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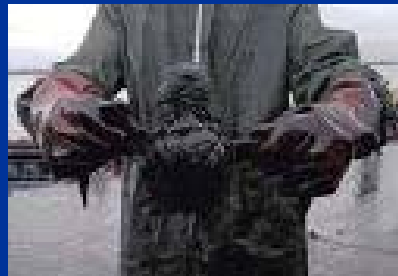
# Responding to Environmental Disasters

**Stan Meiburg**  
**Deputy Regional Administrator**  
**EPA Region 4**

# Types of Natural Disasters

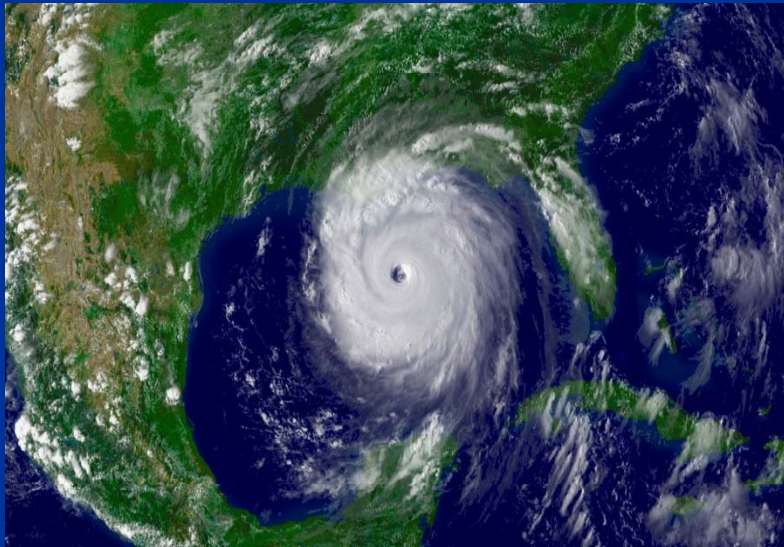


# Types of Manmade Disasters



# Recent Environmental Disasters in the Southeast U.S.

## Hurricane Katrina



## British Petroleum Oil Spill



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# The Role of Information in Environmental Emergency Response

- Characterization
- Response Planning and Operations
- After – Action Review and Evaluation

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# Types of Information EPA Develops:

- Air Quality Sampling & Monitoring
- Water and Sediment Sampling
- Technical Assistance in Infrastructure Restoration
- Waste Management Oversight
- Incident Data Management
- Outreach and Community Involvement Materials

