Suggestions from Presentations

- Probabilistic analysis using more detailed models, quick turnaround
- Redox evolution for cementitious materials (Tc)
- Fractured media
- Open source
- Mechanistic representation of degradation

Suggestions (continued)

- Recognize differences in objectives and assessment questions for CERCLA and PA
- Optimize data needs and model complexity (simple models often provide insights)
- Recognize importance of source term
- Decisions are based on integrated info, not just models

Suggestions (cont.)

- Interface for generating functional relationships (generalized approach for screening)
- Capability to address multiple release processes (e.g., U chemistry and physical processes)

Suggestions (cont.)

- Management tool – decision making
- Dose tied back to source, nuclide and pathway
- Site wide: many sources, differing levels of detail, existing regulatory agreements
- Graded approach – detail related to relative risk (also need for uncertainty analysis)
- HDPE failure mechanisms and root penetration
- Bioaccumulation – addition of risks of screened facilities
- Consideration of decay products in screening

Questions/Suggestions from Audience

- Concern about computational overhead in large platform
- Consider risk tools (exposure) and recognize differences between “PA” models and fate and transport models
- Try for some short term benefits
- Caution about “factorial” number of potential processes (need to prioritize)
- Confidence bounds on uncertainty
- Rolling submodel calculations into larger uncertainty analysis (e.g., CBP)
- Tools contribute to design of waste facilities, waste forms, etc.
- Changes from diffusion to advection dominated migration in cement materials

Audience input (cont.)

- Conceptual and other epistemic uncertainties, need some guidelines
- Different exposure pathways considered for CERCLA and PA
- Plumes and information from existing sources provide useful data for conceptual model development
- Importance of understanding nature and extent of contamination to apply general RAGs tools (integration of modeling and field information for decision making)
- Appropriate use of Kds (consider solubility, other geochemical factors)
- Point of compliance (future land use assumptions)
- Consideration of uncertainties for multiple models and modeling scales and also boundary conditions and recharge assumptions for models including multiple model scales
- Ability to confirm complex model results, what can be done to “validate” the results of complex models

Meeting Summary (higher level considerations)

- ASCEM and CBP intended to provide advances to existing approaches
- Recognize importance of integrated decision making approach (models, sampling, characterization, monitoring, etc.)
- Improved efficiency and capabilities could help to optimize waste management decision making
- Existing approaches have been adequate for problems considered to date, but more challenging problems are expected benefit from improved capabilities

Summary (cont.)

- Transparency and documentation, access to and ability to use models are critical considerations for regulators
- Multiple conceptual models will need to be able to be considered (uncertainty and multiple lines of reasoning)
- Improved efficiency for uncertainty analysis (computational limitations impact current work)
- Quick turnaround, efficient approaches for more complex models helpful (debugging, short turnaround assessment times)

Summary (cont.)

- Improved degradation, geochemistry and process models helpful for more challenging problems
- Generally applicable screening approaches important for CERCLA to effectively address simple sites (low hanging fruit), and for PA to limit the number of radionuclides, pathways, etc. considered in detail (graded and iterative approach)
- Need to invest appropriate effort for exposure scenarios and surface processes, in addition to subsurface fate and transport
- DOE Sites and International experience provide a number of validation cases, demonstration sites, etc. (user opportunities)