AN RPM’S PERSPECTIVE ON BIOAVAILABILITY USE IN THE DECISION-MAKING PROCESS

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Bioavailability acceptance, within ecological risk assessments, varies greatly among states, federal regulators and other stakeholders. Acceptance of the results of site specific toxicity tests have been accepted, and these tests inherently incorporate bioavailability into the test results. For assessment endpoints which must be evaluated by dietary exposure, incorporation of bioavailability becomes more problematic. The initial exposure models typically use the assumption that 100 percent of the contaminant is bioavailable; while most risk assessors agree that this assumption is inaccurate. However, no national guidance exists on appropriate “off the shelf” media-specific availability adjustment factors. Also, the degree of experience and knowledge of contaminant specific environmental chemistry and toxicology varies greatly within the stakeholder community. Consequently, the “comfort level” with proposed adjustments to contaminant bioavailability of the decision makers and stakeholders varies greatly. Additionally, decision makers may be called upon to defend and explain the risk assessment and cleanup decisions to an often skeptical and concerned public. For these reasons application of bioavailability adjustments are typically approached with caution and remain conservative.

Prior to any decision to develop a site-specific bioavailability adjustment, it is important to determine if the adjustment will significantly impact the costs and scope of the remediation decision, and if the cost of the bioavailability study relative to the project costs is worthwhile. The other factors are the cost and time for the bioavailability study relative to the overall project costs. Typically, larger sites with large areas of moderate levels of contamination and/or sites with difficult or expensive remediation technologies have the greatest potential for bioavailability to impact the site decisions. Specific case studies on the use of bioavailability in making remedial decisions will be presented during this presentation.