# EPA Works with Many Partners

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FEMA

**ATSDR**  
AGENCY FOR TOXIC SUBSTANCES  
AND DISEASE REGISTRY



**ADEM**  
Alabama Department of Environmental Management



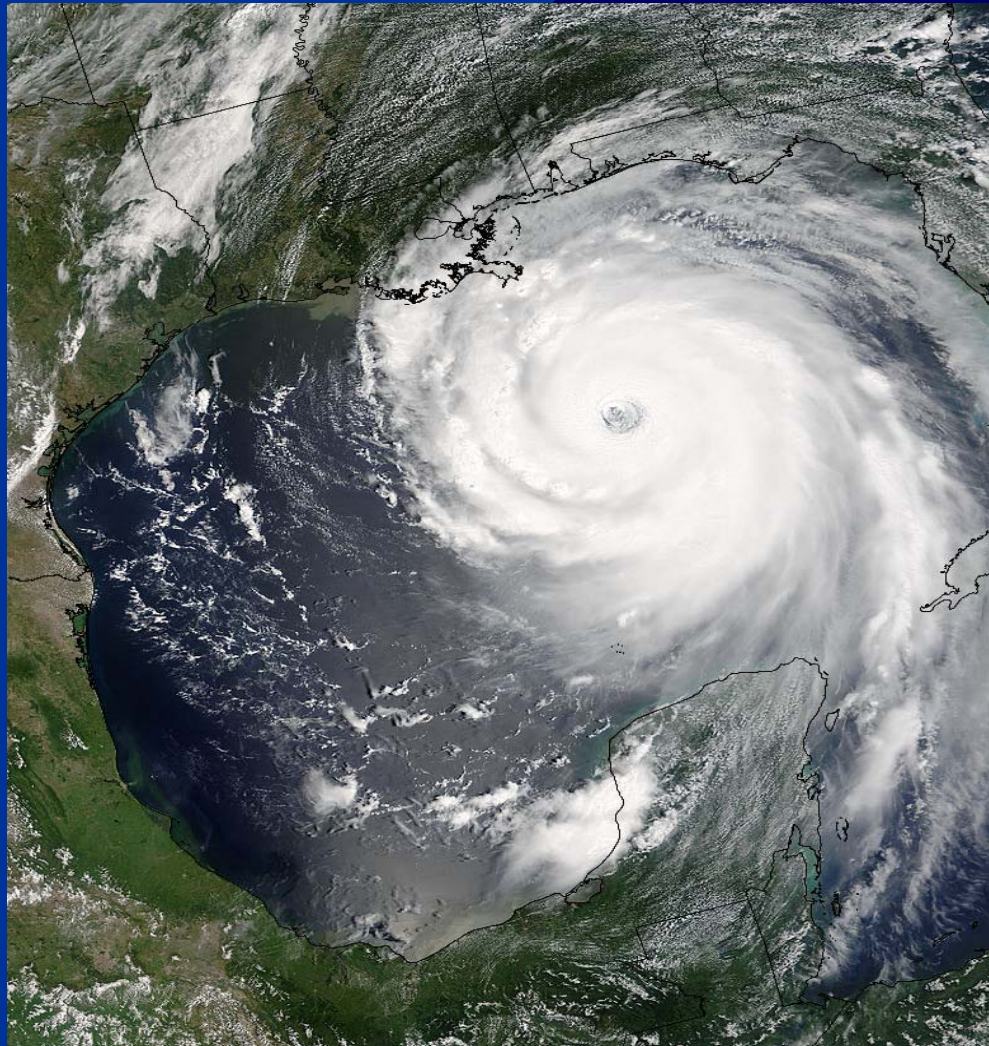
**US Army Corps  
of Engineers®**



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# Hurricane Katrina Response

## Alabama & Mississippi





# EPA Response Relative To Katrina Time-Line

**August 31, 2005**

- 6 EPA teams begin assessments

**August 30, 2005**

- 6 EPA Assessment Teams Deployed

**August 29, 2005**

- LA Landfall 06:10
- MS Landfall 10:00
- EPA Liaison begins assessments with ADEM

**August 26, 2005**

- EPA Staffs RRCC
- EPA Staffs FL EOC

**August 28, 2005**

- EPA Staffs MS EOC
- EPA Liaison with USCG (Mobile)

**August 25, 2005**

- Hurricane status
- FL Requests EPA at State EOC
- Florida Landfall

**August 24, 2005**

- Upgrade to Tropical Storm
- Pre-deployment Planning Begins

3: 2005AUG28/07:15:00UTC  
4: 2005AUG29/14:45:00UTC



# Katrina – EPA Mission & Resources

## Scope of Response:

- Assessment and response over more than 250 miles of coastline.
- Ground and/or aerial assessments and response conducted over an area > 4,000 sq. miles.



# FEMA Mission Assignments to EPA

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- Mitigate Threats from Oil and Hazardous Substances
- Provide Technical Assistance to Water/Wastewater Facilities
- Household Hazardous Waste Collection
- Monitor Debris Collection Sites
- Spoiled Food Disposal
- Support ESF #3 and #14

## ACOE Inter-Agency Agreement (IAG)

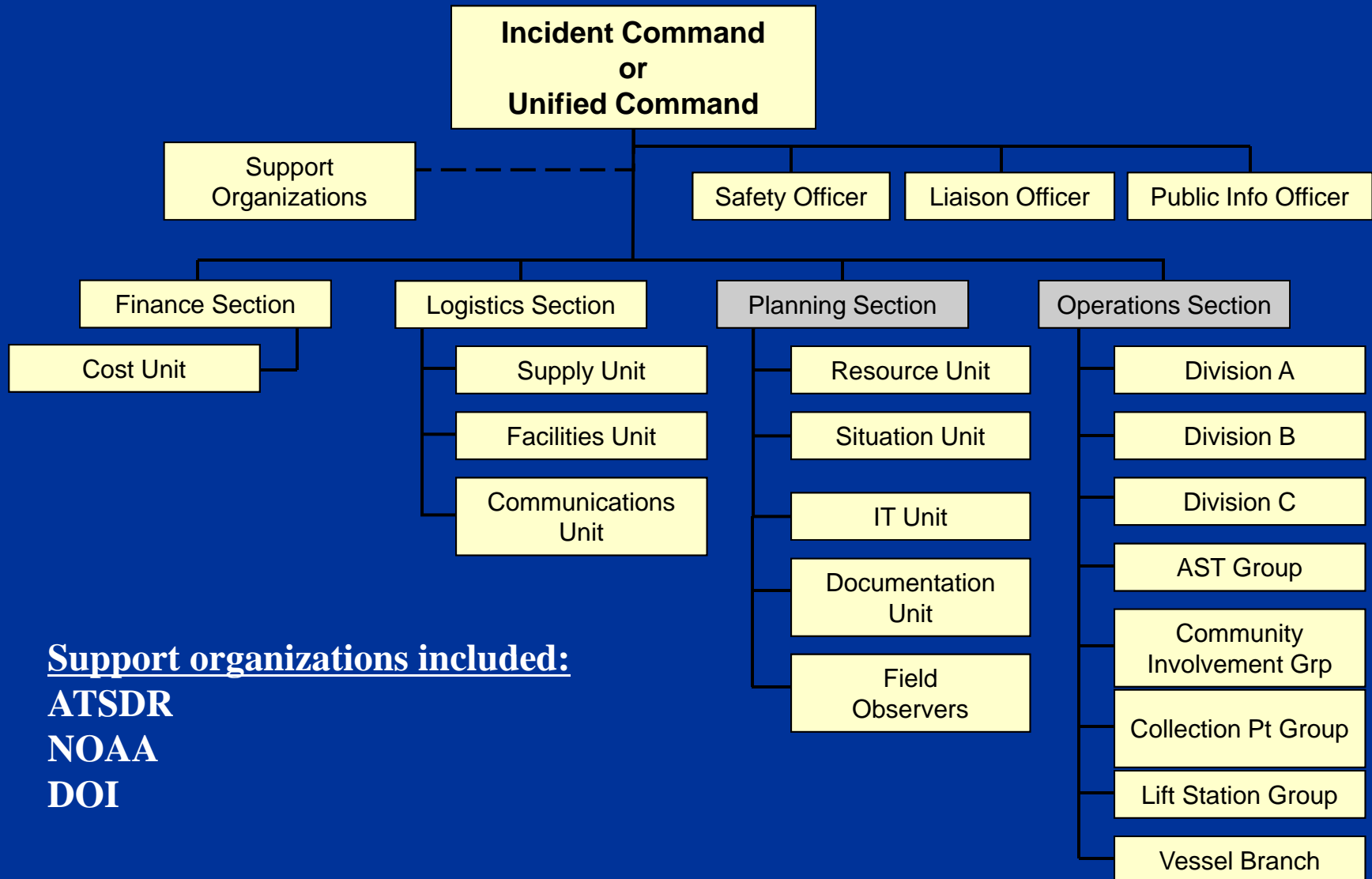
- POTW Water/Wastewater Infrastructure Support

