites where a Type 5 standard is being sought, exposure area averaging using methods recognized by USEPA and approved by the Director may be used to demonstrate compliance with soil criteria derived pursuant to this section, provided the engineering and institutional controls for soil will permanently maintain exposure conditions consistent with those used to calculate such criteria.*

## SUMMARY OF DISAGREEMENTS

Many issues and proposals were discussed during this Dialogue. The meeting summaries detail the concerns and questions that were raised and the points of disagreement that were noted. This section will summarize the major points of disagreement.

### 1. Legislative Mandate Under HSRA

Section 12-8-91 of HSRA states:

It is declared to be the public policy of the State of Georgia, in furtherance of its responsibility to protect the public health, safety and well being of its citizens and to protect and enhance the quality of its environment, to require corrective action for releases of hazardous wastes, hazardous constituents, and hazardous substances, without regard to when such releases may have occurred, into the environment that may pose a threat to human health or the environment.....

During the Dialogue, Participants differed on what the mandate of the EPD should be in carrying out the legislative intent of the HSRA program – e.g., what is meant by “protectiveness,” and what types of corrective action are necessary to achieve the requisite level of protectiveness. To what extent should the HSRA program balance the costs to responsible parties and to the trust fund of implementing corrective action against

the environmental, health, economic and other impacts on communities due to the presence of contamination?

One of the major points of contention is how to deal with contamination in place where steps can be taken to eliminate exposure pathways. Generally, the regulated community seeks the least costly option for dealing with unacceptable risks. They believe that there are acceptable corrective action alternatives that would meet the protectiveness mandate by leaving some contamination in place, subject to institutional or engineering controls to eliminate exposure routes. They believe that this position is consistent with the Georgia Administrative Code's statutory requirement that an agency select the less expensive regulatory alternative that will fully satisfy the stated objectives of the statute. The regulated community believes that the corrective action costs required to comply with HSRA site specific risk reduction standards (Types 1-4) are now made greater than necessary to protect human health and the environment in large part because chronic exposure is presumed to occur from all points of soil and groundwater contamination and contamination removal is now the principal preferred means of corrective action under HSRA. The regulated community believes that the HSRA program should recognize the wide array of corrective action measures that can satisfy HSRA's mandated to protect human health and the environment. It was pointed out repeatedly that the preference for removal of contamination simply means that the contamination is being moved from one place to another, creating a potentially new set of problems at the new location.

EPD officials and environmental, community and public health representatives, believe that contamination should be removed, where feasible, so that it will not continue to pose a threat. This view is influenced by a number of considerations. First, there is much uncertainty about the ability of risk assessment methodologies to accurately measure risk and account for synergistic effects of a "chemical soup." Second, it is difficult to predict or control the fate and transport of contaminants left in place, even under the most-well intentioned conditions. Contaminants left in place in groundwater can potentially migrate further and into deeper aquifers, or exposure to contaminants can occur through uses of groundwater that may not be known, cannot be predicted, and cannot be reliably managed by state or local governments. Contaminants left in place in soils can become exposed by unanticipated actions in the future. In any event, representatives of community interests believe it is unfair to allow responsible parties (who caused the contamination in the first place, sometimes through irresponsible behavior) to leave contamination in place and thereby place increased burdens on the state and local communities to both monitor long-term use and abide by restrictions caused by institutional or engineering controls. Finally, the economic and other impacts (stigma, psychological uncertainty, etc.) of living in communities with contamination left in place must be taken into account in corrective action decisions.

## 2. Drinking Water Presumption

According to industry representatives, the result of EPD's application of a generic drinking-water presumption is that cleanup requirements at HSRA sites (for both soils and groundwater) are based on making all ground water clean enough to drink on a long-term basis, which substantially increases the cost of cleanup at many HSRA sites in Georgia. Representatives of the regulated entity Participants propose that the presumption that all groundwater is a potential source of drinking water, at the very least, be made rebuttable under circumstances where it is unlikely that the groundwater could ever be used for drinking water and that the regulations be amended to allow incorporation of site-specific exposure assumptions that are not based on the presumption – that in such cases, determinations of Type 2 and 4 risk reduction standards be based on more realistic site conditions and related exposure scenarios. The regulated community Participants believe that a variety of factors could serve as a basis for site-specific decisions and would be consistent with the Georgia State Groundwater Plan, including:

- proximity of sources of contamination;
- available sources of drinking water supply;
- aquifer discharge points and relationship to deeper aquifers;
- aquifer yield and baseline water quality;
- codes of law and zoning; easements, deed restrictions, and restrictive covenants; and,
- other factors relevant to site-specific ground-water use and point-of-compliance determinations.

