NSR&D Status

Workshop Summaries

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Nuclear Safety R&D

- Perform a peer review of Risk Assessment Corporation WTP analysis by a team and identify

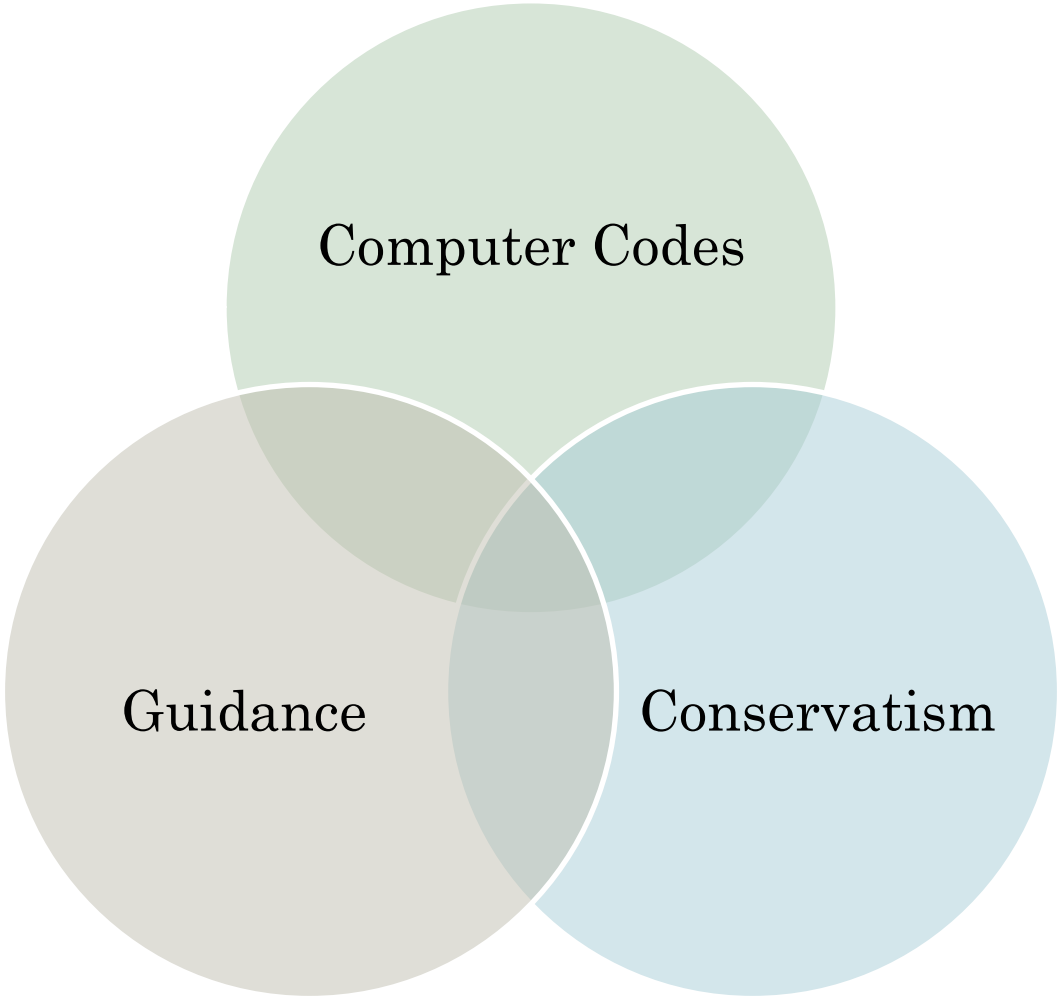
- Using other benchmarked dispersion codes, determine appropriate input parameters (including deposition velocity) for 95^{th} percentile analysis using MACCS2 code by considering representative DOE Sites.

EFCOG Safety Analysis Workshop

Large interest in dispersion modeling topics

- Presentations in Tuesday & Wednesday, May 8-9, Technical Sessions
- Panel Session, Thursday, May 10
- Breakout Session, Thursday, May 10

Dispersion Modeling Topics



Computer Codes

- Important to understand underlying code models:
  - limitations, strengths, and the trade-off of level of accuracy and degree of complexity.
- Application of Gaussian Plume Model (GPM) generally adequate for most DOE offsite receptor calculations.
- Potential GPM Exceptions:
  - Terrain: This includes sites that have terrain with irregularities
  - Close-in modeling: that accounts for the effects of neighboring structures and implements improved modeling and validation

Guidance

- What is the purpose of using the quantitative accident analysis results?
  - Accurate dose vs. regulatory gate
  - Facility design vs. evaluation of existing facility
- Use of generic X/Q curves or table
- Update Toolbox computer code guidance
- Accident Analysis Handbook- for standardization

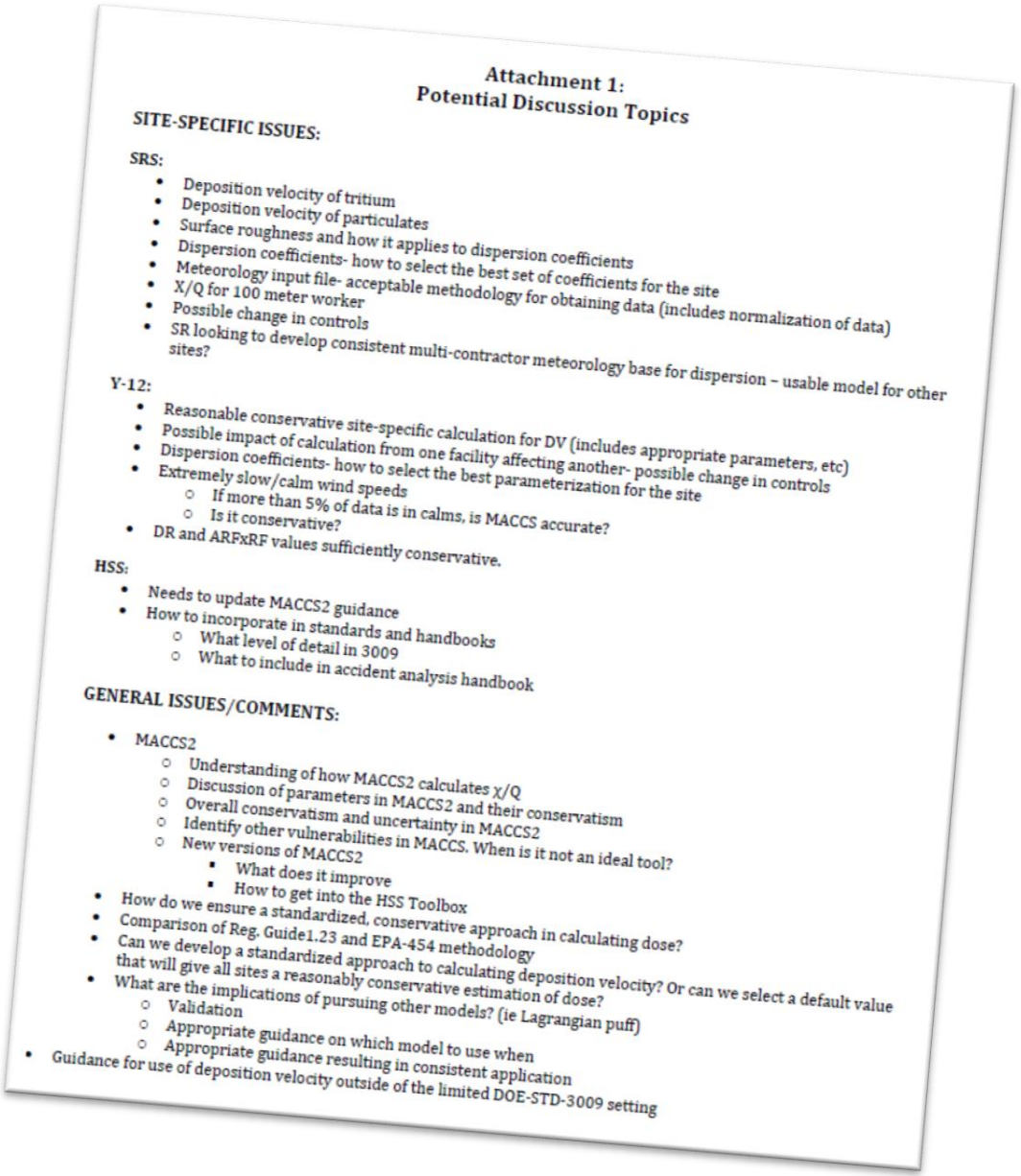
Conservatism

- Models “fit to be accurate” vs. “fit to be conservative”

Germantown Workshop Site Presentations

- Bounding or average input parameters- What is conservative?
- Appropriateness of MACCS2/Gaussian plume model for calm winds (DOE guidance?)
- If using GENII for DV calculation, is it best to also use it for determination of χ/Q? – using one model
- Are we moving from a generally bounding/conservative approach to a more realistic/precise dispersion analysis?
- Are we driving our analysis to be extremely conservative by looking at parameters individually rather than looking at the entire analysis holistically?
- Selection of input parameters is inconsistent across the sites- is this a problem?
- Need to establish "ground rules"
- Screening models vs. more probabilistic approach

List of Topics



Attachment 1:
Potential Discussion Topics

SITE-SPECIFIC ISSUES:

SRS:

- Deposition velocity of tritium
- Deposition velocity of particulates
- Surface roughness and how it applies to dispersion coefficients
- Dispersion coefficients- how to select the best set of coefficients for the site
- Meteorology input file- acceptable methodology for obtaining data (includes normalization of data)
- X/Q for 100 meter worker
- Possible change in controls
- SR looking to develop consistent multi-contractor meteorology base for dispersion – usable model for other sites?