# Resources:

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- More than 250 personnel at height of Response from EPA, OFA, and States
- More than 120 EPA and EPA contractors working in Mississippi
- Final Cost \$90 million

# ESF-10 Unified Command:



Support organizations included:

ATSDR  
NOAA  
DOI

# Data Management

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**Planning Section** - Information Technology (IT) Unit established to Manage and Display Mission Critical Information

## **Database Team:**

- Create and manage database.
- Generate operation-specific data reports.
- Participated in development of data management protocol.

## **GIS Team:**

- Generate incident status maps.
- Operation-specific maps.
- Geospatial analysis of data.

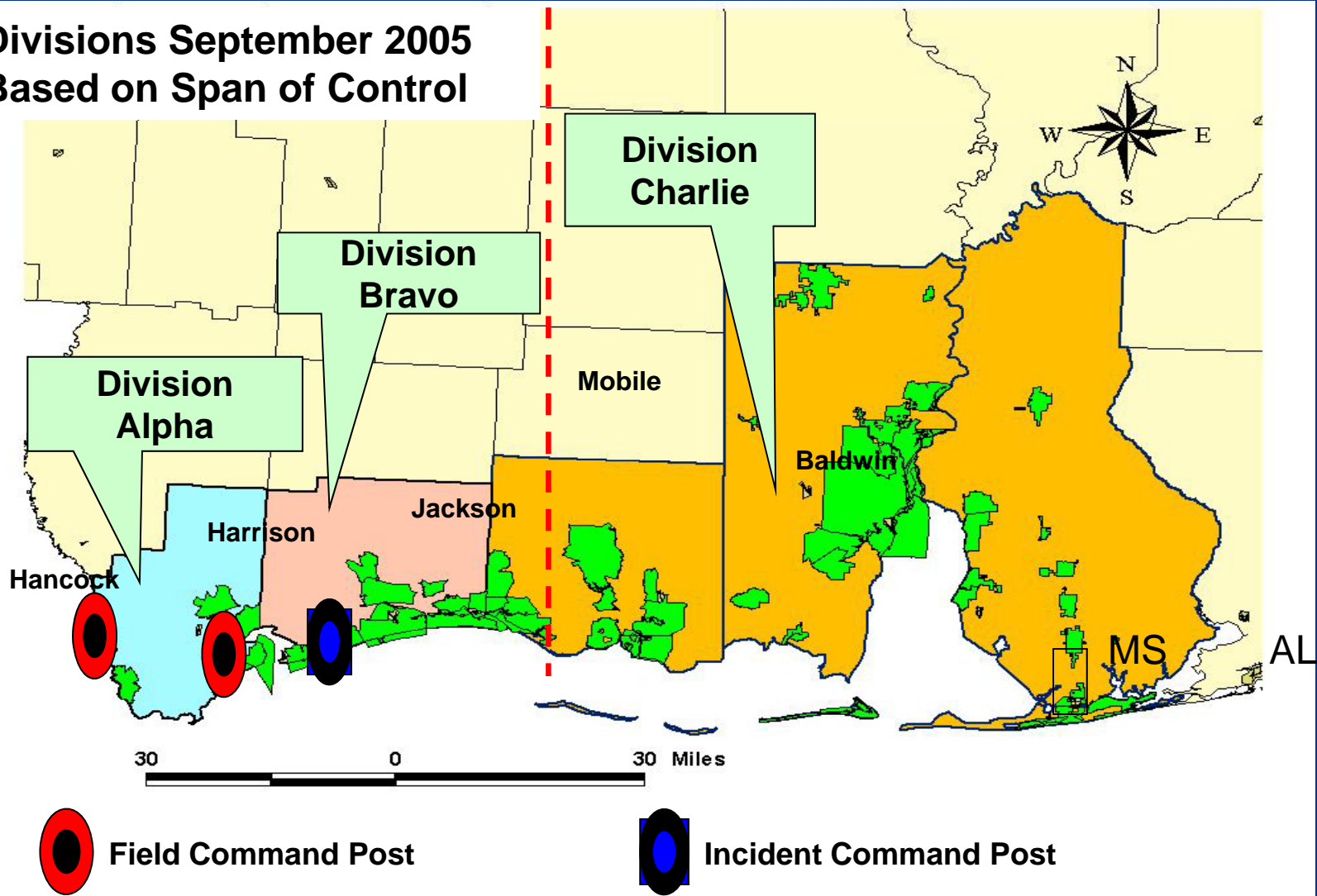
# Operations Section

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- Operations were divided into divisions in order to effectively address:
  - Span of control
  - Geographic scope of response area
  - Political jurisdictions
- Division boundaries were revised as appropriate to address evolving incident conditions.

