



# U.S. EPA

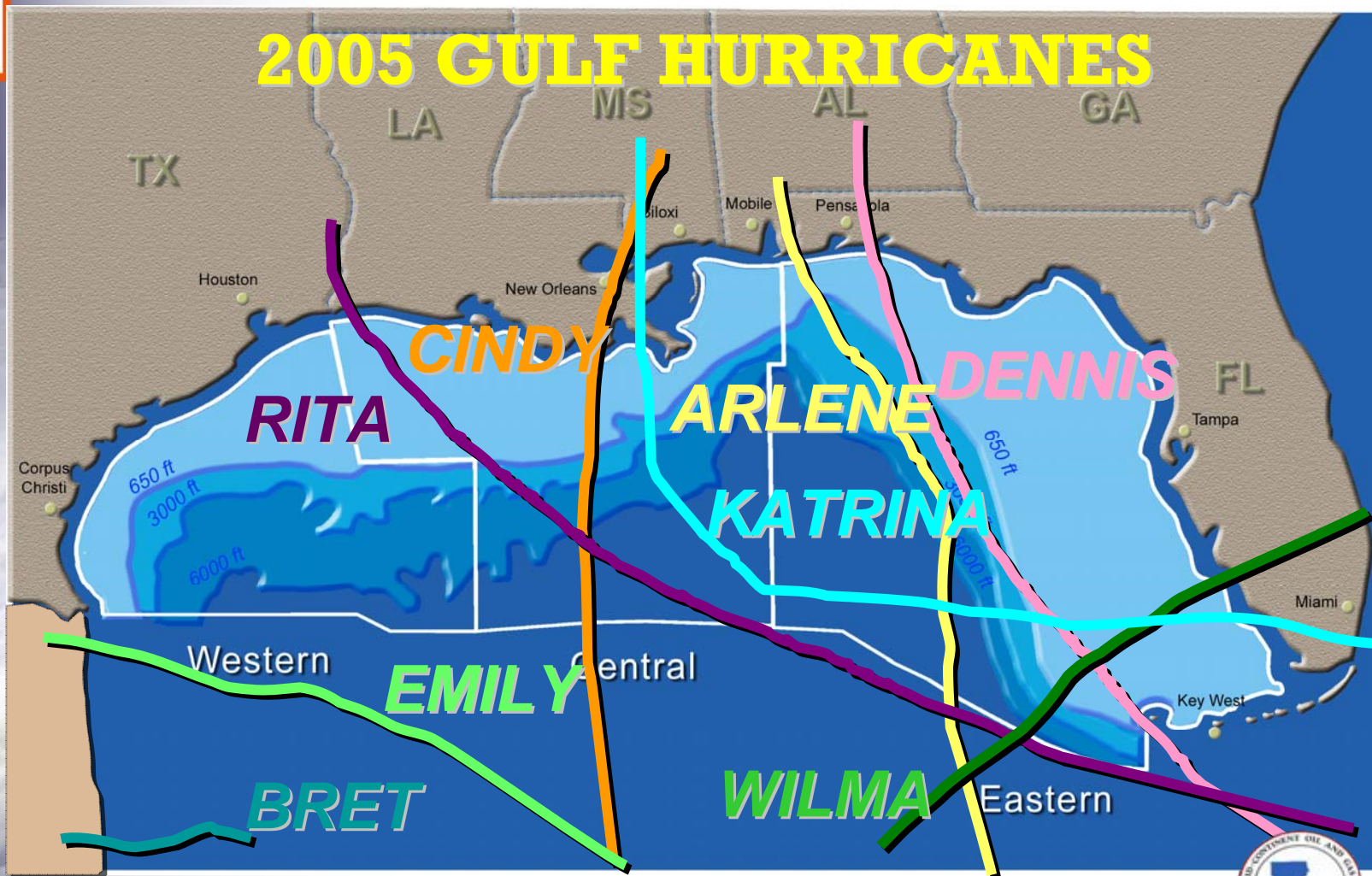
## 15<sup>th</sup> Annual Emission Inventory Conference

