

1.1 INTRODUCTION

The Department of Natural Resources (department) oversees response, characterization, risk assessment, and risk management under a variety of authorities at over two thousand contaminated sites in Missouri. Many more sites are in an early stage of investigation or as yet unknown to the department. The impetus and philosophy behind **Missouri Risk-Based Corrective Action** (MRBCA) is to provide a framework for cleanup decisions that facilitates the constructive use of contaminated sites by protecting human health and the environment in the context of current and future site use. This framework can streamline the process of site cleanup and closure and focus finite resources on sites with the highest current or potential risks to human health and the environment.

Risk management and associated activities at contaminated sites cross departmental programs and divisions. Within the Hazardous Waste Program, a number of state and federal cleanup authorities work together, such as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), federal and state-equivalent Resource Conservation and Recovery Act (RCRA), Brownfields/Voluntary Cleanup Program (B/VCP), and Petroleum Storage Tanks (PST). The Water Protection, Land Reclamation, Air Pollution, and Environmental Services Programs and Division of Geology and Land Survey are often involved in risk management decisions.

In addition, the Missouri Department of Health and Senior Services (DHSS) is responsible for protecting and promoting public health. In this capacity, it may conduct or review risk assessments, provide review and comment on site characterization and remediation plans, and advise the department on risk management decisions.

While the primary objective of each authority is to protect human health and/or the environment, the specific decision-making framework to achieve this objective can vary among the authorities and programs. Further, the science and available technologies of site characterization, risk assessment and risk management have evolved considerably in recent years. Therefore, this guidance is written to provide a more consistent and predictable regulatory process for responsible parties, development interests, landowners and other entities that are involved in the evaluation and management of contaminated sites. (In this document, these entities and their designees are referred to collectively and generically as the “remediating party”).

Because of the tremendous interest in the MRBCA process, the department developed this guidance in association with a formal stakeholder group, called the Risk-Based Remediation Rule Workgroup (Workgroup). This effort led to the development of a department-wide, risk-based program. This same Workgroup also worked together to produce the *Missouri Risk-Based Corrective Action (MRBCA) Process for Petroleum Storage Tanks* (first published in February, 2004), which applies specifically to petroleum storage tanks.

This department-wide program should provide (i) a scientifically defensible and consistent framework to make decisions related to site characterization, risk assessment and risk management and (ii) a predictable regulatory process for property owners and developers. An additional benefit may be a reduction in the overall costs of these activities. Although applicable laws do not allow cost considerations to compromise human health, public welfare or the environment, the department recognizes the need to promote cost-effective site characterization and cleanup activities.

This technical guidance describes the key elements and methodologies of the MRBCA process. It is consistent with the risk-based corrective action standard developed by the American Society for Testing and Materials (ASTM E1739-95). However, it has been modified to account for the large variety of sites and contaminants for which it is applicable and in response to input from the Workgroup.

1.2 APPLICABILITY

In general, this guidance applies to contaminated or potentially contaminated sites. It provides a methodology to conduct site-specific characterization; calculate risk-based levels protective of human health, public welfare and the environment; and implement appropriate risk management activities including any long-term stewardship requirements. In short, the guidance should orchestrate the restoration of contaminated sites (and sites perceived to be contaminated) for safe reuse. Although the department does not intend to re-open sites previously closed under other programs, this guidance will be applicable to new releases discovered at previously closed sites, newly discovered sites, on-going cleanups, and site reviews where a different use is being contemplated than planned for at the time of closure. Questions about specific applicability of this guidance to any particular CERCLA or RCRA site should be addressed to those sections of the Hazardous Waste Program that implement those authorities.

The MRBCA process is applicable to numerous authorities under which the department oversees site characterization and cleanup activities. A brief overview of the department's programs and authorities related to remediation is discussed in Section 3.0. However, the MRBCA process does not in any way supercede or change applicable federal statutes and regulations. It does not supercede the requirement that state programs authorized by the USEPA (for example, RCRA) that are operating in lieu of the federal program be at least as stringent as the federal program. It does not change the federally mandated, program-specific administrative, technical and notification requirements on either a remediating party or regulators. For petroleum storage tanks, a parallel risk-based process is described in the most recent edition of the **Missouri Risk-Based Correction Action (MRBCA) for Petroleum Storage Tanks**.

A review of the department's regulatory authorities has indicated that the department has the authority to use risk-based decision-making at contaminated sites, and in fact the department has applied a risk-based process to many sites. MRBCA may be used in hazardous waste

enforcement cases where the department and a remediating party enter into a binding or enforceable agreement (such as a permit or order) that states how and when MRBCA applies to a specific site. MRBCA may be also used in instances where the department and a remediating party enter into a voluntary agreement such as an expedited corrective action letter of agreement. This guidance is intended to complement the MRBCA rule when it is in effect. If there is any conflict between the guidance and the rule, then the rule prevails.

When used, this approach is applicable to all media and the entire contaminated site. Neither the remediating party nor the regulators can pick or choose portions of the media or sites to which this process will apply.

This technical guidance has been written for environmental professionals who have experience in site characterization, risk assessment and risk management. Because the development of risk-based target levels is an integral part of the overall process of risk management and has not been previously described in any of Missouri's guidance documents, the calculation of risk-based target levels is described at length in this guidance. However, it is not intended to be a guide to every aspect of the practice of site characterization, risk assessment or risk management. Prior experience or training is necessary for an individual to correctly implement the MRBCA process and, by that, ensure efficient and safe site management. The department also recognizes that every site is unique and that no single guidance document can cover all the scientifically available methods for characterizing and remediating sites.

The department expects that the MRBCA process and its associated policies, procedures and assumptions will evolve as environmental professionals (regulators, consultants, responsible parties, and others) and the public gain familiarity with the process. Thus the department anticipates revising and updating this document from time to time in accordance with Appendix A, Updates and Revision to the MRBCA Technical Guidance.

1.3 LONG-TERM STEWARDSHIP

As part of a risk-based program, knowledge of and adherence to the department-approved, safe uses of any site must be ensured for as long as the site has any residual contamination above unrestricted use levels. Therefore, the MRBCA process requires that, to fully protect human health, public welfare and the environment, an appropriate system of controls, institutions and information - referred to as "Long-Term Stewardship" - will be an integral part of Risk Management Plans.