# Operations - Divisions

**Divisions September 2005  
Based on Span of Control**





# EPA Katrina Operations

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- Assessment and Recovery (Oil and Haz Substances)
- Household Hazardous Waste (HHW)
- Vessels
- POTW Infrastructure Support
- Demolition Debris Disposal Site Monitoring
- Freon Recovery (White-Goods) Monitoring
- Air Quality Monitoring
- Water Quality Survey

# Assessment & Recovery Process

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## Systematic Approach to Identify and Mitigate Threats from Oil and Hazardous Substances

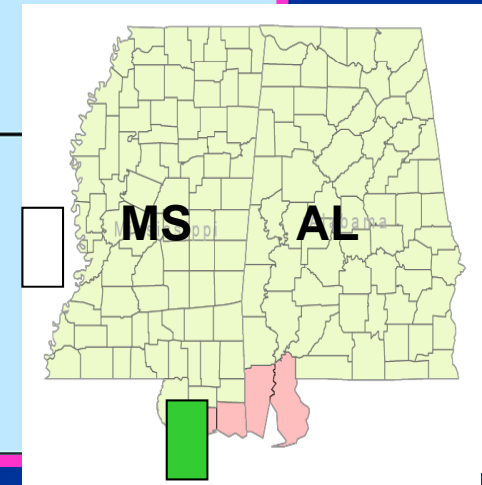
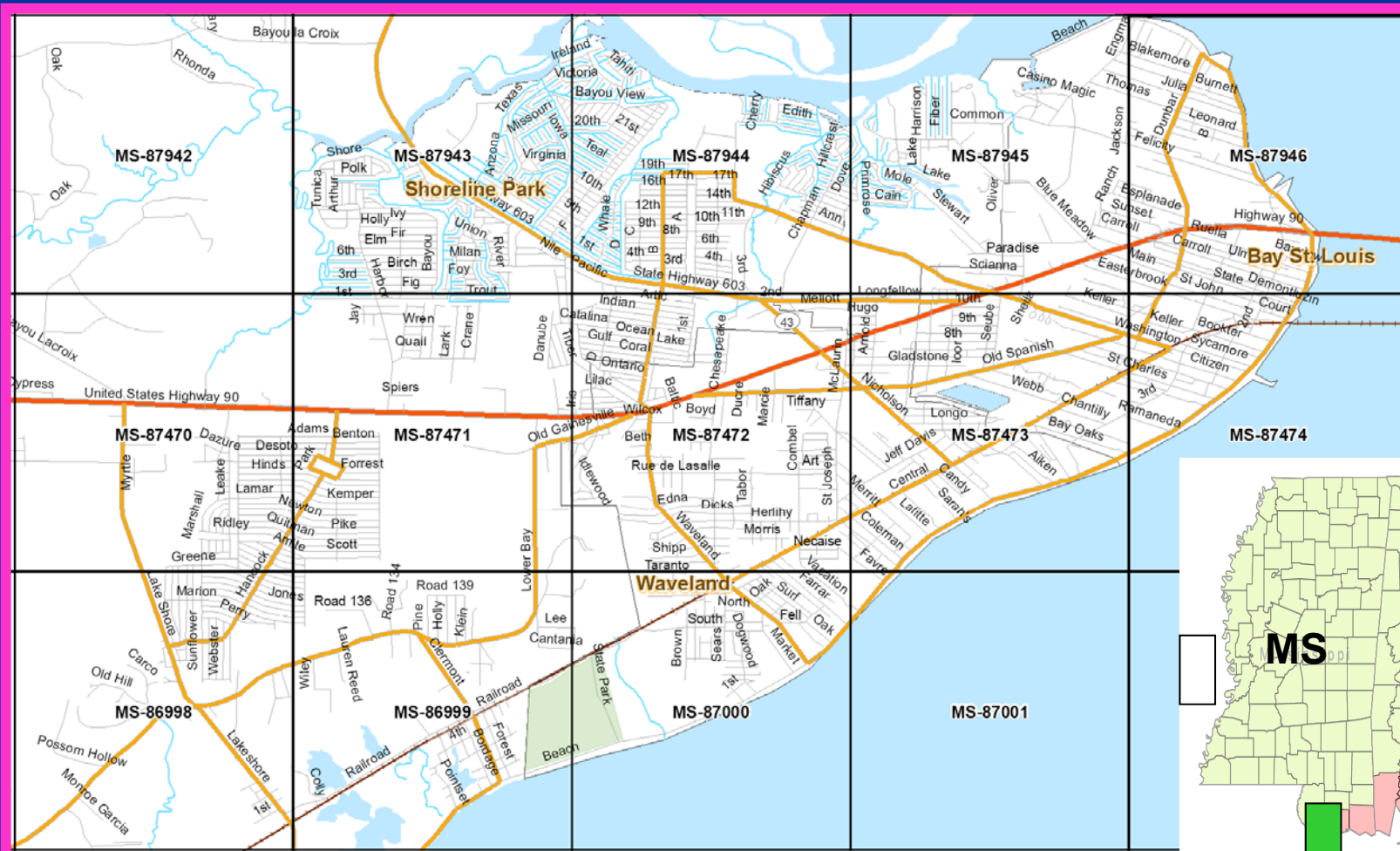
### Assessment

- Combined assessment teams (EPA, USCG, OFA, States, Contractors)
- Systematic approach based upon grid overlay of assessment area.
- Specific facilities (e.g. FRP, RMP) also targeted.
- Includes ground, air, water operations.
- Priority given to immediate threats (e.g. NRC Reports).