New Orleans, LA  
May 16, 2006

**RESPONSE:** DEQ'S EMERGENCY RESPONSE EFFORTS IN  
THE WAKE OF HURRICANES KATRINA & RITA

LOUISIANA DEPARTMENT OF **ENVIRONMENTAL QUALITY**

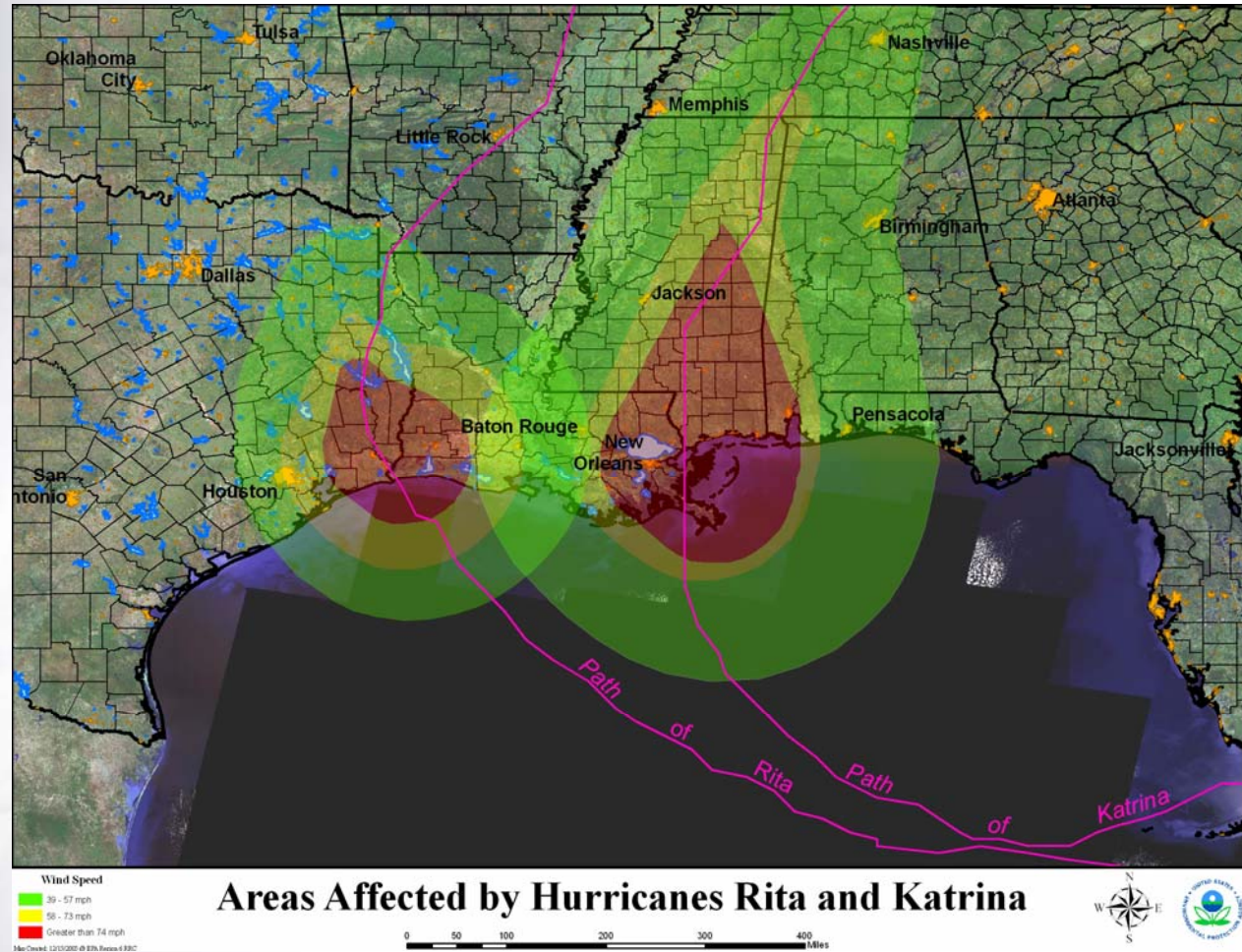
SECRETARY MIKE D. MCDANIEL, Ph.D.





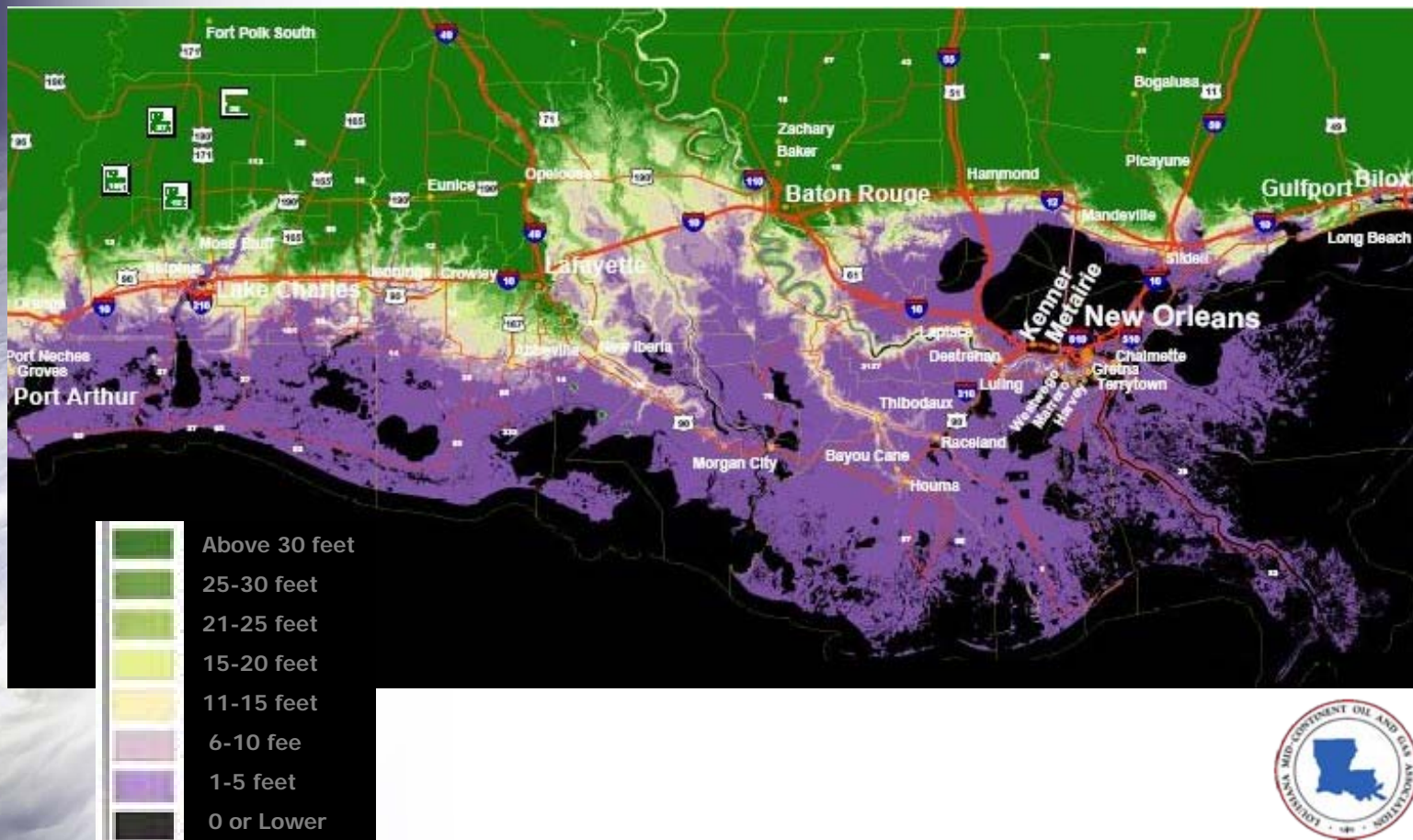


# Hurricanes Katrina and Rita Wind Tracks





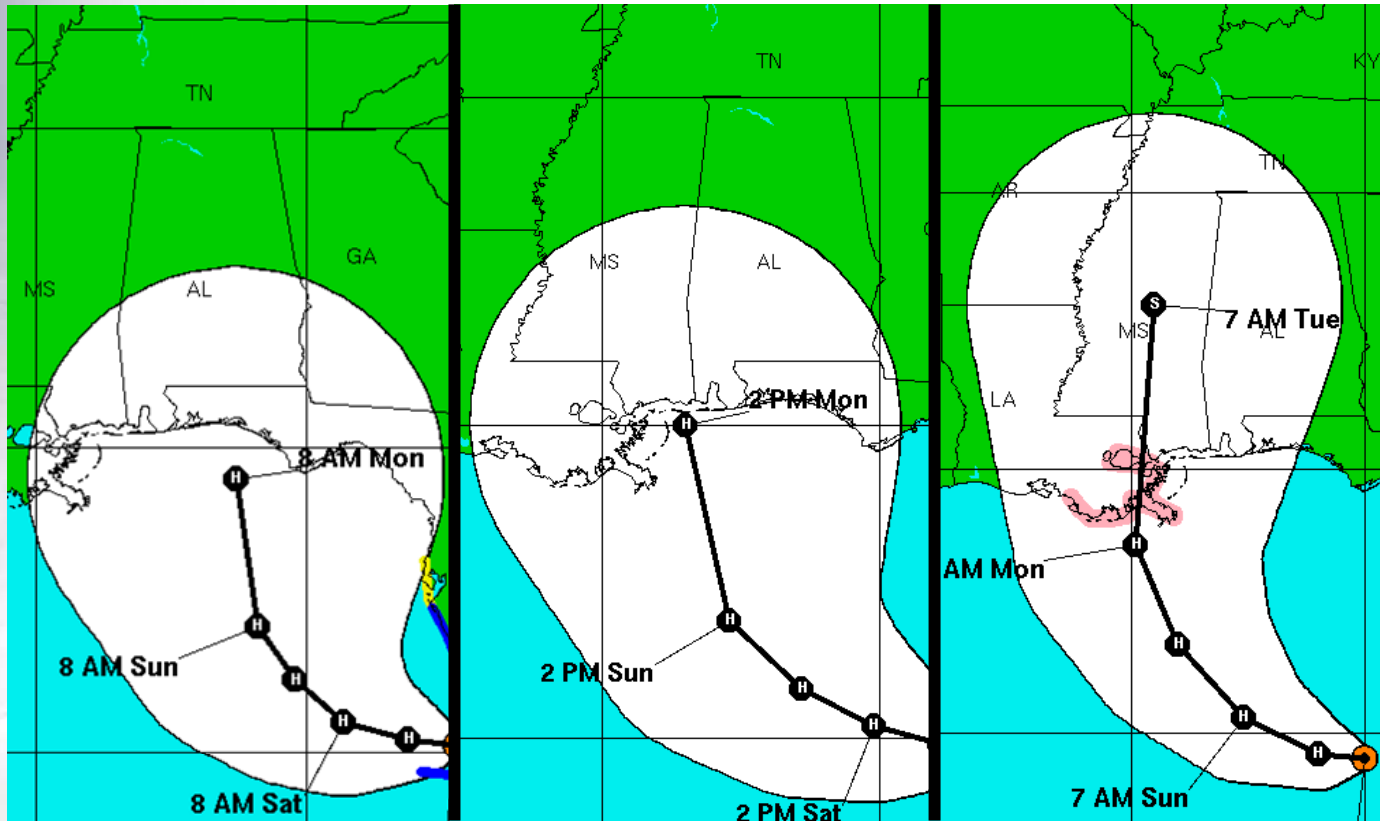
# Louisiana Coastal Surface Elevation







# National Hurricane Center Katrina Advisories



**11 AM Advisory**  
**Friday, Aug. 26**

**5 PM Advisory**  
**Friday, Aug. 26**

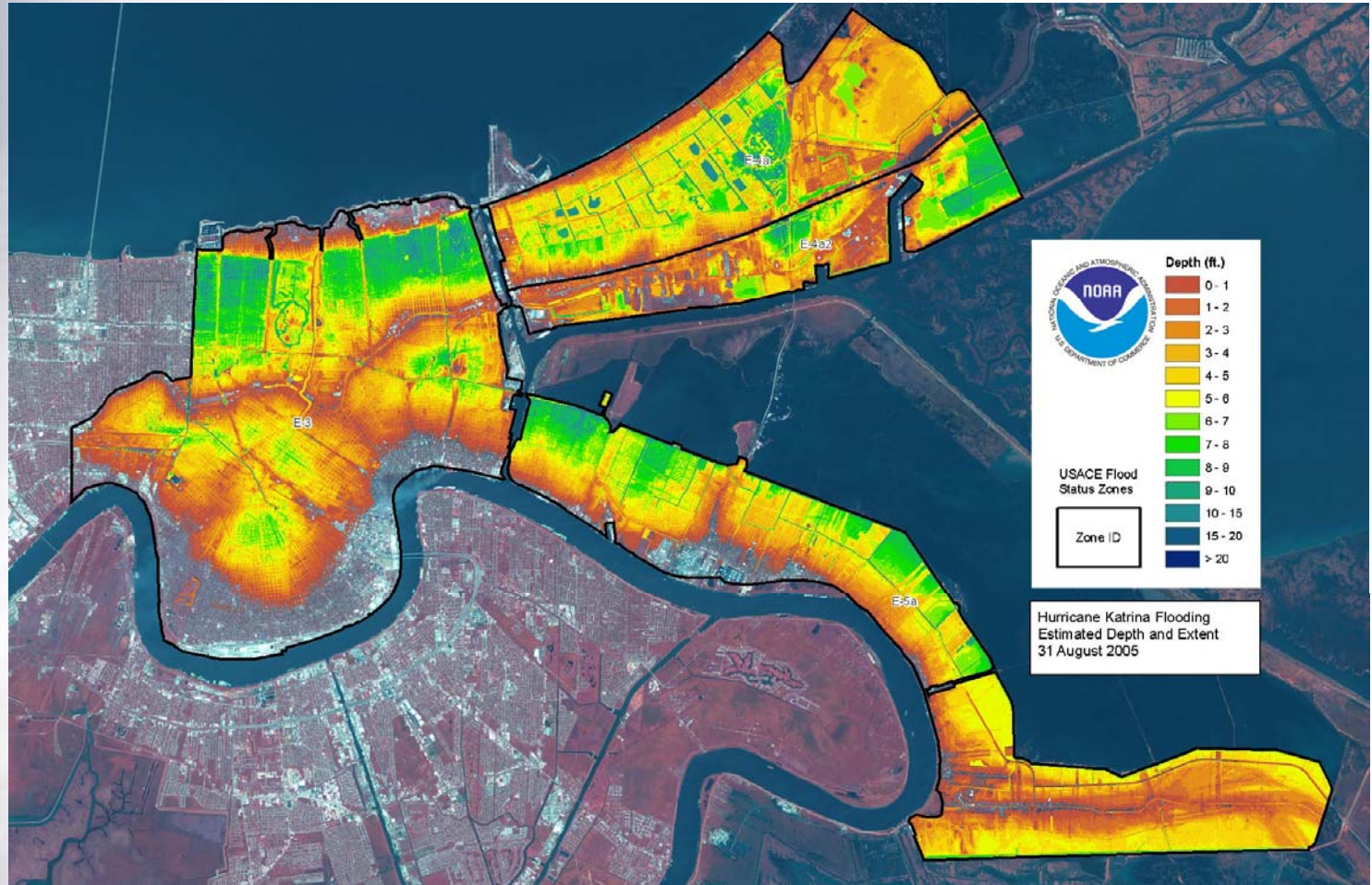
**10 AM Advisory**  
**Saturday, Aug. 27**





