



DOE Emergency Response Assets Basic Expectations

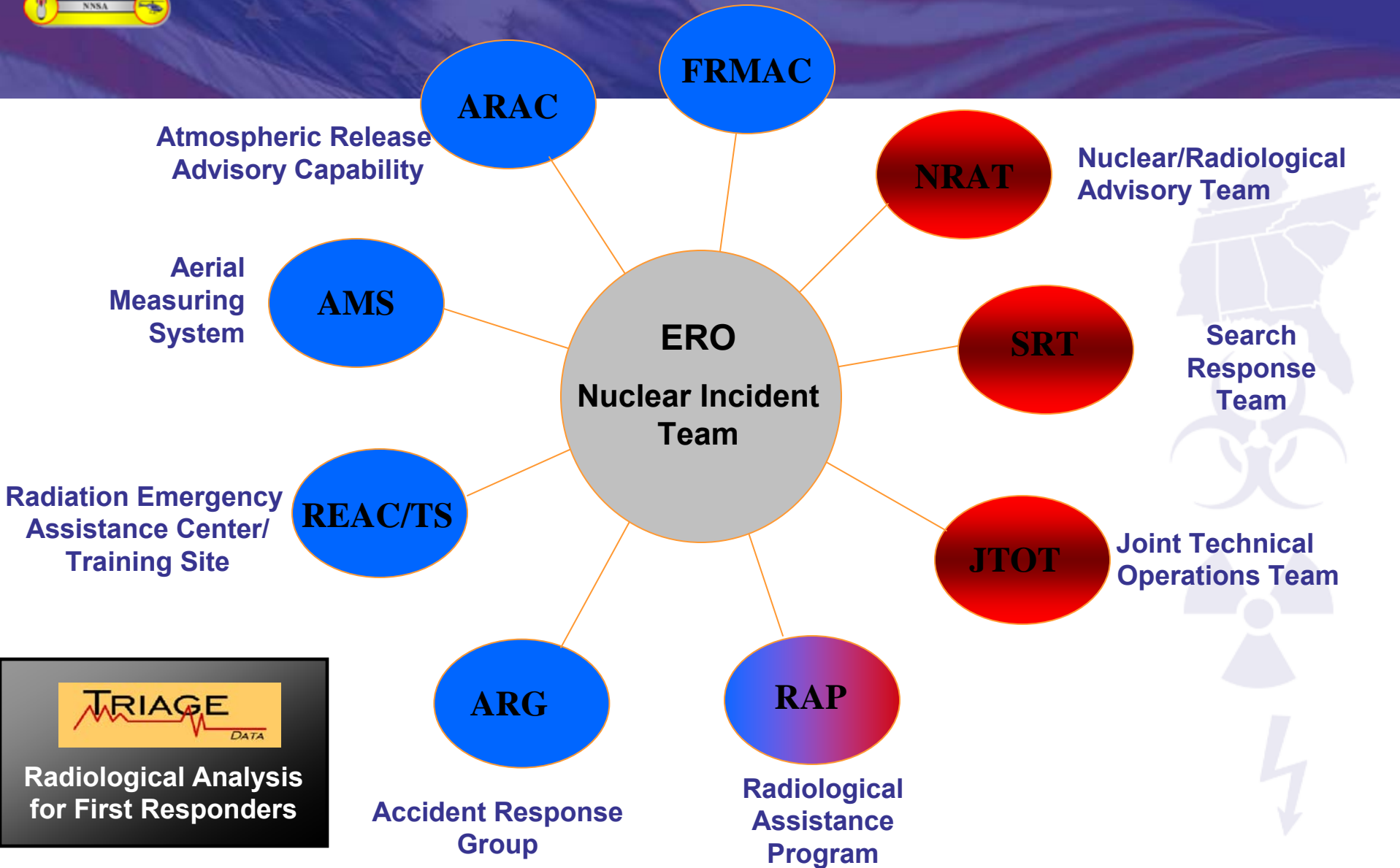


- **Can provide technical & operational support in coordination with lead agencies**
- **Can respond quickly to support other agencies in nuclear/radiological accidents or incidents**
- **Can furnish resources appropriate to the situation**
- **Will be focused and trained to deal with unusual technical challenges**