### Recovery (Bulking, Sampling, Disposal non-HHW)

- Systematic sweeps
- Special operations (Large Tank Retrieval and/or Water Ops)

# Operations – Grid System



Example Grid Over Portion of Hancock County, MS

# Operations – Collection Points

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## Designated Areas for Temporary Staging, Inventorying, and Processing of Accumulated Waste and ESF #10 Debris Prior to Final Disposition

- Managed by ERRS with EPA oversight.
- Secure, temporary, storage site.
- Hazard categorization profiling and/or sample collection for lab analysis.
- Segregation of incompatibles and bulking of compatible waste streams, as appropriate.
- Recycle, reuse/return, disposal, or treat, as appropriate.
- Report daily inventory to Planning Section.

# Operations – Collection Points



**Jackson County, MS  
EPA Collection Point**

# Household Hazardous Waste

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- **Collection Program for Household Hazardous Substances**
- **Collection mechanisms**
  - Sweeps along public rights-of-way and on request
  - Advertised curbside pickup in targeted areas, and
  - Advertised community drop-off locations.
  - Collection in coordination with Right-of-Entry (RoE) operations.
- **Collection mechanism transition over course of response from sweeps to curbside/drop-off to RoE operations**

# White Goods Collection & Recycling

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- Collected and processed by ACOE or Municipalities through private contractors
- Collected either at curbside or through RoE process.
- Materials processed at debris disposal sites and/or dedicated White Goods staging areas
- EPA monitors freon recovery via spot checks.

# Electronic Goods

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- Collection and recycling by ACOE or municipalities through private contractors, depending on county
- Collection either at curbside or through RoE process.
- EPA monitors demolition debris disposal sites via spot checks for presence of prohibited (e.g. E-Goods) items.



# Demolition Debris

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- Removal by ACOE or municipality contractors
- Debris is transported to one of 39 disposal sites
- EPA monitors demolition debris disposal sites via spot checks for proper management practices and presence of prohibited materials.

# POTW Infrastructure Support

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- EPA tasked by FEMA through ACOE
- IAG with ACOE to restore damaged sewer infrastructure within designated communities
- 492 sewer man-holes cleared.
- 5 sewer lift stations cleaned.
- Bypass pumps and generators provided to municipal lift and pump stations.
- Water distribution system assessment technical assistance.
- Assist municipalities in FEMA reimbursement.

# Vessel Operations


## USCG and EPA Respond to Vessels Affected by Hurricane Katrina

- **USCG Priorities**
  - Clear navigational channels
  - Mitigate ESF-10 Issues
  - Salvage (ESF-3)
- **ESF-10 Specifics**
  - Off-load fuel
  - Remove batteries
  - Remove oily bilge water

**NOTICE TO VESSEL OWNER:**  
This Vessel Has Been Identified for Possible Removal or Pollution Response Action. Call the US Coast Guard IMMEDIATELY to Report Your Intentions

Phone: 251-441-5354/5368 or 251-441-5976

Date: 19 SEPTEMBER 05

 Homeland Security **U.S. COAST GUARD** 391

# Other Operations Issues

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**Abandoned Vehicles - Mississippi Department of Public Safety removing abandoned vehicles to an impoundment.**

## **Sediment & Soil**

- In Mississippi, sediment and soil samples collected near facilities in affected areas to determine whether flooding had resulted in releases**
- No indication of releases due to Hurricane Katrina.**

# Other Operations Issues

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Air Quality Monitoring - Eight locations in Hancock, Harrison, and Jackson counties

- PM2.5, PM10, metals, asbestos at all locations
- VOCs, PAHs at three locations; Hex chromium at two locations

National Priority List (Superfund) Site Reconnaissance

- Reconnaissance performed at 9 NPL sites in coastal AL and MS
- No findings of adverse impacts due to Hurricane Katrina

# Other Operations Issues

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## Water Quality Survey

- **Joint effort EPA and MDEQ**
- **Water and sediment samples collected at stations within 4 major bay systems of coastal Mississippi to determine potential impacts to coastal waters in bays.**
- **Analytes included VOCs, metals, PAHs, pesticides, PCBs, enterococci.**
- **With exception of algae at two locations, few water quality criteria exceeded.**

# Katrina Response Summary

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- Largest response in terms of magnitude and duration in R4 history
- EPA responder on the ground doing assessments on day of Katrina landfall
- Six assessment teams in the field within one day of landfall
- More than 250 personnel from EPA, OFA, and States at height of response
- Nearly \$90,000,000 in mission assignment funding
- Unified Command established with USCG, ADEM, and MDEQ provided for joint management of response efforts
- Wide range of operations and activities carried out or supported by EPA personnel and resources



# British Petroleum (BP) Deepwater Horizon

Responding to the Largest Oil Spill in U.S. History





# Incident Timeline

**April 20, 2010**

- **10:30 PM: Deepwater Horizon (DWH) suffered a catastrophic explosion and fire.**