The regulated community interests cite the Georgia State Groundwater Protection Plan, at page 4-19, for the proposition that there is recognition in the state that not all groundwater is a likely or feasible future source of drinking water. The Plan provides that cleanup levels may be less stringent than drinking water standards upon an evaluation of site-specific factors such as “likelihood of potential use, risks, cost, technological practicality, and negative environmental factors (e.g., dewatering of aquifers) and that EPD may approve higher (i.e., non-drinking water) standards in “low risk areas not proximal to public and private sources of drinking water.”

EPD representatives expressed concern about any changes to the approach of presuming that all groundwater in Georgia may be a source of drinking water. EPD representatives were not in favor of a change in approach to groundwater or to amending the regulations to include the factors listed in the Groundwater Protection Plan, citing a preference to preserve flexibility in addressing site-specific factors. EPD representatives noted that the EPD does not in all cases require responsible parties to implement affirmative groundwater remedies in order to clean up contaminated groundwater to drinking water standards – that EPD has approved Corrective Action Plans (CAPs) where groundwater is not in compliance with drinking water standards. It was not clear whether such CAPs were approved for only Type 5 sites or at sites subject to Type 1-4 standards. A site remains listed as long as Type 1-4 standards are not met, so the suggestion is that some sites have approved Corrective Action Plans for Type 1-4 standards that implicitly or explicitly acknowledge that Type 1-4 standards will not be attained (possibly making

such sites eligible for Type 5 treatment). As for revising delisting criteria to allow for delisting even if groundwater is not in compliance with risk reduction standards, EPD representatives noted that they consider it one of the Agency's paramount duties to inform the public about the presence of contaminated groundwater in their community, and that the HSI is the primary means by which the Agency carries out this obligation.

Environmental and community representatives were not in favor of changing the way the HSRA program treats groundwater, noting the importance of groundwater as a potential drinking water source throughout Georgia. It was noted that the premise underlying the industry recommendations is that aquifers are static, that leaving contaminated groundwater beneath a site is acceptable because it will not change its flow patterns. However, groundwater is constantly moving and changing (i.e., flow patterns, recharge, etc.). It was also noted that the cost of leaving contaminated groundwater in place is then transferred to surrounding communities in the form of property depreciation, cost of city water hook-ups, point of consumption controls, restrictions on use of private wells, etc.

The discussion on groundwater ultimately evolved from the drinking water presumption itself to the point of compliance issue – assuming that the all groundwater is required to meet Types 1-4 standards, the regulated community proposed that a more feasible point of compliance be allowed. This was addressed in the Type 5 groundwater provision that was agreed to by the Participants (discussed above in the previous Section of this Report). However, regulated entity Participants still favor changing the presumption as it relates to Type 1-4 Standards, with respect to both approval of corrective action plans (at a minimum) and delisting.

### **3. Cost-Effectiveness of HSRA**

During the Dialogue, representatives of industry and commercial interests were able to produce limited data on the additional costs associated with elements of the HSRA program. Generally, this data consisted of actual case examples or generic examples. Discussion of the actual case examples revealed that there often was disagreement over the facts and circumstances of a case, and no agreement on whether the case shed any useful light on the cost-effectiveness of the program. Representatives of the regulated community believe that it is reasonable to use a generic example to show how an element of the HSRA program (e.g., the assumption that every point in soil must meet a Type 1-4 standard, as opposed to an average) will lead to greater volumes of soil removal, and greater than necessary costs. They noted that they do not have the data that show the number of actual sites where a particular requirement has come into play and the actual incremental costs incurred. However, while generic case examples were helpful in outlining issues and indicating potential cost impacts of certain elements of the HSRA program, they generally were not perceived by EPD, community, and environmental representatives as shedding much light on the actual costs of the program.