# Flooded Areas of New Orleans

## 31 August 2005







# Katrina Flooding in New Orleans







# Katrina Flooding in New Orleans







# Katrina Flooding in New Orleans







# SEARCH AND RESCUE



- Teaming with the Louisiana Sheriffs' Association, LDEQ employees aided in the rescue of approximately 480 people from the hurricane affected area.



# DEQ EMERGENCY RESPONSE OPERATIONS:



DEQ ER staff manned workspace at the LOHSEP EOC around the clock even before Katrina came ashore and for several months afterward.

Immediately following Katrina's landfall, an Incident Management Team (IMT) began assembling at DEQ HQ Galvez building. A Unified Command Center (UCC) was established to house and support the IMT. UCC later moved to New Orleans.

Working from the UCC were DEQ, and representatives from EPA, TCEQ, COE, USCG, NOAA, USGS, LOSCO, LDHH, and local government.

A similar IMT and UCC was established at DEQ's southwest regional office in Lake Charles following Hurricane Rita.



# EARLY RECONNAISSANCE, DAMAGE & ENVIRONMENTAL THREATS ASSESSMENT:

## Air and Ground Reconnaissance

- Industrial Sites
- Oil Spills
- Wastewater Treatment Plants
- Rail Cars
- Barges
- Radioactive Materials Locations
- NPL (Superfund)/Hazardous Materials Sites
- Ruptured Pipelines
- Access Routes
- Photo-documentation





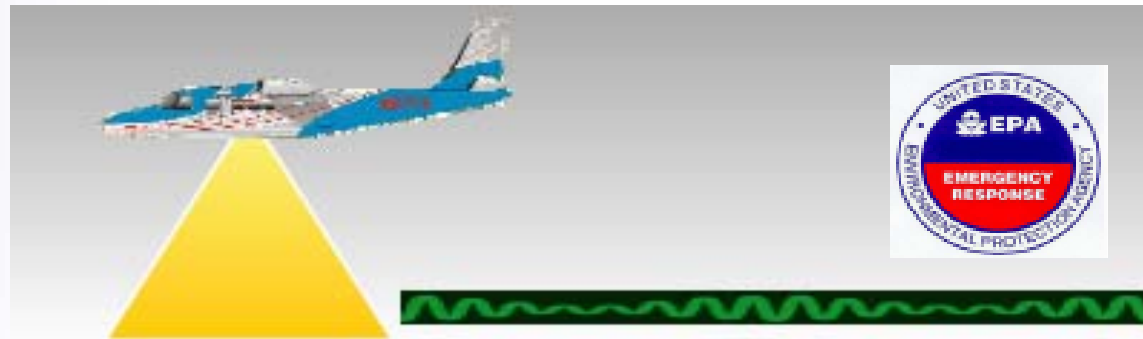
# EARLY RECONNAISSANCE, DAMAGE & ENVIRONMENTAL THREATS ASSESSMENT:

## *Employment of New Remote Sensing Technologies*

- EPA ASPECT Aircraft
- Helicopter Mounted HAWK Camera
- DOE Airborne Radiation Detectors
- High Resolution Aerial Photography
- Satellite Imagery



# EPA ASPECT Aircraft



- Rapid Response—Wheels Up in Under 1 Hour
- Direct Integration into the Local Incident Commander
- Compatibility with Common Data Systems
- Remote Detection of Chemical Plumes
- Automated Data Processing and Transmission
- Aerial Photography Capability
- Radiological Detection Capability





# HAWK Image of Leaking Propane Sphere





# EARLY RECONNAISSANCE, DAMAGE & ENVIRONMENTAL THREATS ASSESSMENT:

Photodocumentation







# Spill Response

- **SE LA Oil Spills**
  - 6 major
  - 3 medium
  - 133 minor
  - 191,000 barrels
- **SW LA Oil Spills**
  - 2 major
  - 2 medium
  - 174 minor
  - 4,200 barrels
- **USCG lead in most cases**





# FOLLOW-UP GROUND RECONNAISSANCE & ASSESSMENT:

- Industrial Sites
- Rail Cars
- NPL(Superfund)/Hazardous Materials Sites
- Radioactive Materials Locations
- USTs
- Drinking Water Sources/Intakes





# REGULATORY FLEXIBILITY FOR EMERGENCY RESPONSE/RECOVERY:

- Emergency Declarations
- Waivers
- Variances
- MOA/MOU (E.G. Ag Timber Recovery, Animal Carcass Disposal, etc.)