**April 22, 2010**

- **DWH capsizes and sinks to the seafloor 5,000 feet below surface.**

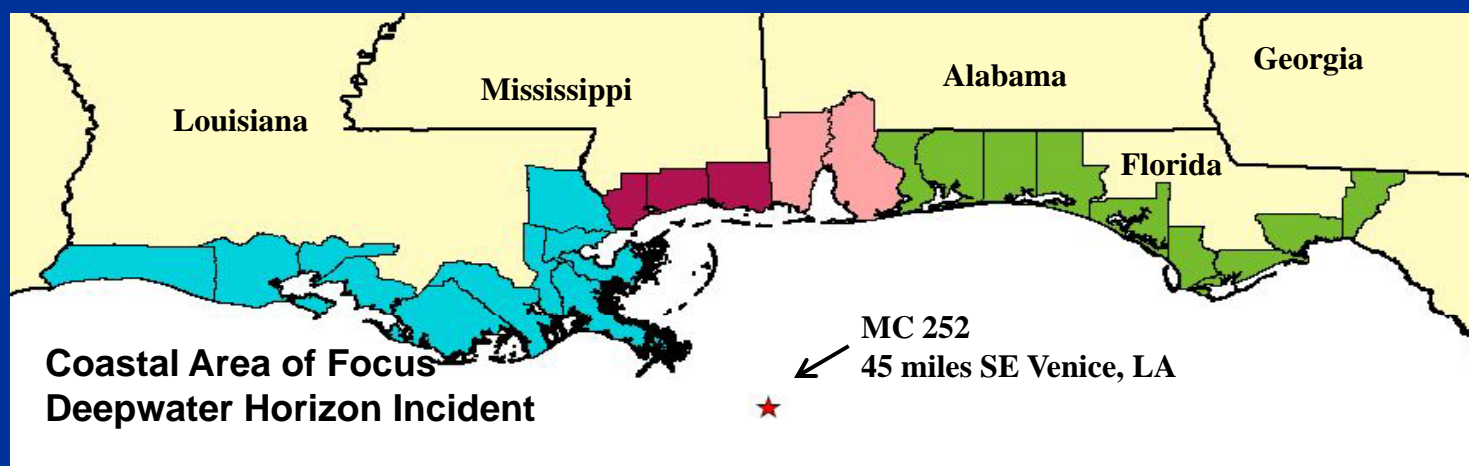
**April 27, 2010**

- **EPA Region 4 integrated into USCG Mobile Unified Command.**



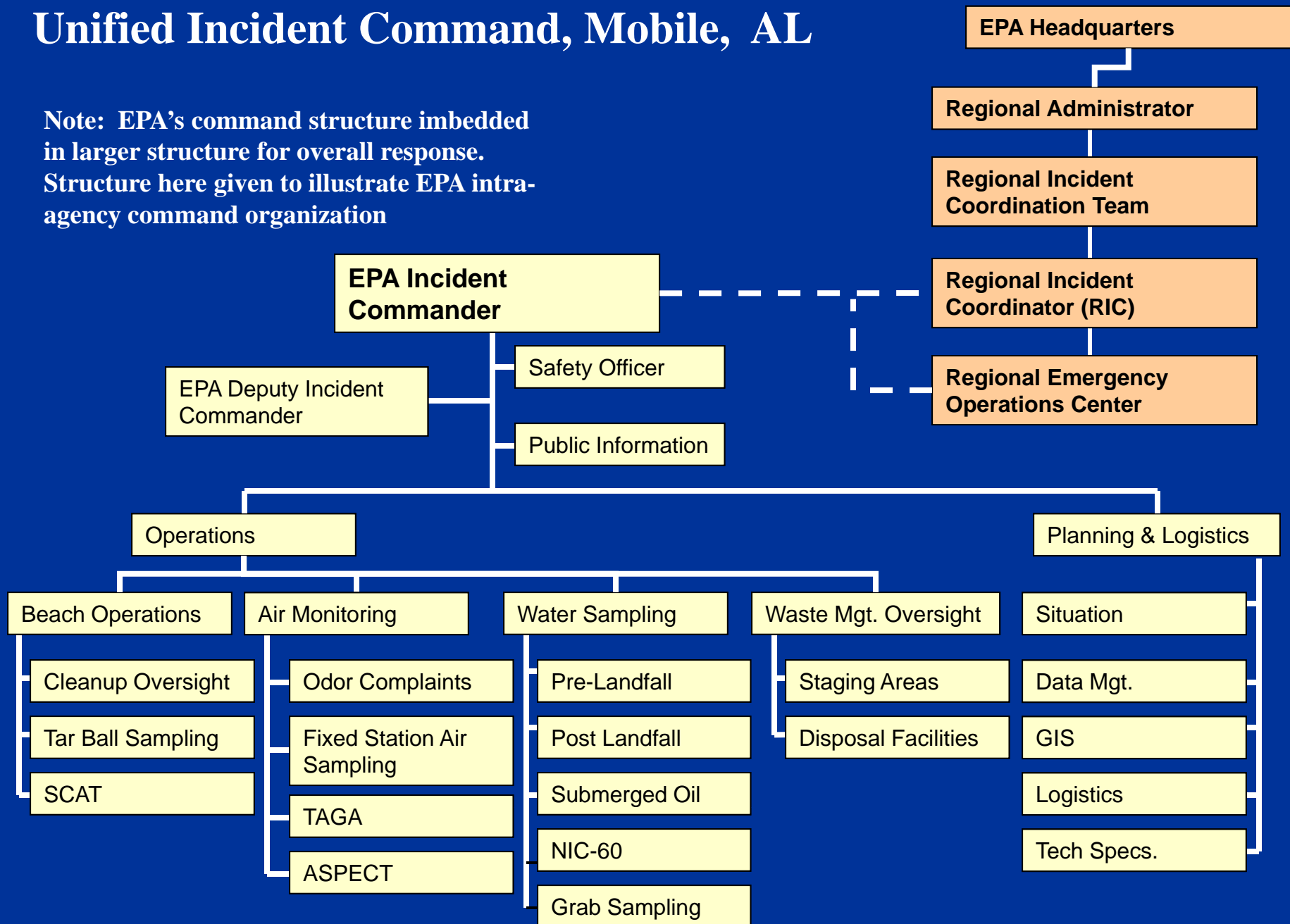
# Unified Command

- The EPA is the lead response organization for oil spill response within the inland zone. The USCG is lead for the coastal zone.
- EPA Region 4 joined the response as part of a Unified Command consisting of USCG, States, and BP.
- EPA Regions received funding and Statement of Work through Pollution Removal Funding Authorizations from USCG
  - R4: \$18.4 million
  - R6: \$29.4 million



# EPA Region 4 Command Structure: Unified Incident Command, Mobile, AL

Note: EPA's command structure imbedded in larger structure for overall response. Structure here given to illustrate EPA intra-agency command organization





# EPA Operations

- Shoreline Cleanup and Protection Oversight
- Air Quality Sampling and Monitoring
- Water and Sediment Sampling
- Waste Management Oversight
- Data Management
- Outreach and Community Involvement



# **EPA Operations**

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## **Shoreline Clean up and Protection**

- SCAT (Shoreline Cleanup Assessment Technique)
- Beach Cleanup Oversight

## **Air Quality Sampling and Monitoring**

- Fixed Station Air Quality Sampling