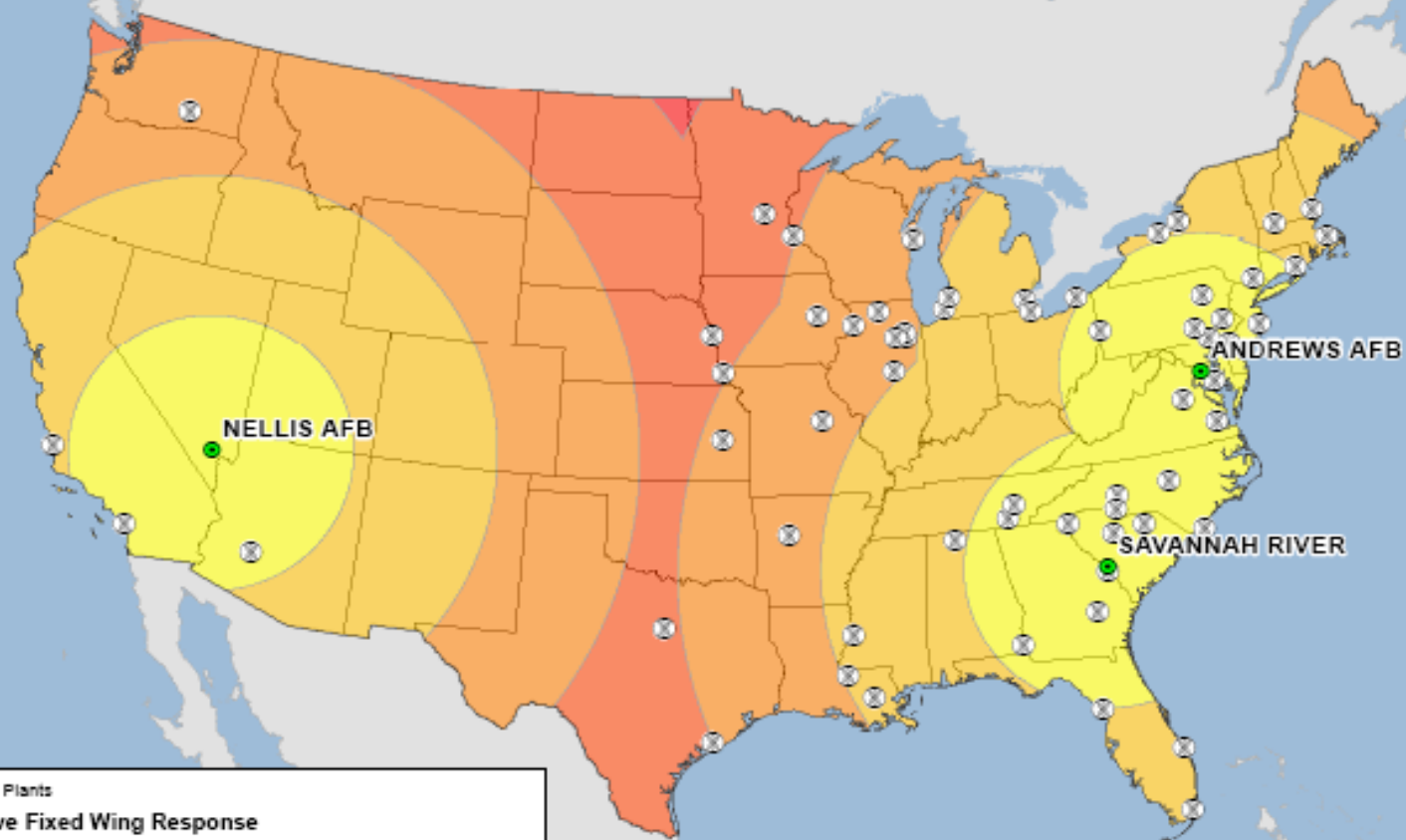




Federal Radiological Monitoring Assessment Center



Current AMS Capability



⊗ Nuclear Power Plants

Representative Fixed Wing Response

AMS Flight Time	% of US Land Coverage	NRC Sites	Population Count
5 hr	21.43%	26 (40%)	118,815,158 (40%)
6 hr	51.28%	46 (71%)	214,215,864 (73%)
7 hr (Refuel Point)	84.64%	59 (91%)	273,515,502 (93%)
9 hr	99.84%	65 (100%)	292,987,928 (99%)
10 hr	100%	65 (100%)	293,013,070 (100%)

Time Calculation Example:

$$1 \text{ HR} + 1 \text{ HR} + 3 \text{ HRS} = 5 \text{ HRS}$$

Flight to destination

Refuel and Mission Planning

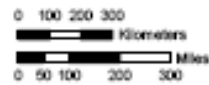
Mission Flight

Add 1 HR after 3 HRS of Flight to destination for refueling

Elapsed time between notification and arrival may include up to an additional 4 hours for recalling team and flight take off. Travel times based on B200 Approximate speed at 280 nm/hr, +25 nm/hr East bound, -25 nm/hr West bound (Prevailing winds).