# REGULATORY FLEXIBILITY FOR EMERGENCY RESPONSE/RECOVERY:

## Emergency Declarations and Orders

Most of the provisions of the Orders are designed to facilitate the rapid removal and disposal of hurricane-generated waste, the restoration of commercial and industrial activities, and the repair of crucial infrastructure in the hurricane-ravaged areas, all in a manner that is protective of human health and the environment.





# REGULATORY FLEXIBILITY FOR EMERGENCY RESPONSE/RECOVERY:

## WAIVERS/VARIANCES/DETERMINATIONS

- **Repairing and Restarting Industrial Facilities**
  - Use of portable flares for vessel and pipeline purging
  - Use of emergency equipment to address damage to facilities
  - Portable tank storage
  - Waiver of some emissions requirements to allow repair of facility units
  - Use of diesel fired generators for electrical power to facilitate cleanup of the facility and in some instances to operate
  - Use of diesel fired pumps to pump out flood waters
  - Waivers to allow the landing of tank roofs so they can be repaired



# REGULATORY FLEXIBILITY FOR EMERGENCY RESPONSE/RECOVERY:

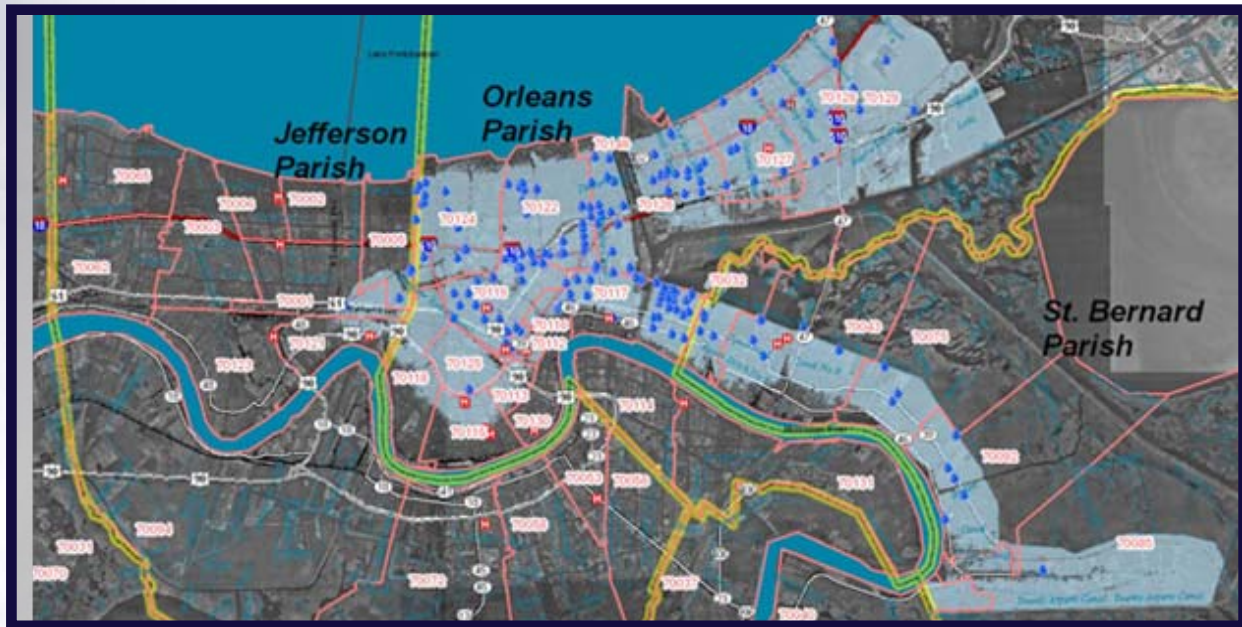
## WAIVERS/VARIANCES/DETERMINATIONS

- As of this date we have charted 319 waivers/variances/determinations for Hurricane Katrina and 226 for Hurricane Rita
- Fuel Waivers
  - Secretary McDaniel on August 30, 2005 requested relief from certain federal fuel requirements, such as, Reid Vapor Pressure requirements for gasoline and sulfur content in diesel fuel.
  - U.S. EPA provided waivers for these fuel requirements by letters dated August 30 and 31, 2005.