- TAGA Bus Roving Air Quality Sampling
- Odor Complaint Response Sampling and Monitoring

# **EPA Operations**

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## **Water Quality and Sediment Sampling**

- Leading Edge Sampling Mission
- Embayment and Estuary Sampling
- Post Landfall Sampling Mission
- NIC-60 Near-shore Sampling Mission

## **Waste Management Review and Oversight**

## **Data Management and Visualization**

## **Outreach and Community Involvement**

# SCAT

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- **Shoreline Cleanup Assessment Technique (SCAT)** - Provides a systematic, quantitative method of evaluating oil spill impacts on shorelines and a consistent means of identifying appropriate cleanup techniques.
- **EPA provided trained personnel to SCAT join with multi-agency SCAT teams.**

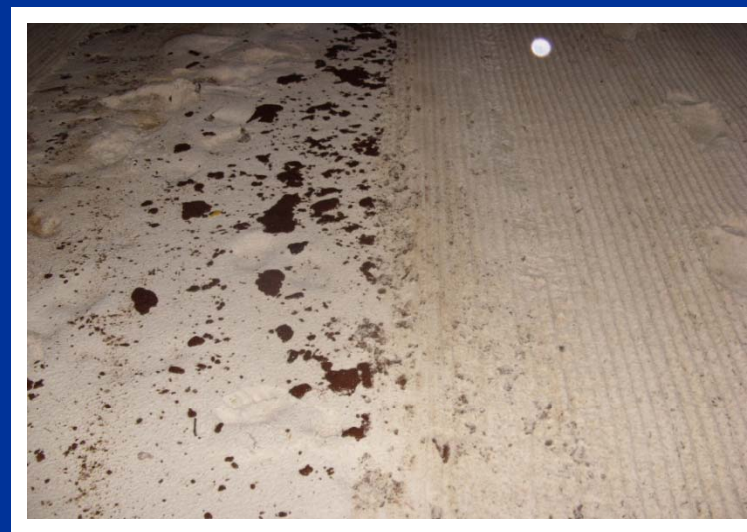
**More than 1,000 miles of shoreline were assessed by SCAT in Region 4**



# Beach Cleanup and Protection

- EPA provided rotation of 25 OSCs and up to 30 Response Support Corp (RSC) personnel to complement USCG in oversight of shoreline cleanup.
- Operations ranged from mechanical excavation to removal of oil by hand

**Nine EPA regions provided personnel to assist in Region 4**







# Air Quality Sampling and Monitoring

- Fixed Station Air Quality Sampling
- TAGA Bus Roving Air Quality Sampling
- Odor Complaint Response Sampling and Monitoring