In summary, the level of cost data presented was insufficient to enable the Participants to develop a consensus on whether the HSRA Program is or is not cost-effective, in whole or in part. It was also noted by environmental and community interest representatives that the costs presented by the regulated entity interests were only costs of investigation and remediation, and completely overlook the adverse economic and other impacts on the community of leaving contamination in place.

#### **4. Use of Exposure Area Averaging to Demonstrate Compliance with Type 1-4 Standards**

The regulated community made numerous recommendations to change the HSRA program. The most significant were to revise Type 1-4 streamlined exposure assumptions in order to reduce the large volumes of soil and groundwater subject to corrective action. The groundwater issues were addressed primarily in the context of the drinking water presumption discussed above. As noted, the groundwater discussion ultimately focused on establishing a more reasonable point of compliance for groundwater, and this element, was addressed by the proposed Type 5 groundwater provision.

As to soils, currently there is no flexibility under Type 1-4 standard application to consider exposure area, and standards are now applied as a "bright line" to each individual point across the site. An exceedance at a single point in soils requires excavation or treatment. Representatives of the regulated community proposed that the HSRA regulations be amended to incorporate the "Exposure Area Averaging" procedure utilized by EPA -- looking at the upper 95% confidence limit of the mean within an exposure area to determine whether a site poses a risk and provide information on the extent of remediation of soils.

EPD representatives were reluctant to amend the Type 1-4 standards to allow exposure area averaging to be used, citing the increased burden on staff resources, and the likely resulting delay in cleanups resulting from disagreements over the extent of sampling and analysis required under this methodology. Environmental and community representatives expressed similar reluctance, noting the potential for abuse from such increased flexibility. It was noted, for example, that different sampling protocols can produce dramatically different results. If composite samples are allowed, the sampling results may include composites of samples at various depths. If lower depth samples show much lower concentrations of a chemical than a surface samples, a composite sample will be the average of the two, significantly skewing the results and not accurately reflecting the potential risks from exposures to surface soil concentrations at the site.

Although consensus could not be achieved on revisions to Type 1-4 standards to allow exposure area averaging, agreement was reached to allow this methodology as an option for Type 5 sites.

## **5. Type 1 and 2 Standard Soil Exposure Depth Assumptions**

Type 1 (generic) and 2 (site-specific) risk reduction standards are based on long-term exposure to soil at all depths down to the water table. Industry representatives proposed that it would be reasonable to apply a surface soil exposure model, or at least site-specific exposure assumptions to soils for residential standards. With respect to Type 1 and 2 residential standards, there was some discussion about whether it is appropriate to maintain the full soil depth exposure assumption for single-family houses while allowing sites with current or planned multi-family houses to be subject to the revised soil depth exposure scenario, under certain restrictions. Multi-family dwellings are normally owned and operated by single entity, who can more easily implement restrictions on use of the property (i.e., an occupant of single-family home can dig up soil to build a swimming pool, while an occupant of a multi-family dwelling cannot). No consensus was reached on this issue, in part, due the emerging concerns over the increased inhalation risks presented by certain contaminants in subsurface soils, particularly volatile organics.

## **6. Type 3 Generic Standard for Soil Leachate**

Currently the generic Type 3 non-residential risk reduction standard for soil leachate is based on the Type 1 residential drinking water criteria. In light of the fact that the non-residential drinking water exposure scenario is 6,250 liters per year compared to a residential drinking water exposure scenario of 21,000 liters per year, industry representatives proposed that the Type 3 non-residential criteria be revised to reflect this reduced exposure – for example, on this basis the Type 3 standard would equate to 3.36 times the Type 1 standard.

Consensus was not reached on this proposal. EPD has requested the calculations that formed the basis for the regulated community's proposed revised generic Type 3 soil-leachate criteria.