# ENVIRONMENTAL SAMPLING AND ASSESSMENT:



Floodwater  
Sediment/soils  
Drinking water

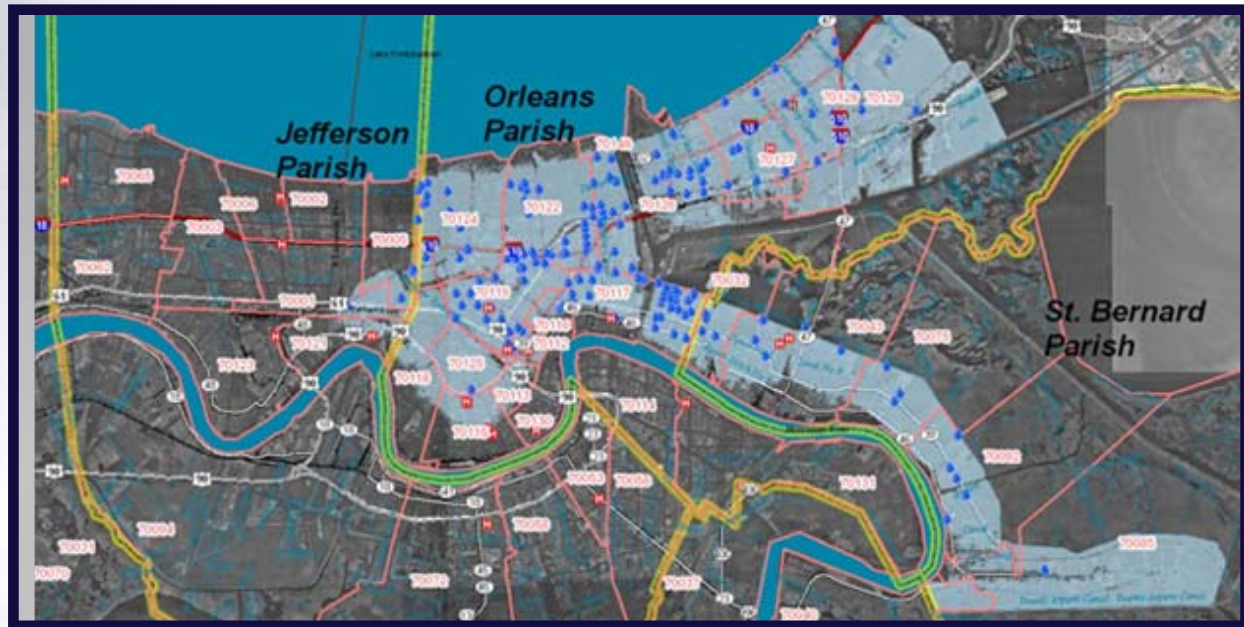
Pumped water  
Air  
Biological tissues





# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-New Orleans Floodwaters



- Floodwater sampling locations





# FLOODWATER SAMPLING:

## New Orleans Area Sampling

182 floodwater samples

192 compounds analyzed

34,944 total analyses

- Volatile and semi-volatile organics, metals, pesticides, herbicides, PCBs, total coliform, & petroleum hydrocarbons
- Fecal coliform densities were initially high as expected but have continually declined over time
- Some elevated levels of metals observed (arsenic, cadmium, lead, selenium, zinc), but none that represent an immediate health threat.
- As of October 11th, floodwaters had been pumped out.



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

## Surface Waters-Lake Pontchartrain



- Total estimated volume pumped from New Orleans to Lake Pontchartrain was 8.86 billion cubic feet or 4.5% of the volume of Lake Pontchartrain





# HISTORIC STORMWATER DISCHARGE

## V. FLOODWATER DISCHARGE:

Concentration Levels In Floodwaters

- Post-Katrina floodwaters were pumped into canals and then discharged to Lake Pontchartrain
- These floodwater discharge concentrations were compared to historical permitted discharge monitoring reports (DMRs) for stormwater
- Comparison of maximum detected results revealed very little difference between historical norms and post-Katrina levels



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Lake Pontchartrain  
and surrounding waters

- Used 49 historic water quality sites plus 9 new sites to assess impacts to area water bodies
- Conducted more than 55,000 analyses for water quality as of 12/31/2005
- Conducted biotoxicity testing on floodwaters pumped into the lake





# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

## Surface Waters-Lake Pontchartrain



- Lake Pontchartrain remains normal for this time of year and, evidently, has been unaffected by the pumping of floodwaters from New Orleans
- Live shrimp & crabs were found in traps on the Southshore immediately following Katrina
- Field observations have reported large schools of fish striking at bait
- Large shrimp catches were reported in December
- Recreational fishing has been good as reported in local newspapers



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Mississippi River

## Drinking Water Protection

- Testing at three locations for bacteria and organic pollutants:
  1. New Orleans East Bank
  2. New Orleans West Bank
  3. Belle Chase
- 25 samples collected, all organic parameters below detection level
- All bacteria samples met drinking water quality standards





# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

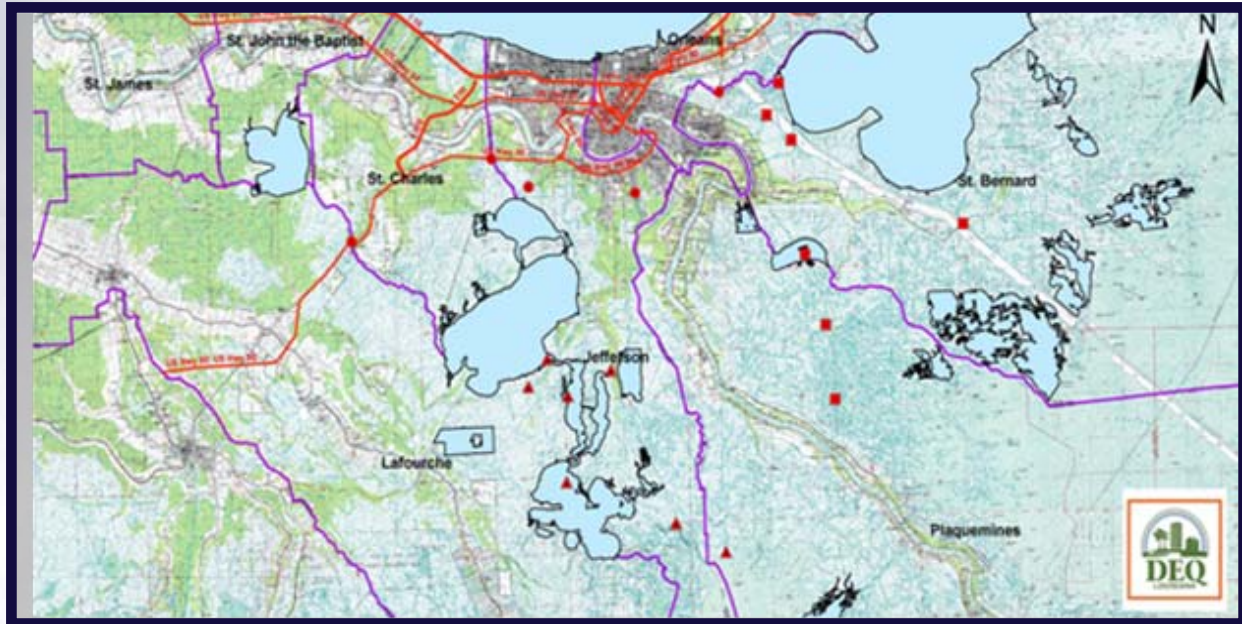
## Drinking Water Sources

- LDEQ and USGS sampled private drinking water wells (LDHH is responsible for public water systems)
- Samples taken for VOCs, metals, nutrients, conventionals and fecal coliforms
- 10 wells sampled: Fecal coliform detected in 3, Selenium detected in 1
- 5 sheared-off wells discovered, DOTD notified
- No VOCs detected
- Initial results indicate little effect on aquifer



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Coastal Louisiana (Including Seafood)



- Environmental sampling and assessment was done across coastal Louisiana.



