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8 Regulatory Perspective

In 2018, the ITRC completed a state survey to gauge the extent of familiarity and use of ASCTs by regulators and identify the limitations and barriers to achieving wider acceptance and use of these tools. This section provides a brief summary of the 55 contacts who responded to the survey, representing 37 states plus Puerto Rico. Some states provided multiple responses. Results are presented indicating the percentage of respondents. Respondents were not required to answer every question.

Of the 55 people responding to our inquiry about their level of experience with ASCTs, most (85%) were very familiar with ASCTs. Forty respondents reported that they had limited or moderate experience and two reported that they were very experienced. Slightly over 50% of the respondents had used ASCTs on only a few (<10) sites; the rest reported more extensive experience using ASCT.

The ITRC specifically queried states on the following technology groups:

- direct sensing (downhole) tools (for example MIP, HPT)
- borehole geophysical tools (for example televiewer, flow meters)
- surface geophysical tools (for example GPR, EM, seismic surveys)
- crosshole geophysical tools (for example seismic, ER)
- remote sensing (for example aerial surveys)

Respondents were most familiar with downhole direct sensing tools, borehole geophysical tools, and surface geophysical tools. With downhole direct sensing tools, it appears that respondents generally have the most experience with MIP and LIF (UVOST®). Respondents use HPT less frequently, and OIP is used even less. Use may be a function of when the tool was introduced to the market. MIP and LIF have been on the market since about 2007, HPT became available about 2015, and OIP became available about 2016. Respondents seem to have the most experience with EM and GPR surveys (surface geophysical tools), with reported usage that greatly exceeds the usage of seismic tools. This increase experience may be due to the extensive use of EM surveys to locate buried steel tanks and the use of GPR to identify tanks and utility lines. Seismic surveys generally do not have sufficient resolution to identify small- or near-surface objects and calibration, processing, and interpreting seismic data is more difficult and therefore subject to additional error. Cross-hole geophysical tools and remote sensing surveys were used the least frequently. Possible reasons include cost, limited availability, lack of stakeholder familiarity, and applicability (that is, the techniques were judged to be unnecessary for the project due to small size, contaminant type, or geology.).

Many respondents reported that ASCTs were advantageous when used after a new or catastrophic release event, and 87% reported that ASCTs were most advantageous when used for sites that had not achieved remedial objectives. Most also agreed that ASCTs were very useful for remedial purposes. In these situations, ASCTs were used to obtain specific technical information often after traditional site characterization methods had produced unsatisfactory results. Although survey results show that the regulatory community recognizes that using ASCTs can be beneficial, the respondents were generally neutral on whether their state would recommend or require use of ASCTs. The general consensus from comments was that the responsible party and its consultant should evaluate and recommend how to investigate a release site. It was acknowledged that, in some circumstances, responsible parties and consultants wished the regulatory agency would initiate a discussion of ASCTs.

8.1 Challenges and Solutions

Distinct challenges must be overcome to increase the use of ASCTs. Resolving these challenges should be a consideration for all stakeholders. In spite of the perception that using ASCTs is beneficial, respondents noted the following barriers to their effective use: cost, lack of understanding of tool capabilities, lack of training for interpreting the data collected, and lack of ASCT availability. Regulatory issues and other considerations were reported as less significant barriers.

8.1.1 Cost

Cost was the most frequent barrier reported in the survey. Eighty-seven percent of those who responded indicated that costs were the primary barrier to ASCT use; 71% responded that costs would be a consideration in selecting an approach, potentially because the site investigation is being paid with government funding. Approximately half of the respondents reported that their state would reimburse or otherwise pay for using ASCTs, and cost versus perceived benefit (reduced remedial time and cost) would be one of the most important considerations for selecting ASCTs over more traditional methods. Some states have overcome cost uncertainty and by soliciting bids for contracts that include ASCTs to establish per-foot or per-sample rates. Other possible solutions include drafting work plans to solicit prices on a case-by-case basis from companies using ASCTs, requesting consultants to provide itemized cost comparisons for using ASCTs as an alternative to more traditional methods, and controlling costs by limiting ASCTs to specific scopes of work or certain types of sites.

8.1.2 Lack of Understanding

The lack of understanding and knowledge of the tools appears to be equally shared among the regulatory community, the consultant, and the responsible party. This lack of understanding appears in two parts: the need to understand the operation, capabilities, and limitations of ASCTs and the need to independently interpret the data so the consultant and regulator can confirm data, make site decisions, and take actions based on the data. Too often consultants and regulators rely solely on the ASCT vendor for data interpretation or vendor assistance with data interpretation is incomplete or not included in the scope of work. These interpretations may not take into account relevant site information that the vendor may not know.

8.1.3 Lack of Training

The lack of training, familiarity, and experience with ASCTs by regulators are reflected in the paucity of state guidance. Only five states in our survey have guidance for the appropriate use of ASCTs and only one (Wyoming) offered detailed information. Guidance documents signal regulatory acceptance of ASCTs, even if only under certain circumstances or parameters, and encourage the knowledge and use of ASCTs.

One solution may be for industry to inform and train regulators and encourage regulators to suggest that consultants consider using ASCTs when regulators believe these tools may be appropriate. Consultants often hesitate to propose actions they fear regulators will not approve, worrying it will cause clients to doubt their expertise. Coincidentally, some responsible parties fear that using ASCTs will reveal previously unknown contamination, increasing project lifetime and liability. In fact, ASCTs are likely to reveal conditions that allow reductions in such concerns.

8.1.4 Availability

A general lack of ASCT availability is identified as a third major hurdle. As might be expected, all ASCTs are not useful in all geographic areas. A partnership between the ASCT industry to train regulators and consultants how to use ASCTs and interpret the resulting data seems to be a path forward to regulators becoming more accepting of the tools. Increased usage should result in increased availability and decreased costs. This transition is likely to take at least a decade because each step is interrelated and interdependent. Perhaps if vendors offered incentives for ASCT use (for example, reduced mobilization fees, multiday discounts), there would be more motivation to propose ASCT use and prove their benefit.

8.1.5 Regulatory Issues

Survey respondents generally reported that their agency either suggests or recommends using ASCTs, yet regulatory issues were reported to be a primary barrier by 7% of respondents. Regulatory issues may include the inability to approve or pay for innovative technologies or the requirement that physical sampling and laboratory analysis is necessary to support decisions. In the latter case, using ASCTs is deemed extraneous or not cost beneficial). ASCTs do not replace but *complement and enhance* the interpretation of data gathered by traditional methods. Compliance with regulatory requirements and meeting the technical needs of a project may require variations in how ASCTs are applied (for example, using ASCTs in a limited capacity while using traditional methods for confirmation or limiting ASCT use to source-zone determination or treatment).

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