## **7. CSR Requirements Applicable to Sites that are Listed on the HSI Only Because of Soil Contamination**

The listing criteria are based on a binary system driven by the RQSM methodology. In cases in which a site would not be listed for groundwater (because the RQSM methodology takes exposure points into consideration), but is listed for soil, the regulations require that the site be fully characterized for all media, including groundwater. Once listed for any reason, therefore, the entire panoply of CSR requirements come into play. Members of the regulated community proposed that CSR requirements only be applicable to the soils if the site does not exceed the RQSM for groundwater. They also noted the apparent inconsistency of having a site listing criterion that takes into account groundwater exposure routes while such exposure routes (or the absence of exposure routes) are not taken into account in determining compliance with Type 1-4 Standards.

Because the RQSM is only a screening method, EPD does not believe that it should be the basis for determining the scope of investigation and corrective action once a site is listed. EPD representatives mentioned that they have encountered sites where the RQSM was not exceeded for groundwater, but where subsequent characterization for groundwater indicated contamination at concentrations in excess of Type 1-4 standards.

#### **8. Steps to Mitigate Abuse by Technical Consultants, Including Biased Sampling and CSR Submittals.**

Representatives of environmental and community interests suggested a number of ways to stop what they perceive as abuse of the HSRA program by technical consultants. A number of steps to mitigate biased sampling and CSR submittals were identified including:

- The EPD should take action to stop the exclusion of COCs that are present through defective incremental investigations;
- The EPD should be able to determine sampling locations, depths, and list of chemicals to be analyzed at sites where the RP submits deficient site investigations;
- Groundwater sampling must be done at a rate of flow that would be expected by neighboring properties or future use of the property;
- Data that fails to meet minimum acceptable analytical detection limits should not be used in risk assessments;
- Manipulation of data by responsible parties and their technical consultants, including withholding of data is a problem that needs to be corrected by the EPD.

These specific recommendations were not discussed in detail, and no specific consensus was reached on steps that EPD should take in this area.

On the question of what general steps may be available to provide disincentives to consultants who may be responsible for abuses of the system, some community representatives suggested that EPD take action to have professional licenses revoked. However, EPD representatives, as well as a number of other Participants in the Dialogue did not favor EPD involvement in professional licensing proceedings. Many Participants believe that more aggressive enforcement by EPD against responsible parties is the best way to address perceived abuses by both responsible parties and certain consultants. It should also be noted that there was no consensus on the extent to which technical consultant abuse of the HSRA program represents a problem. Technical consultant representatives emphasized that disputes over the sufficiency of a CSR submission often are a product of honest disagreements between the consulting community and EPD officials.

## 9. Type 5 Eligibility Criteria

One of the more significant issues on which there remains disagreement concerns the eligibility criteria for Type 5 Standards. In order to clarify the criteria for determining eligibility for Type 5 standards, and in order to facilitate changes to allow for Type 5 for groundwater and exposure area averaging, EPD proposed that the HSRA regulations be amended to more sharply delineate two criteria (whether an available corrective action to meet Type 1-4 standards would be “cost prohibitive” or “technically impracticable”) that should be taken into account by the Director in determining eligibility for Type 5 treatment. EPD also sought, with its proposed language, to clarify the circumstances under which removal or treatment of source material and soils to Type 1-4 standards would have to occur before Type 5 standards would be allowed, to clarify the distinction between engineering and institutional controls, and to discourage use of institutional controls as a substitute for removal, treatment, or engineering controls. In response to concerns raised by the community and environmental interest Participants, the EPD also agreed to add language requiring the Director to consider economic and other impacts on the surrounding community in determining whether a site should be eligible for Type 5.