# Air Sampling and Monitoring

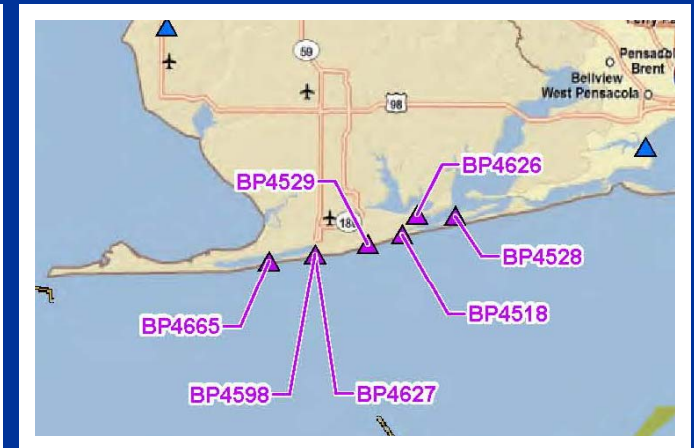
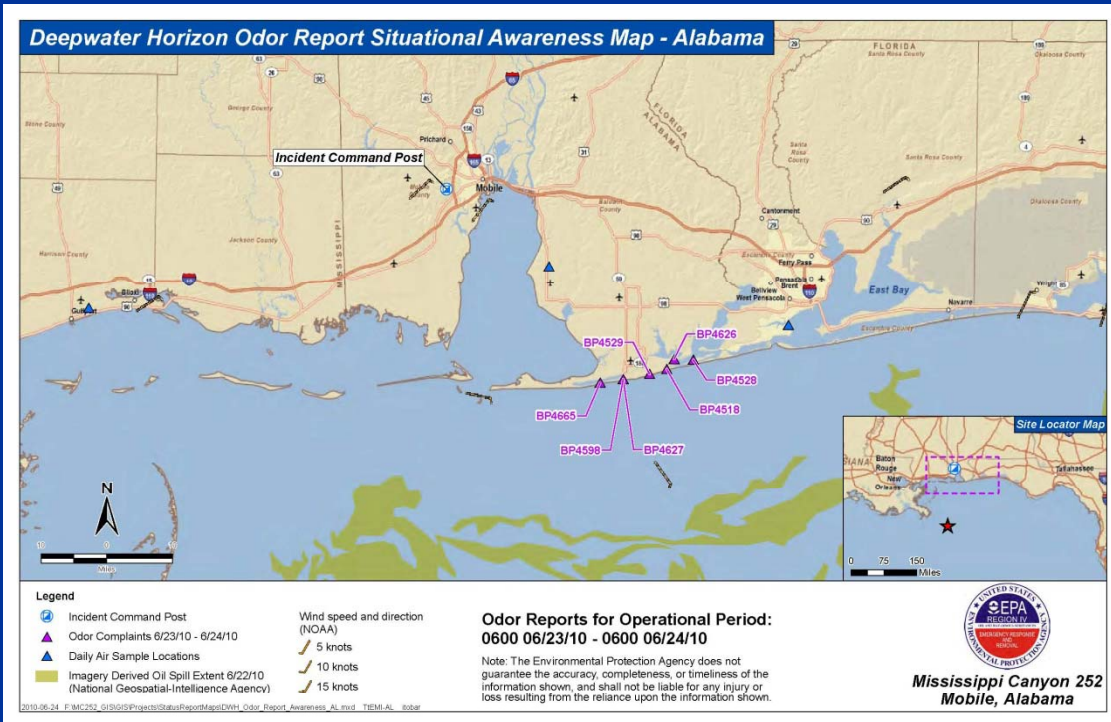
- EPA maintained 9 fixed sampling stations across the UC Mobile AOR
- Five “super sites” along the Gulf coast that monitored parameters to include: VOCs, SVOCs, H<sub>2</sub>S, Ozone, and Particulate.
- Four additional fixed sites that monitored for ozone and particulates.



**Results did not exceed what would be expected for normal seasonal conditions**

# Air Sampling and Monitoring

- EPA used rapid response teams with mobile air monitoring equipment to respond to odor complaints across the Area of Responsibility.



# Community Outreach

- EPA Region 4 Senior Leadership attended multiple outreach and community events in the Gulf area since the DWH incident occurred.
- EPA Incident Commanders and other members of the IMT in Mobile, Alabama attended more than 40 public meetings, availability sessions, or other community events.



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# Environmental Disasters – What Have We Learned?

- Data Collection & Management
- Community Information

# Data Collection & Management

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As part of data collection and management in disaster response, develop a set of “pre-defined” generic workplans that can be quickly completed in the field to cover most response and ICS needs, for example:

- Demobilization
- Document Preservation and Retention
- Data Collection and Management
- Emergency Repositioning
- Health and Safety
- Collection Point Management
- NRC Report Tracking

# Data Collection & Management

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Many of the problems associated with database management stemmed from a relatively small set of factors with easy remedies:

- Define and adopt a single set of data management tools;
- Implement a data management plan from the onset;
- Stick to the data management plan.

# Data Collection and Management

Designate terms for commonly encountered items:

Tank

Cylinder

Drum

Conex Box

Misc Small Container

Vessel

Tanker Truck

Debris n.o.s.

Develop a field guide if necessary





# Data Collection and Management

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- Define a limited set of terms for tracking material throughout a response, for example...

“Requires Pickup”

“Picked Up”

“Returned to owner”

“RP conducting mitigation – oversight required”

“RP conducting mitigation – no oversight required”

- Avoid use of the term “closed”

# Data Collection & Management

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- Use comment field to summarize history of each case :

*“Assessed by Team 1 on 09/09/05. Six drums picked up by Team 3 09/10/05. Transported to Collection Point.”*

- Brief Field Teams in detail on data collection procedures

# Data Collection & Management

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- **Utilize Pre-defined databases:**
  - Pre-defined grids
  - FRP and SPCC facility database
  - RMP facility database
  - Tier II facility database
  - Superfund and Hazardous Waste facility database
- **Pre-defined mapping deliverables**
  - Status Map
  - Flood Surge and Ecological Zones
  - Field Grid Maps

# Community Information

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- Align your internal processes
- Be first, be fast, be right
- Use many methods
- Think from the customer's point of view
- Enable people to take action



# Questions?

**EPA Region 4**

**Responding to Environmental Disasters**