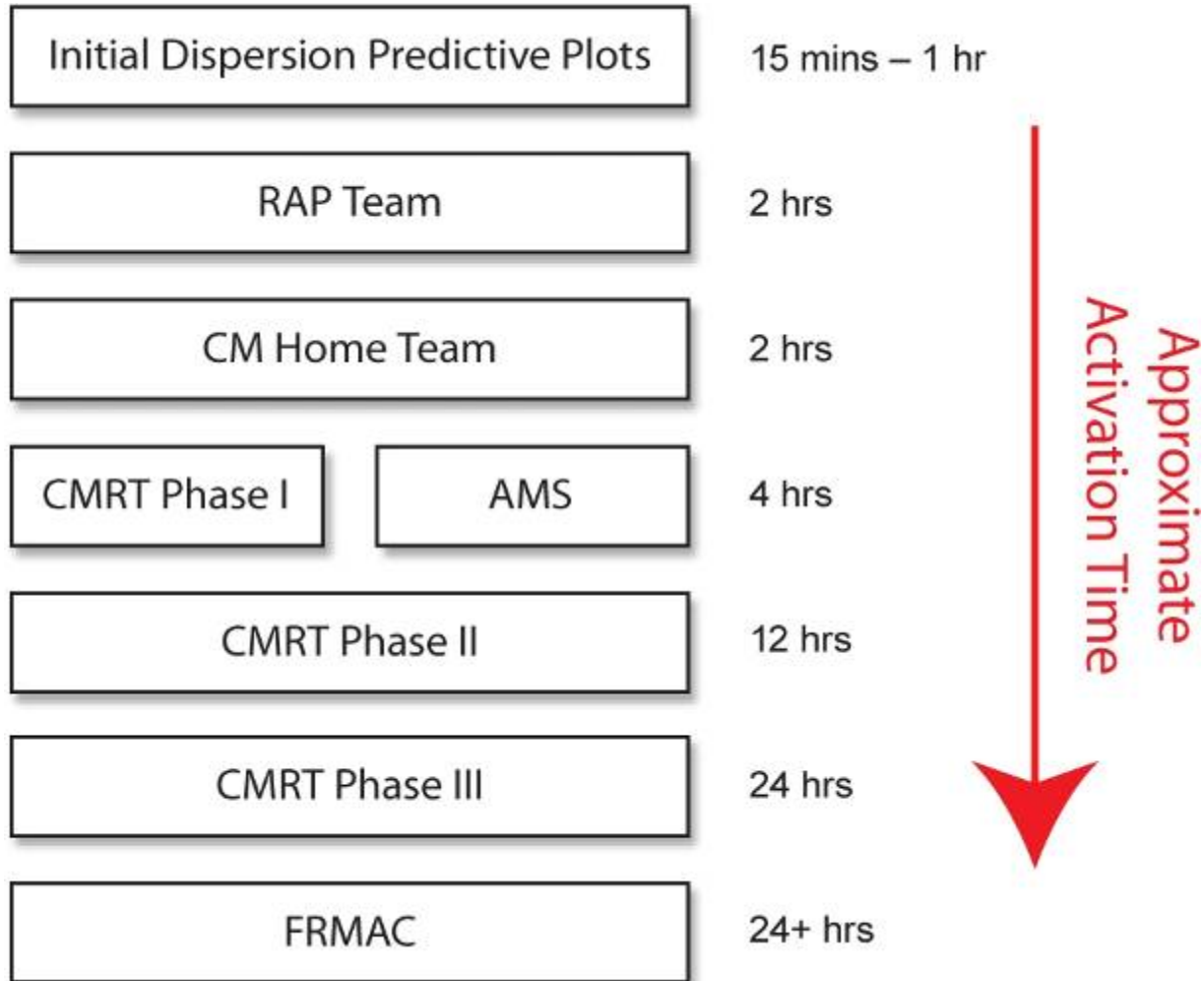
Representative Fixed Wing Response

Decision Maker Hand Out





Response Timeline



Paperless Data Collection

- Tablet PC interfaces with rad instruments, GPS, barcode scanner (for samples)
- Digital form and standardized data format
- Real-time telemetry of data to central database
- NEW: extension of capability to State/local agencies (FEMA funded)