Y-12:

- Reasonable conservative site-specific calculation for DV (includes appropriate parameters, etc)
- Possible impact of calculation from one facility affecting another- possible change in controls
- Dispersion coefficients- how to select the best parameterization for the site
- Extremely slow/calm wind speeds
  - If more than 5% of data is in calms, is MACCS accurate?
  - Is it conservative?
- DR and ARFxRF values sufficiently conservative.

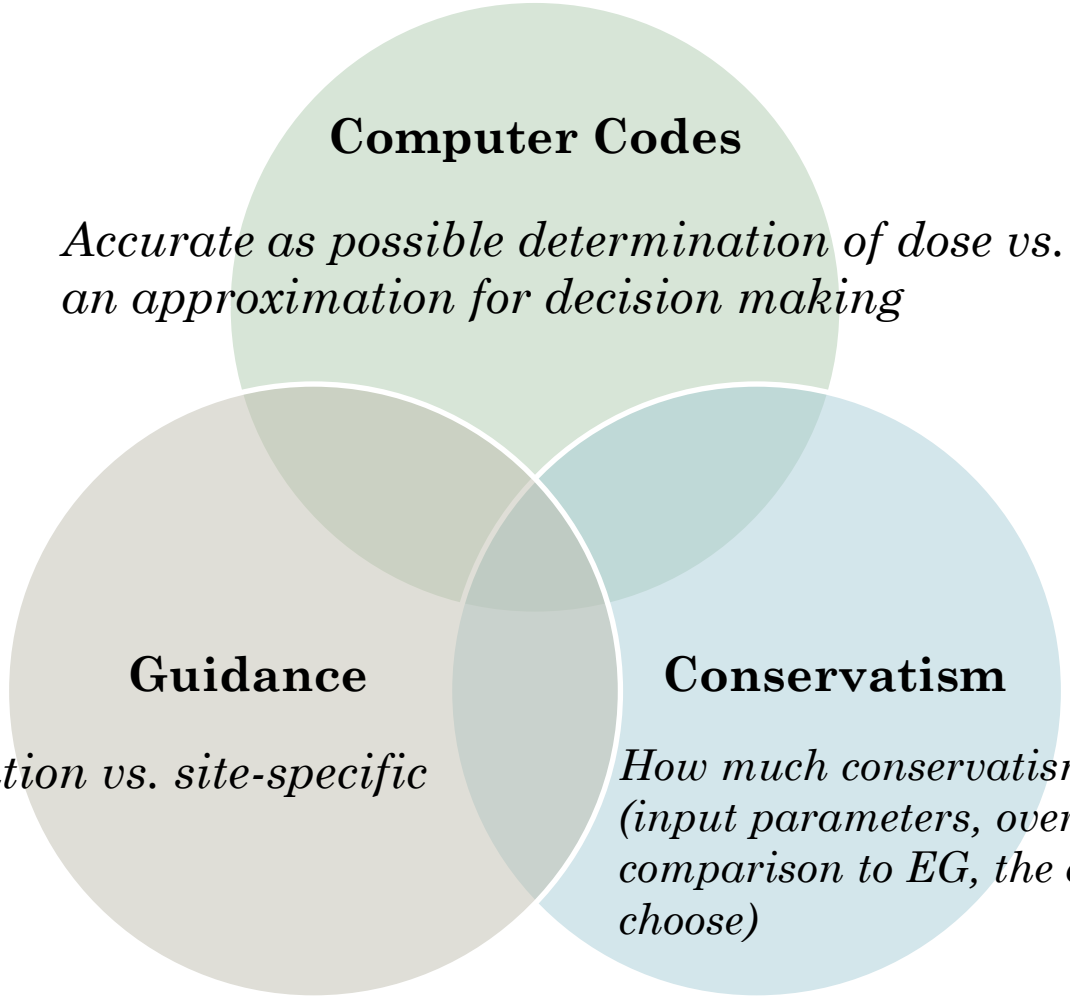
HSS:

- Needs to update MACCS2 guidance
- How to incorporate in standards and handbooks
  - What level of detail in 3009
  - What to include in accident analysis handbook

GENERAL ISSUES/COMMENTS:

- MACCS2
  - Understanding of how MACCS2 calculates χ/Q
  - Discussion of parameters in MACCS2 and their conservatism
  - Overall conservatism and uncertainty in MACCS2
  - Identify other vulnerabilities in MACCS. When is it not an ideal tool?
  - New versions of MACCS2
    - What does it improve
    - How to get into the HSS Toolbox
- How do we ensure a standardized, conservative approach in calculating dose?
- Comparison of Reg. Guide1.23 and EPA-454 methodology
- Can we develop a standardized approach to calculating deposition velocity? Or can we select a default value that will give all sites a reasonably conservative estimation of dose?
- What are the implications of pursuing other models? (ie Lagrangian puff)
  - Validation
  - Appropriate guidance on which model to use when
  - Appropriate guidance resulting in consistent application
- Guidance for use of deposition velocity outside of the limited DOE-STD-3009 setting

Dispersion Modeling



Depending on these things, you get very different answers

Questions

- Do we need site-specific methodologies?
- How do we establish appropriate conservatism?
- Where do the sites need to help resolving their specific issues?