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Coastal Louisiana (Including Seafood)

## Fish Tissue Sampling

- Multi-agency effort among Louisiana, Mississippi and Alabama environmental and public health agencies, FDA, NOAA, and EPA
- Lake Pontchartrain to Mobile Bay
- Shrimp, crabs, oysters and finfish
- LDEQ and FDA sampled Lake Pontchartrain
- No fish advisories were needed





# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

## Sediments



- Considerable sampling and analysis of sediments deposited throughout the flooded areas was done to address public health concerns



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

## Sediments

- Approximately 850 New Orleans area sediment samples have been collected and analyzed for a wide array of pollutants such as volatile organic compounds, semivolatile organic compounds, total metals, pesticides and petroleum hydrocarbons
- *E. Coli*, a fecal contamination indicator was frequently detected in sediment samples, but no standard exists for determining human health risk. EPA and CDC recommended limiting exposure to sediment where possible and cleaning carefully if contact occurs. Levels fell as the sediments dried out
- As expected, there was some contamination by petroleum hydrocarbons, particularly in the Murphy Oil spill area. EPA and CDC expressed some concern for long-term skin contact
- Levels of metals and pesticides detected were below levels that would be expected to produce adverse health effects
- There were some areas of elevated lead and arsenic in soils, but this was determined to be an urban legacy issue unrelated to the storms.



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

## Air Quality-New Orleans Area



- Fully operational since Sept. 14, 2005
- No exceedances of Louisiana or EPA's Air Quality Standards
- VOCs (14 samples since Katrina, 100 parameters per sample)
- **17280+** hours measured since Katrina for the parameters below:
  - Carbon Monoxide
  - Hydrogen Sulfide (discontinued – very low concentrations)
  - Nitrogen Oxides
  - Ozone
  - Particulate Matter 2.5 (PM<sub>2.5</sub>)
  - Sulfur Dioxide (SO<sub>2</sub>) (discontinued – very low concentrations)





# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Air Quality-New Orleans Area

- Portable particulate matter (PM) monitors being used during burning and/or grinding operations
- 12 monitors to be deployed throughout the Greater New Orleans area
- Hourly data will be sent via satellite to EPA's database at: [airnowtech.org](http://airnowtech.org)



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Air Quality-New Orleans Area



- **EPA TAGA** - self-contained mobile laboratory capable of continuous, real-time sampling and analysis



# ENVIRONMENTAL SAMPLING AND ASSESSMENT:

## Air Quality-New Orleans Area

- **EPA TAGA Results-** Found elevated benzene around Murphy Oil (St. Bernard Parish) shortly after the storm
- Subsequent sampling near Murphy Oil found reduced levels of benzene, below screening levels
- Sampling in other areas indicated that chemical concentrations were below ATSDR screening levels
- **LDEQ Grab Samples** – Around 3500 analytical measurements to date in the New Orleans and surrounding areas
- Only significant result found at the Murphy Oil spill after the hurricane.
- No other significant numbers have been found





# STORM DEBRIS MANAGEMENT:





# STORM DEBRIS MANAGEMENT:

## Storm Debris Quantity Estimates

- Hurricane Katrina generated an estimated 22 million tons (55 million cubic yards) of debris.
- Hurricane Rita generated an estimated one-half million tons (1 million cubic yards) of debris.



# STORM DEBRIS MANAGEMENT:

## Debris Management Sites

Debris management sites have been identified by the local parishes and evaluated and approved by DEQ. These sites are designated for specific purposes:

- Woodwaste Burning Operations
- Woodwaste Chipping and Grinding
- Construction and Demolition Staging or Disposal
- Staging of Boats, Vehicles, White Goods
- Staging of Household Hazardous Waste

The current debris management sites have been used to process 74% of the Katrina generated debris and 99% of Rita generated debris.

- **402 approved sites in the state**
- **216 for Katrina debris**
- **186 for Rita debris**





# STORM DEBRIS MANAGEMENT:

18,680 homes are currently scheduled for demolition



- An estimated 140,000-160,000 homes in Southeast Louisiana received flood damage
- All White Goods (refrigerators, stoves, washer-dryers, etc) will be removed from each home for recycling
- Household Hazardous Waste (pesticides, bleach, solvents, etc.) will be removed from each home for disposal



# STORM DEBRIS MANAGEMENT:

Vehicles: 100,000 earmarked for disposal as of May 14, 2006



- An estimated 350,000 vehicles will have to be recycled
- Vehicles brought to the storage areas will be site tagged, inventoried in by license plate, make, model, color and VIN.
- Vehicles will be staged and site tagged for easy retrieval.
- Site operators will forward vehicle data to the Department of Insurance for dissemination to insurers.
- Local governments will be responsible for the proper notification of vehicle owners.
- Louisiana State Police will be sending Inspectors. Vehicles will remain at the staging areas until inspected by the State Police and the National Insurance Crime Bureau.



# STORM DEBRIS MANAGEMENT:

## Vehicle Recycling Protocol

**Scrap vehicles will be dismantled and properly recycled. The following materials will be recovered upon disposal:**

- Gasoline and diesel fuel,
- Refrigerants, lubricating oils,
- Mercury ABS switches, mercury convenience switches,
- Lead acid batteries, brake & transmission fluid, antifreeze & tires.
- Propane tanks and large appliances in recreational vehicles will be removed.





# STORM DEBRIS MANAGEMENT:

Boats: 13,326 earmarked for disposal as of May 14, 2006



- Boats brought to the storage areas will be site tagged, inventoried in by Department of Wildlife and Fisheries registration, make, model, color and serial number.
- Boats will be staged and site tagged for easy retrieval.
- Site operators will compare boat data with FEMA database registry
- Site operators will forward boat data to the Department of Insurance for dissemination to insurers.
- Local governments will be responsible for the notification of owners.
- Louisiana State Police will be sending Inspectors. Boats will remain at the staging areas until inspected by the State Police and the National Insurance Crime Bureau.