BACKUP SLIDES





Federal Radiological Monitoring And Assessment Center (FRMAC)

- **Mission: Provide a Common Operating Picture of the environmental radiological conditions for the response**
- **Multi-agency operational framework for coordinating on-scene monitoring and assessments during a radiological emergency**
- **Phased Response**
 - **Consequence Management Home Team (CMHT)**
 - Provide technical support to IC before arrival of FRMAC
 - **Phase I (Consequence Management Response Team I)**
 - Validate protective action guidelines
 - Gross Field Monitoring & Data Assessment
 - **Phase II (Consequence Management Response Team II)**
 - Define where population relocation is warranted
 - Extensive field monitoring & sampling
 - **Phase III**
 - Ingestion Pathway Analysis
 - Detailed Sampling & Analysis



25 People
2500 # Eq.

35 People
30,000 # Eq.



FRMAC (cont'd)

- Initially staffed and equipped by DOE Consequence Management Response Teams (CMRT I & II)
- May absorb part or all of RAP Team(s) deployed to incident
- Technical support from the Consequence Management Home Team (CMHT)
- Leadership transitions to the Environmental Protection Agency for long-term recovery



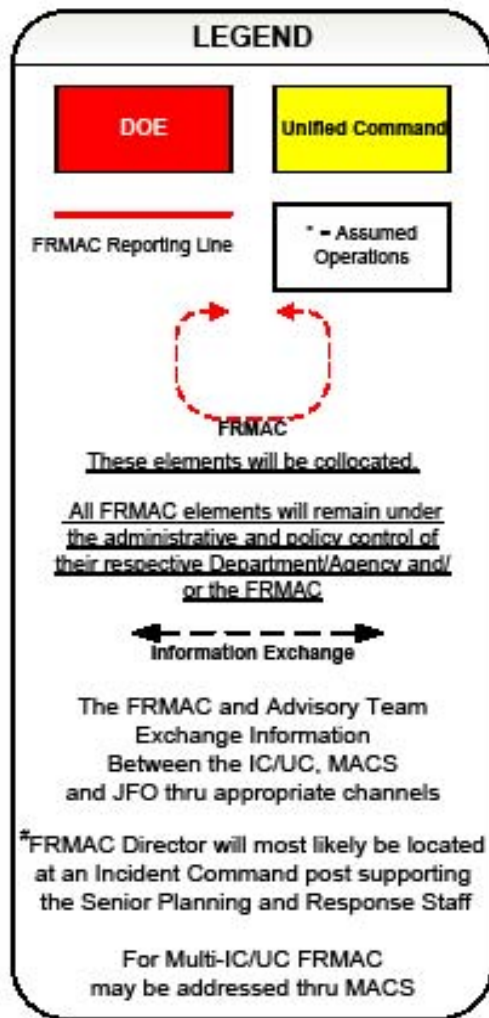


Consequence Management Process

- ARAC
 - Plume modeling
 - Predictive plot
- Aerial Measurement System (AMS)
 - Initial model validation
 - Helps drive initial monitoring and sampling plan
- RAP Assistance
- CMHT
 - Integrate State, Facility, & Radiological Assistance Program (RAP) data into initial monitoring and sampling strategy
- FRMAC
 - Comprehensive monitoring and sampling plan and activities
 - Recovery

