BREAKOUT SESSION

Group 1: Planning

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Introduction

Breakout Group 1 considered what is required during the planning phase of a crisis. The group looked at four scenarios—a surface release of Sarin in an urban setting, explosion of a "dirty nuke," aircraft impact with a nuclear power plant facility, and the airborne release of anthrax. The timeframe for the planning phase was defined to be the time period that starts with the planning for a potential or anticipated threat and ends with the time of the actual incident. The actions and requirements for each scenario were prioritized as high, medium, or low. A number of considerations and other issues were identified.

<u>Considerations during planning:</u>

- What could happen?
  - Most probable (credible).
  - Worst case.
  - Devise mitigation strategies.
- Importance of meteorological conditions.
  - Sources of data for planning studies.
  - Sources of data for actual events.
- Other locations (in addition to urban, including ports, sports events, complex terrain) to investigate the extent and range of effects.
- First responder considerations—what do we do at the scene of the crisis?
  - Planning estimates provide first-order estimates of the range of possible effects.
  - Sensitivity analyses can identify critical data that will be needed in an actual event.
  - Sensitivity analyses can identify the uncertainty associated with using alternate data sources.
  - Planning estimates provide a basis for training first responders (what needs to be done first, etc.).
- Defining the problems associated with the given problem.
  - Identify what is needed to assess effects in an actual event.

    - Identify a list of actions that could be taken to reduce casualties.
- Uncertainty: how do we manage this? How best do we characterize/communicate this for the customers?
    - During the planning studies, one could investigate alternative methods for communicating the uncertainties (sources, magnitude) so that decision makers have realistic expectations of what modeling can and cannot do.
- Summarize the planning results in a manner that provide useful information for potential on-site decision-makers.
- Identify and possibly devise a training schedule for use of modeling products during actual events.
- Planning studies can investigate the usefulness of having an operations center for 24/7 support. Models may be of little use initially, and may only be of use in planning possible mitigation strategies and supporting cleanup activities.
- Planning studies can investigate whether it is possible (or even useful) to attempt to convert on-site measurements to source rate and chemistry.

<u>Other Planning Issues:</u>

- Evaluate not only best model, but also alternative sources of information (degradation of model results).
- Evaluate the critical data needs for most effective source characterization.
- Investigate potential for converting on-scene measurements of source rates.

Results

Scenario 1 – Urban Sarin Release

Criterion	Priority
Coupling	H - M
5-min non-steady state	H (5 min)
Urban Morphology	H
Urban Dispersion	H
CFD	L
Sewer System	L
Metro	L
Wet/dry Deposition	H
Range	H (10 m – 30 Km)
Indoor Air Exchange/Model	H
Complex Terrain Effects	H
Range of MET Conditions/Scale	H
Population Density/Census Data	H

Scenario 2 – Dirty Nuke

Criterion	Priority
Coupling	H
5-min non-steady state	H (5-min)
Urban Morphology	H
Urban Dispersion	H
CFD	H
Sewer System	H
Metro	H
Wet/dry Deposition	H
Range	H (100 Km)
Indoor Air Exchange/Model	H
Complex Terrain Effects	H
Range of MET Conditions/Scale	H
Population Density/Census Data	H
Cross-Media Model (food chain effects)	H
Source Characterization	H
Plume Rise	H
Blast Effects	H

Scenario 3 – Nuclear Power Plant Attack

Criterion	Priority
Coupling	H
5-min non-steady state	H (5-min)
Wet/dry Deposition	H
Range	H (1 Km to 1000 Km)
Complex Terrain Effects	H
Range of MET Conditions/Scale	H (Mesoscale features)
Population Density/Census Data	H
Cross-Media Model (food chain effects)	H
Source Characterization	H
Plume Rise	H
Down-range radiation	H
Rain-out	H
Decay Rates	H
Cloudshine	H

Scenario 4 – Crop Duster - Anthrax

Criterion	Priority
Coupling	H
5-min non-steady state	H (5-min)
Urban Morphology	H
Urban Dispersion	H
Wet/dry Deposition	H
Range	H (100 Km)
Indoor Air Exchange/Model	H
Complex Terrain Effects	H
Range of MET Conditions/Scale	H
Population Density/Census Data	H
Cross-Media Model (food chain effects)	H
Source Characterization	H
UV Effects	H
Resuspension	H
Mechanism of Release	H – Line Source