

**Use of Risk Assessment in
Management of Contaminated Sites**

August 2008

**Prepared by
The Interstate Technology & Regulatory Council
Risk Assessment Resources Team**

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444 North Capitol Street, NW, Suite 445, Washington, DC 20001**

EXECUTIVE SUMMARY

The Interstate Technology & Regulatory Council's (ITRC) Risk Assessment Resources Team examined the use of risk assessment and risk-related practices in the management of contaminated sites through a series of case studies. The influence of risk-based practices and risk assessment approaches employed by state regulatory agencies on risk management outcomes was our primary interest.

Debate and controversy invariably surround the development of a risk-based numerical criterion for a chemical. The team's previous report on risk-based soil screening values determined that, for the most part, states follow a similar process and only minimal variation results in risk-based numerical criteria. In the development of this overview document, the team determined that the implementation of risk-based numerical criteria—the way in which the criteria are used in the field and in the management of contaminated sites via risk assessment—introduces orders of magnitude of variation in decision outcomes. Thus, while it is generally no surprise to risk assessors, risk managers are advised that field implementation of risk-based numerical criteria deserves far more attention than that subject has historically been given.

The approach of the Risk Assessment Resources Team in producing this overview document is to reflect the outcome of some of the more common practices and approaches employed in site cleanup back to ITRC's members. To this extent the team believes it is shining a light on a significant matter not addressed elsewhere.

Traditional case studies were conducted on five sites where risk assessment or risk-based principles and practices were used. The team observed that while many traditional stumbling blocks to site cleanup were apparent, several innovations and unique approaches—field screening methods, composite sampling, and probabilistic risk assessment—enhanced both the assessment and management of risk at several sites.

The team then developed an approach that came to be known as the “comparative case study.” State and federal representatives were provided the same data sets and asked to address key issues in the risk assessment and risk management process. The results were then as directly comparable as possible.

The comparative case studies presented herein enabled the Risk Assessment Resources Team to pinpoint steps in the risk assessment process where variations can lead to differences in risk management outcomes. As a result, recommendations were team-developed guidance to not only identify the likely sources of variation in risk assessment but also identify the resulting variation in risk management. In addition, the team recommends not only that the site assessment/remediation process focus the appropriate resources to ensure a high level of transparency and predictability, but also that systematic project planning principles with robust and continually evolving conceptual site models be incorporated throughout the assessment/remediation process.