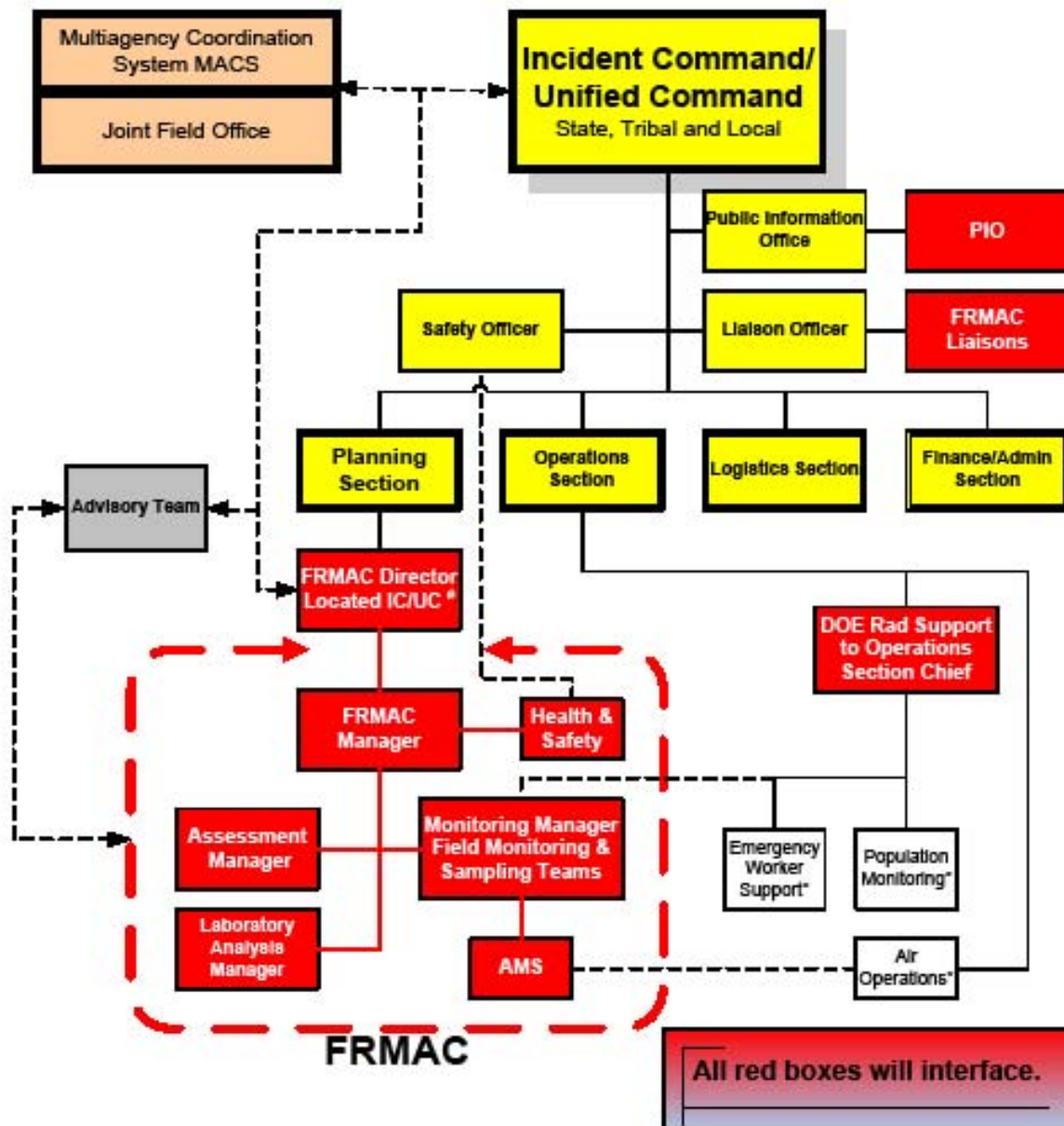


FRMAC NIMS Implementation Plan for Single Event



Support to FRMAC, RAP and UC

Consequence Management Home Team



Aerial Measuring System (AMS)



Provides aviation-based equipment to survey large areas in response to radiological emergencies

Fixed-Wing Aircraft

- ◆ All-weather operation
- ◆ Rapid Characterization of Deposition Pattern
- ◆ Cursory radiological data transmitted during flight (radiation surveys)

