



ARGONNE NATIONAL LABORATORY

Decision and Information Sciences Division

ERSM — A Systems-based Approach to Emergency Response and Preparedness

Challenge:

The development of effective and coordinated crisis response plans presents a challenge to emergency planners. They face the difficult task of integrating the emergency response activities of a growing number of authorities and jurisdictions. As a result, emergency response plans have become increasingly complex. Likewise, the number of participants and jurisdictions that respond to an emergency has grown. These and other factors combine to make it more difficult to manage and control all aspects of a crisis response in today's environment.

System has already been proven through the Chemical Stockpile Emergency Preparedness Program of the U.S. Army and the Federal Emergency Management Agency.

The ERSM is a concise method of planning for and graphically displaying the complex multi-jurisdictional activities that support the planning and decision-making process. Not only does the ERSM eliminate the difficulties associated with the preparation of coordinated emergency operations plans and procedures, but it also provides feedback that allows planners to identify needed improvements in plans, procedures, and training requirements.

Approach:

In response to this complex problem, Argonne National Laboratory has developed the Emergency Response Synchronization Matrix (ERSM). The effectiveness of this innovative modeling

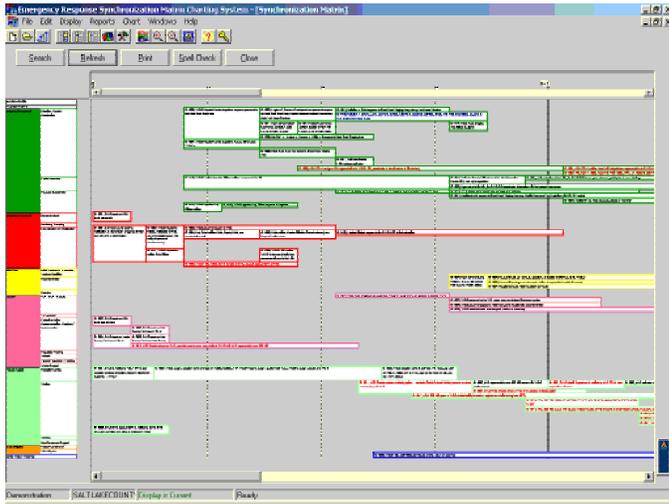
Emergency planners who use the ERSM process will find that his response implementation and management tool enhances:

- Emergency planning and
- Emergency response exercise design and evaluation



Tool:

The ERSM software, running on a Pentium-based PC, graphically displays the relationships among all of the response activities of each jurisdiction. The software organizes and displays the activities by jurisdiction, function, and time for easy review and analysis. ERSM can also integrate the displays of multiple jurisdictions to allow examination of the total response.



Process:

The ERSM process enhances all aspects of developing and improving emergency response plans and procedures.

- Response visualization
 - “War-gaming
 - Resource loading
- Integrated/synchronized emergency operations plans and procedures
 - Exercise programs
 - Hazard response
- Responders’ feedback and observers’ data
 - Data analysis
 - After-action reviews
 - Exercise reports

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- Maintain/improve change
 - Hazard analysis
 - Capability assessment

Benefits:

- Enhanced emergency planning
 - Serves as the outline for the written emergency response plan
 - Ensures that plans are integrated both within and across jurisdictions
 - Provides a thorough review of existing emergency response plans and procedures
 - Provides a blueprint for future emergency response plan revisions
- Enhanced emergency response exercise design and evaluation
 - As an exercise-design tool, structures a robust, simulated event that allows for realistic participant response
 - As an exercise-control tool, ensures that implementing messages are injected at the appropriate time, based on actions
 - Assists exercise evaluators in analyzing exercise activities in relationship to each jurisdiction’s plans and procedures
 - Serves as a guide for conducting after-action reviews with exercise participants
- Response implementation and management tool
 - Enables responding jurisdictions to know how they fit into the response as it progresses
 - Allows jurisdictions to actively track how their departments and agencies are progressing in meeting their responsibilities in the overall emergency response
 - Easy pre-testing of the possible effects that response activities would have if they occurred earlier or later than originally planned