Bringing **MORE** Science & Technology to Preparedness, Response, Recovery, and Mitigation

Rapid Risk Assessment

Team
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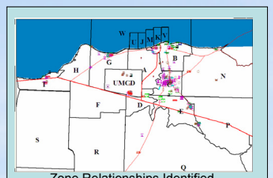
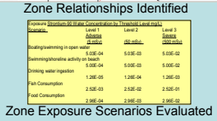
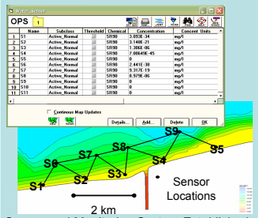
Preparedness



Zone Relationships Identified


Zone Exposure Scenarios Evaluated

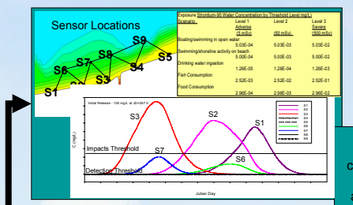


Sensor and Monitoring System Established


Set of Response Scenarios Evaluated, Tested, and Stored

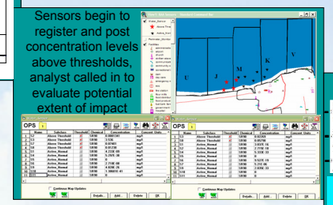

Economic Impacts Integrated into Planning

Notification

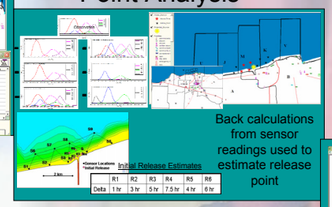


Incident Characterization

Incident Identification
EOC Awareness

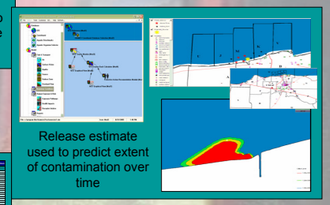

Sensors begin to register and post concentration levels above thresholds, analyst called in to evaluate potential extent of impact

Estimated Release Point Analysis



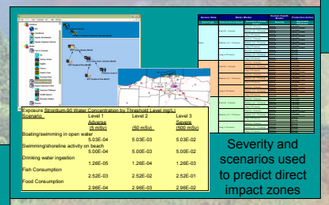
Back calculations from sensor readings used to estimate release point

Transport Analysis

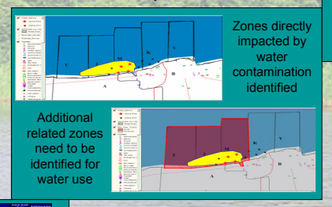

Release estimate used to predict extent of contamination over time

Risk Assessment

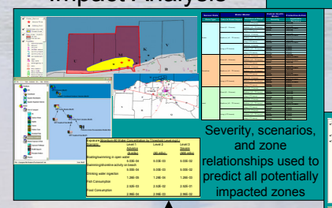
Risk Impact Analysis


Severity and scenarios used to predict direct impact zones

Direct Impact Zones

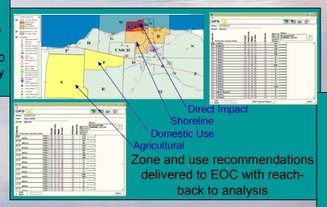


Decision Impact Analysis


Severity, scenarios, and zone relationships used to predict all potentially impacted zones

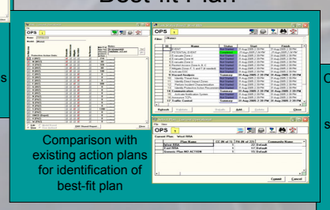
Initial 'Rapid' Response

Protective Action Recommendations

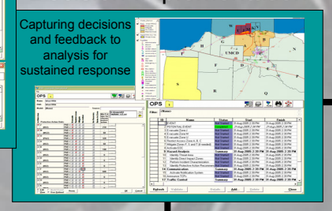


Zone and use recommendations delivered to EOC with reach-back to analysis

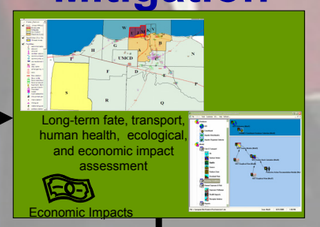
Best-fit Plan


Comparison with existing action plans for identification of best-fit plan

Decision Implementation


Capturing decisions and feedback to analysis for sustained response

Recovery & Mitigation



Sustained Response
(Science and Technology Based)
Sustained Preparedness (Reality-Based)

Goal

Integration of Rapid Analysis, Impacts, Hazard, and Command & Control

Scope

To provide an illustrative example that combines a multi-thematic modeling capability with the emergency planning and response tools to create an automated system that provides a real-time, two-way information sharing link between the scientific and emergency response communities.

Scenario Conceptual Model

- A delivery mechanism dumps a radioactive contaminant into a body of water.
- Sensors in that body of water signal that the contamination has surpassed some threshold of concern.
- The sensor information is immediately sent to a command and control system to determine if analysis and response is required.
- Surface water models are used to determine likely levels and locations of impacts over time.
- For impact locations, over time, impact information is used to refer to look-up tables of expected effects and recommended actions.
- The decisions that are implemented are then fed back into the system to provide input into longer term environmental and human health assessments to confirm action level durations and to determine cleanup actions that may be needed.

Key tasks for FY06

- Automation to capture the real-time interactive feedback between science models and the emergency response system.
- Link to specific command and control systems
- Build additional linkages in three new critical areas (water distribution system, sensor system, and economic impacts analysis)

PNNL-SA-47439

Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy