Space Object Re-entry

State Leadership Briefing

DHS/FEMA Region IX

February 19, 2008

FEMA

Situation

- An uncontrollable U.S. government satellite will re-enter Earth's atmosphere between the end of February and early March.
- The satellite consists of 5,000 pounds of equipment and material, including a fuel tank containing 1,000 pounds of propellant (hydrazine), classified as a hazardous material.
- Hydrazine is a clear, colorless liquid with an ammonia-like odor. Direct contact with skin or eyes, or ingestion or inhalations from hydrazine released from the tank upon impact could result in immediate danger, including convulsions, tremors, or seizures. Ingesting or drinking Hydrazine can cause nausea, vomiting, uncontrolled shaking, inflammation of the nerves, or coma. (Source: U.S. Dept. of Health & Human Service's Agency for Toxic Substances and Disease Registry)

Situation

- The U.S. government has decided to take action to mitigate the risk to human lives by engaging the non-functioning satellite.
- A low altitude missile launch is being planned to break up the satellite, destroy the hydrazine fuel tank, and bringing down the debris over water. This mission is not anticipated to occur until after February 20, 2008.
- The DoD has a high degree of confidence the engagement will be successful.

Situation

- If the missile engagement is successful, the fuel tank will fragment, causing the hydrazine to dissipate prior to entering the atmosphere or during its descent. The hydrazine will then not pose a risk to human lives.

- A full ninety-nine percent of the debris resulting from the engagement will reenter the Earth's atmosphere within one week.

Debris Footprint

- Debris that survives reentry will impact within a "debris" or "impact" area on the earth's surface. It is possible to estimate the size of the footprint, but very difficult to predict where the footprint will be on earth's surface or where specific pieces of debris will land.
- After its initial breakup along its trajectory through the atmosphere, a reentering object will continue to break apart. Surviving pieces will hit earth in an "impact" or "debris" footprint.
- The heavy debris will generally travel farther downrange to the toe of the footprint; lighter material will generally be near the heel. Footprint lengths can vary from a hundred miles to perhaps over a thousand miles, depending on the characteristics and complexity of the object.
- The footprint width is generally determined by the effects of wind on the falling debris objects, with heavy objects affected less and lightest the most. If the object should explode during re-entry, fragments will be spread out across the footprint. A footprint width of perhaps 10 to 25 miles is typical.

Assumptions

- DHS (FEMA) has lead for all-hazards consequence management response.
- Federal departments and agencies have sufficient capability and assets to support State, tribal, and local response.
- Appropriate FEMA regions and supporting Federal departments and agencies will be prepared to support.
- Local First Responders will take initial actions
- Selected Federal teams and capabilities will be placed on alert status at transportation sites.

Federal Concept of Operations – Consequence Management

- FEMA is coordinating six Federal Interagency Support Task Forces comprised of:
  - Hazardous material-qualified FEMA Urban Search and Rescue Task Forces.
  - Health and Human Services (HHS) medical support personnel.
  - Environmental Protection Agency (EPA) and U.S. Coast Guard (USCG) hazardous material specialists.
- These teams will be immediately available to assist the state(s) and other jurisdictions with their response. Other federal assets will be on alert and prepared to respond as needed.

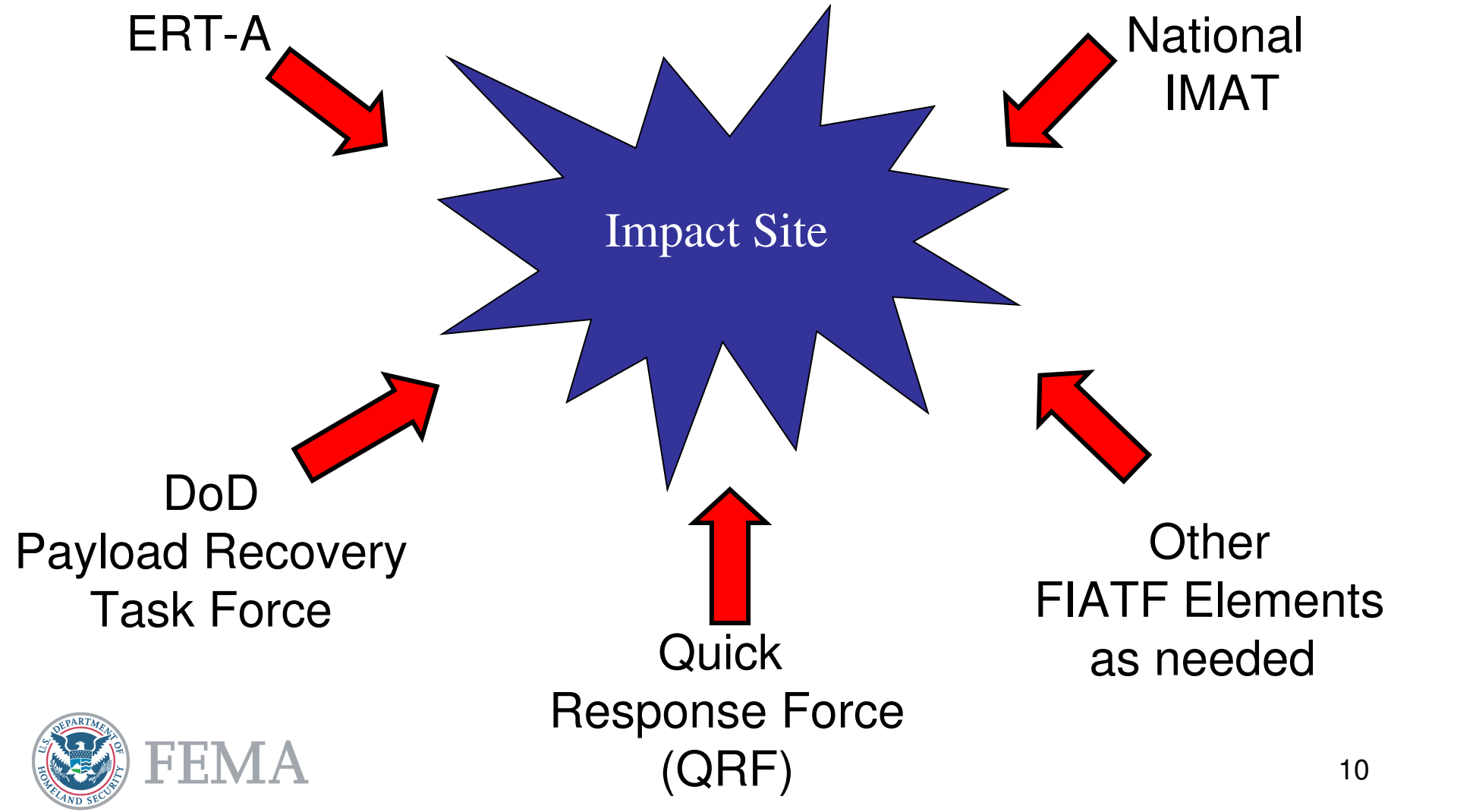
Federal Concept of Operations – Consequence Management

- The Federal Operations Center in Washington, DC, is in constant contact with DoD and will notify all states and interagency partners with information concerning the re-entry of the satellite and debris field once it is known.
- FEMA is developing a notification plan to ensure that governors, homeland security advisors, emergency managers, first responders, the public, and the media have all available information about the timing, and location of reentry if it is to occur over the United States.
- States and interagency partners will be notified of the re-entry event by the National Warning System (NAWAS).

Federal Concept of Operations – Consequence Management

- The National Response Coordination Center and Federal Regional Response Coordination Centers will be activated prior to re-entry.
- A Type I National Incident Management Team (IMAT) will be standing by for immediate deployment to the impacted area.
- Each FEMA regional office and the FEMA Region IX Pacific Area Office in Honolulu, HI, will have an Emergency Response Team – Advance Element (ERT-A) ready for deployment in support of states an impacted jurisdictions.

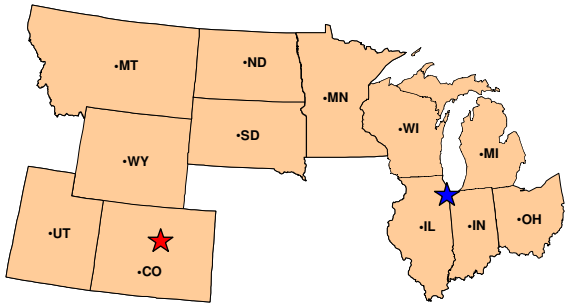
Space Object Re-entry
Federal Interagency Task Forces (FIATFs)

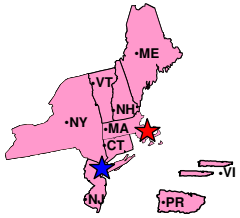


FEMA

FIATF Full Force Package

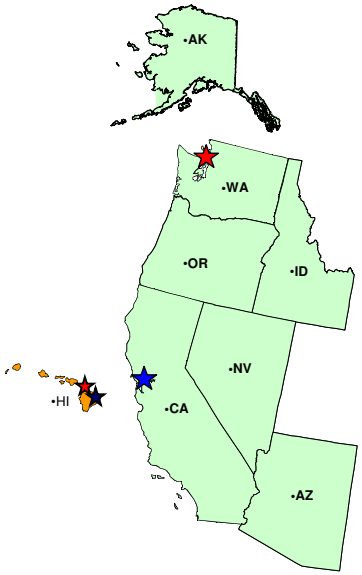
Western Region Task Force
Bothell, WA:
- MOC
- MERS
- FCO
- ERT-A
- US&R Type 1 TF
- HHS
- EPA
- USCG



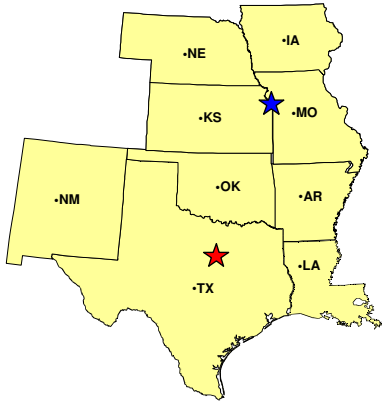


Northeast Region Task Force
Maynard, MA:
- MOC
- MERS
- FCO
- ERT-A
- US&R Type 1 TF
- HHS
- EPA
- USCG

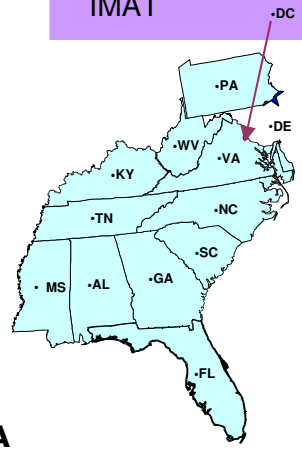
North Central Region Task Force
Denver, CO:
- MOC
- MERS
- FCO
- ERT-A
- US&R Type 1 TF
- HHS
- EPA
- USCG



South Central Region Task Force
Denton, TX:
- MOC
- MERS
- FCO
- ERT-A
- US&R Type 1 TF
- HHS
- EPA
- USCG



Washington, DC:
- Deployable National IMAT



Southeast Region Task Force
Atlanta, GA:
- MOC
- MERS
- FCO
- ERT-A
- US&R Type 1 TF
- HHS
- EPA
- USCG

Pacific Area Task Force
Honolulu, HI:
- MOC
- FCO
- ERT-A
- US&R Type 1 TF
- HHS
- EPA
- USCG

= Red Stars denotes FIATF

= Blue Stars denotes FEMA Regional Office ERT-A

*These resources represent heaviest response to Satellite impact.

QRF Pre-Positioned Force Package

Pre-Deployment Personnel:

- N-IMAT (10 personnel)
- One ERT-A in each FEMA Region (7 personnel)
- DCO/DCE as part of ERT-A in each FEMA Region.

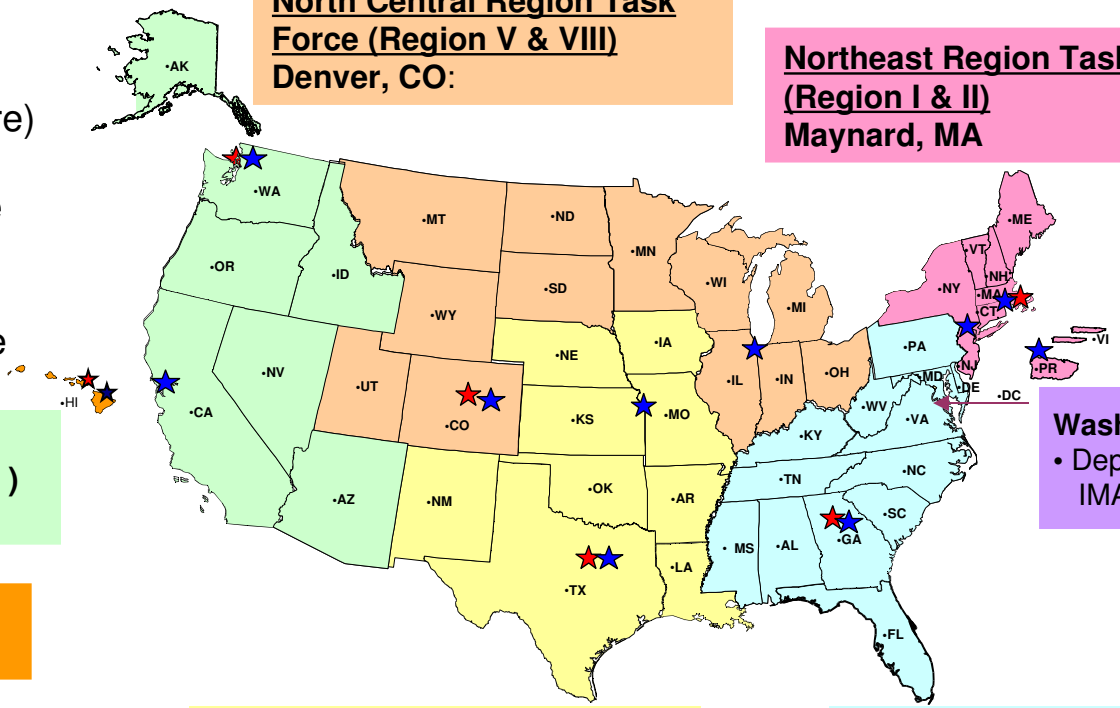
*QRF(s) and N-IMAT joins impacted Region(s) ERT-A.

6 Quick Response Forces (12 personnel each*):

- QRF Lead (FCO Cadre)
- MERS (7 personnel)
- US&R Representative
- HHS Representative
- EPA Representative
- USCG Representative

North Central Region Task Force (Region V & VIII)
Denver, CO:

Northeast Region Task Force (Region I & II)
Maynard, MA



Western Region Task Force (Region IX & X and Pacific Area)
Bothell, WA & Honolulu, HI

Pacific Area Task Force
Honolulu, HI

Washington, DC:

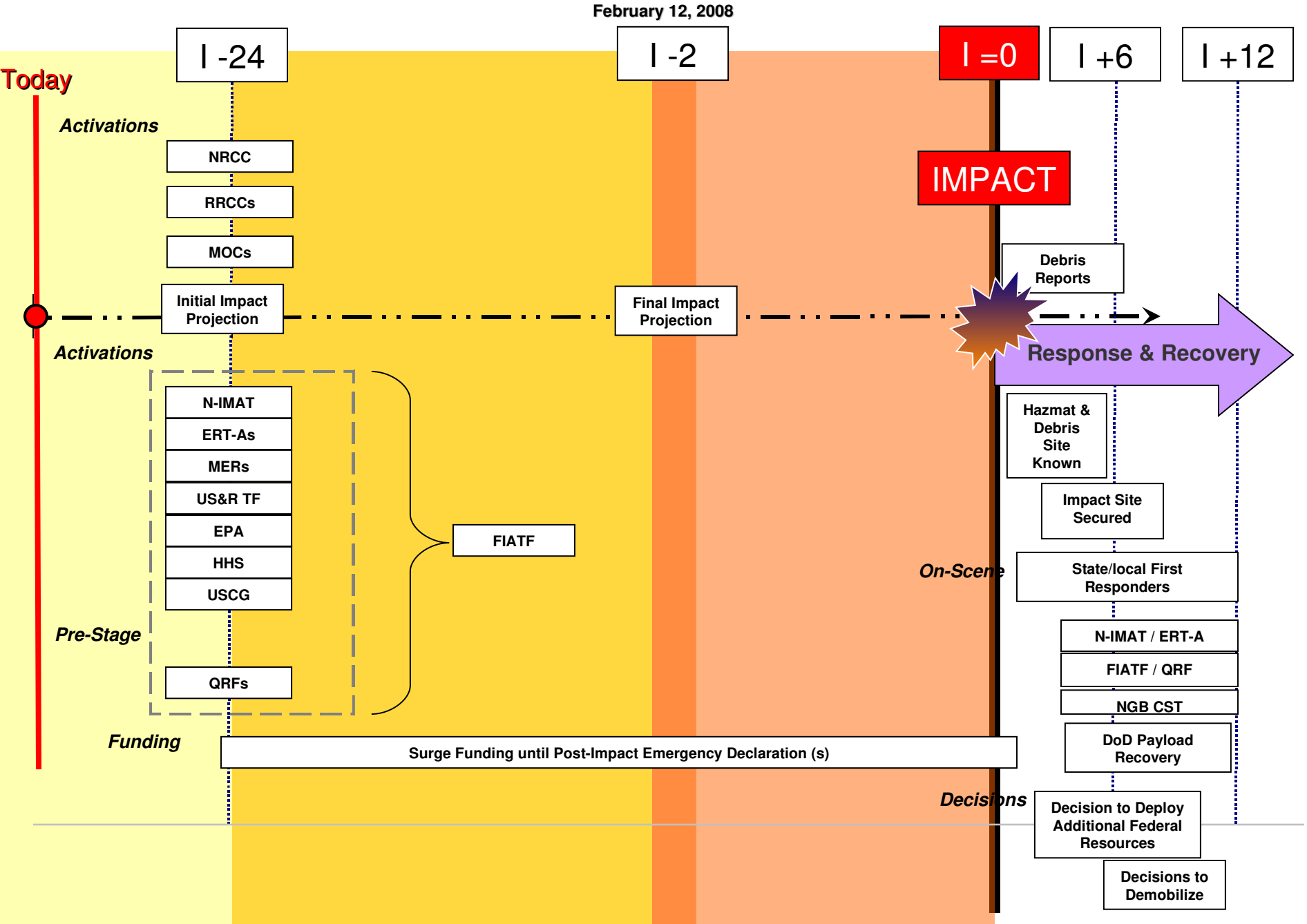
- Deployable National IMAT

South Central Region Task Force (Region VI & VII)
Denton, TX

Southeast Region Task Force (Region III & IV
Atlanta, GA:

ed Stars denotes QRF
lue Stars denotes FEMA Regional Office ERT-A

Space Object Re-entry Consequence Management Timeline



Public Affairs Guidance

- DoD has the lead for engagement, re-entry and tracking phases.
- No nuclear or radiological materials onboard satellite.

Declarations

- Potential Stafford Act ‘501b’ Emergency Declaration without a Gubernatorial request.
- Likely only in affected Region.

FEMA

Response & Recovery Division

DHS/FEMA Region IX