The proposed language, on which agreement has not been reached, would amend Section 391-3-19-.07(10) as follows:

*(a) Type 5 standards allow, in those instances where compliance with Type 1-4 standards is technically impracticable, cost prohibitive or otherwise not appropriate application of Type 1-4 standards is not appropriate under present circumstances, the use of removal, treatment, and engineering and institutional controls measures to control the regulated substances or the property where the regulated substances are located. In considering whether Type 5 standards should be allowed, the Director shall take into consideration the impacts of the use of Type 5 standards on the surrounding community. For sites where a Type 5 standard is being sought, removal and treatment shall be used to achieve compliance with the appropriate Type 1-4 standards for all regulated substances that are not technically impracticable, cost prohibitive or otherwise not appropriate to remove or treat to Type 1-4 standards; all regulated substances that can be removed or treated to the Type 1-4 standards must be removed or treated. Engineering controls may include, but not be limited to, fences or other constructed barriers, caps, slurry walls, or stabilization, solidification, or fixation of the regulated substances. Such measures may consist of engineering controls such as construction of a fence, placement of a cap, installation of a slurry wall, or stabilization/solidification/fixation of the waste or waste residues. Institutional controls may consist of covenants, easements, notices or other non-physical means to limit or control exposure to releases of regulated substances. Under Type 5 standards, removal, decontamination, or treatment are used where appropriate to remove the principal threats at a site. The responsible party has the burden of being able to must demonstrate to the satisfaction of the Director that the particular mix of removal, treatment and/or engineering and institutional controls control measures is appropriate to eliminate or abate present and future threats to human health and the environment. Institutional controls alone should not be substituted for removal, treatment or engineering controls*

unless removal, treatment or engineering controls are determined to be technically impracticable, cost prohibitive or otherwise not appropriate active remedial measures unless such active measures are determined not to be practicable.

Compliance with Type 5 standards requires long-term monitoring and maintenance, proof of adequate financial assurance as appropriate for implemented remedial measures, plus a restrictive covenant provided in accordance with Rule 391-3-19-.08(7).

Compliance with Type 5 standards requires that Type 1, 2, 3, or 4 risk reduction standards, as applicable, be met beyond the boundary of the area for which compliance with Type 5 standards are sought whenever implementation of removal, treatment, and engineering and institutional controls remedial measures is complete.

Removal treatment, and engineering and institutional controls Remedial measures designed to achieve compliance with Type 5 standards shall be consistent with the general requirements of Rule 391-3-19-.07(10)(a) and meet all the following performance criteria:

Environmental and community interest Participants object to the terms “technically impracticable” and “cost prohibitive” as criteria for determining whether a site should be eligible for Type 5 treatment. They believe that these terms do not adequately take into account the myriad impacts on the surrounding community of Type 5 sites. The only economic criterion they believe should be taken into account is the economic impact on the community. Regulated entity Participants also have expressed concern about EPD’s proposed language, since it is not clear whether EPD’s intent is to allow more sites to be considered for Type 5. In addition, regulated entity Participants are not in favor of EPD’s proposal to require Type 1-4 Standards to be met at all locations at a site where it is feasible before allowing portions of a site to be eligible for Type 5 treatment. EPD representatives see this as consistent with the Operable Unit concept utilized by EPA. As an example, it may be feasible to conduct a surface soil cleanup to Type 1-4 Standards while treating subsurface contamination under Type 5 provisions.

In summary, regulated entity Participants believe that making more sites eligible for Type 5 Standards will significantly decrease costs of compliance while fully protecting human health and the environment. This is particularly true in light of the fact that EPD representatives do not appear to be willing to change exposure assumptions that underlie Type 1-4 Standards or the preference for removal or treatment to meet Type 1-4 Standards. Community and environmental interest Participants are not in favor of changes to the regulations that would have the effect of leaving more contamination in place. EPD representatives have indicated that they do not intend, through their proposed language, to significantly increase the number of sites eligible for Type 5. However, EPD representative expressed a willingness to proceed incrementally, through the Type 5 window, to determine whether it is possible to achieve any greater balance between corrective action costs and technical practicability, protection of human health

and the environment and the concerns of local communities. They see the clarification of Type 5 eligibility criteria, in concert with provisions allowing Type 5 for groundwater and exposure area averaging for Type 5 soils, as a first step towards that end and to making the HSRA program more cost-effective.

**SUMMARY OF ISSUE THAT THE PARTICIPANTS RECOMMEND ADDRESSING FURTHER**

The Dialogue has not produced any agreement on issues that should be addressed further.