# STORM DEBRIS MANAGEMENT:

## Boat Recycling Protocol

Boats deemed for scrap will be crushed to reduce volume for easier handling and management, shredded and properly recycled when possible. The following materials will be recovered:

- Gasoline and diesel fuel
- Refrigerants, lubricating oils
- Mercury bilge switches, propane tanks
- Large appliances, lead acid batteries
- Transmission fluid and electronics, such as, radar sets, radios, GPS units, and depth finders



# White Goods

781,031 Processed to Date



- Refrigerant containing appliances (RCAs) such as: refrigerators, freezers and air conditioning window units will be handled in a manner which will prevent a release of refrigerants.



\*More than 50,000 pounds of Freon extracted







# Orphan Containers



3.3 million  
14MAY06





# Household Hazardous Waste



- Collecting curbside and on request
- Working with debris removal contractors
- Transporting to separation facilities
- Recycling and disposing
- **Over 14.3 M pounds collected to date**







# Electronic Goods (e-Goods)

Approximately 512,000 collected to date

e-Goods at curbside



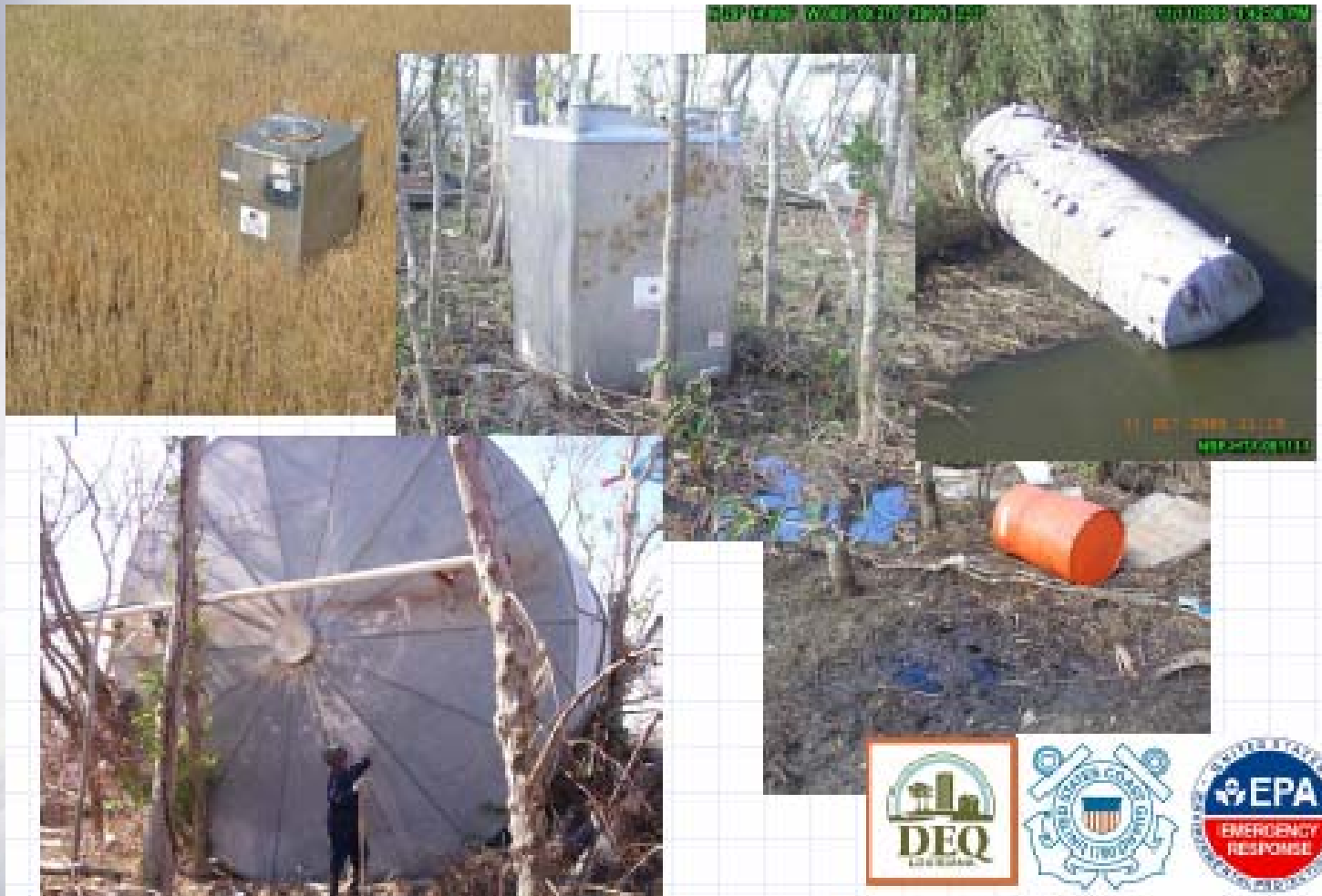
e-Goods prepared for recycling







# MARSH RECOVERY





# MEDIA CALLS:

DEQ Interacts With The Press to Inform the Public





www.deq.louisiana.gov



Louisiana Department of Environmental Quality | HOME - Microsoft Internet Explorer

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### Latest News

**DEQ Reaches Agreement With Environmental Group on Landfill**  
DEQ Communications - 5 days ago  
The Louisiana Department of Environmental Quality reached a settlement with the Louisiana Environmental Action Network on the LEAN lawsuit concerning Gentilly Landfill in New Orleans.

**Progress Reports for Hurricanes Katrina and Rita**  
DEQ Communications - 36 days ago

- Hazardous Waste Disposal
- White Goods - Katrina and Rita Cumulative
- Electronic Waste Disposal and Freon Removal
- Unified Samples Graph

SEARCH:  GO

**HOT TOPICS:**

- by zip code: SEDIMENT SAMPLING MAPS
- katrina & rita: HURRICANE UPDATE
- know the risks: MERCURY INITIATIVE

Done Internet

start AFTER ACTIO... Microsoft Pow... Louisiana Dep... 7:15 PM

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
FOR ALL YOUR ENVIRONMENTS