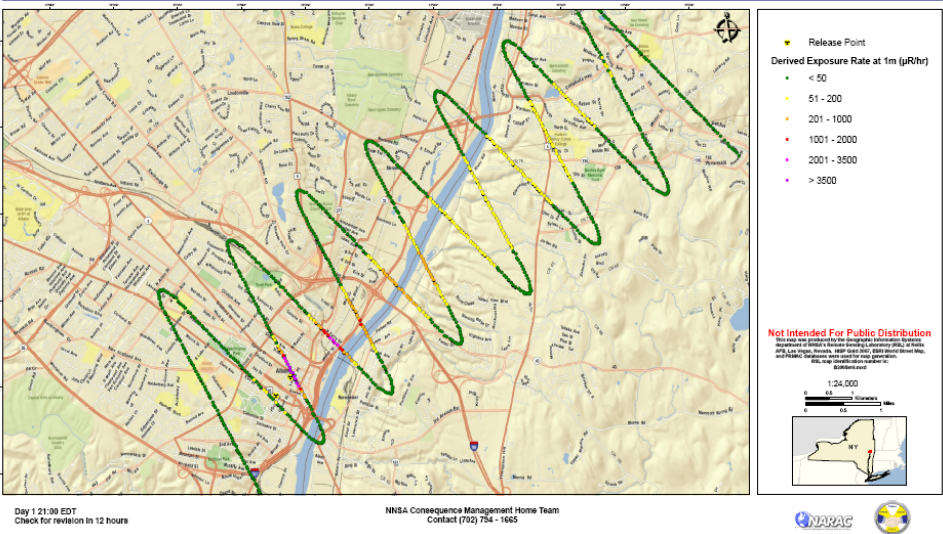
Helicopter

- ◆ Visual flight operation
- ◆ Detailed aerial surveys
 - Exposure rate contour maps
 - Dominant isotope gamma spectra
 - May take several days



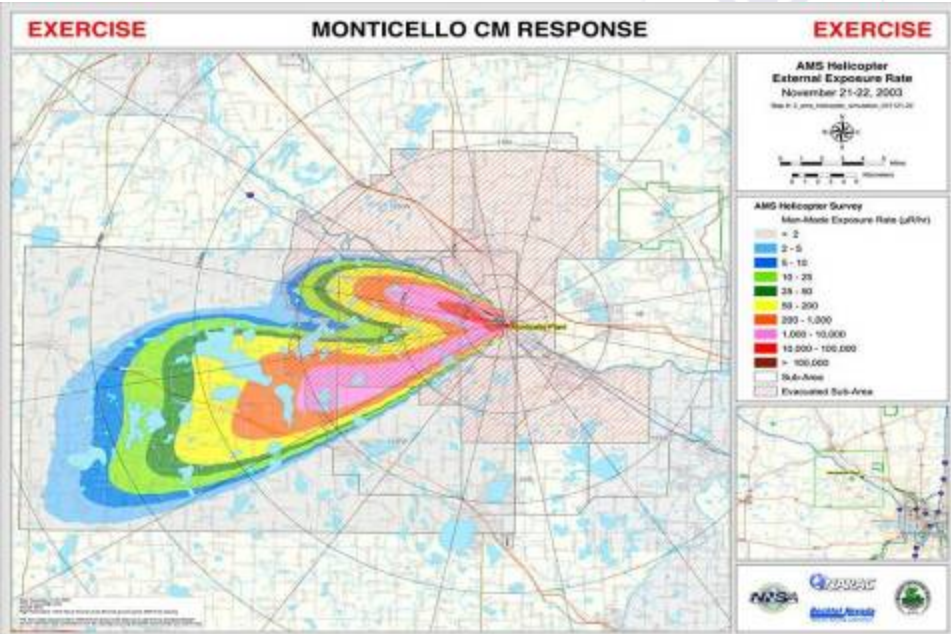
AMS Surveys

EXERCISE Aerial Measuring System
Fixed-Wing (King Air B200, SPARCS) SET 04
EMPIRE 09
Albany, NY




AMS Fixed Wing Survey ▲

AMS Helicopter Survey ▼





Region 4 FRMAC Scheduled Events

2010	April	River Bend NPP Outreach-1	LA	
2010	June	River Bend NPP IPX - 1	LA	
2010	July	Hatch NPP Outreach-1	GA	
2010	September	Hatch NPP IPX-1	GA	
2011	January	Grand Gulf NPP Outreach-1	MS	
2011	March	Grand Gulf NPP IPX-1	MS	
2011	September	NASA Mars Launch	Kennedy Space Center	

FEMA Tasking: State and Local Digital Field Monitoring

- Task 1: Modify existing software to be hardware agnostic (barcode scanner, gps, ink, touch screen, etc.).
- Task 2: Develop a basic data viewing capability that can be operated outside of Radiological Assessment and Monitoring System (RAMS) (no home-team support).
- Task 3: Maintain optional FRMAC synchronization.
- Task 4: Integrate Radiological Assessment Training Simulator (RATS) data integration capability.
- Task 5: Set up software updater for non-DOE personnel / equipment (security plan).
- Task 6: Initial demonstration of application system in the Fall of 2009.

Contact Information

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