

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

LOUISIANA DEPARTMENT OF **ENVIRONMENTAL QUALITY**

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DEQ EMERGENCY RESPONSE OPERATIONS:



DEQ ER staff have been manning their workspace at the LOHSEP EOC around the clock since before Katrina came ashore.

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.

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.



SEARCH AND RESCUE



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



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
- Photodocumentation

EARLY RECONNAISSANCE, DAMAGE & ENVIRONMENTAL THREATS ASSESSMENT:

Photodocumentation





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





FOLLOW-UP GROUND RECONNAISSANCE & ASSESSMENT:

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



FOLLOW-UP GROUND RECONNAISSANCE & ASSESSMENT:

Railroad Cars

- 2,500 affected by the hurricane
- 250 derailed, no leaks

Radiation Source Licensees

- New Orleans area: 186 locations, 300 visits
- Lake Charles area: 72 locations, 83 visits

May have multiple visits to one site



FOLLOW-UP GROUND RECONNAISSANCE & ASSESSMENT:

Inspection Data as of October 8, 2005

- UST: 558 inspections
- Remediation: 222 inspections
- Tier 2: 170 inspections
- Total: 950 inspections



FOLLOW-UP GROUND RECONNAISSANCE & ASSESSMENT:

Superfund Sites

Preliminary sampling results for Katrina affected Superfund Sites showed no samples higher than RECAP standards

- Delatte Metals
- Madisonville Wood Preserving
- Bayou Bonfouca
- Southern Ship Building, Inc.
- Agricultural Street Landfill



REGULATORY FLEXIBILITY FOR EMERGENCY RESPONSE/RECOVERY:

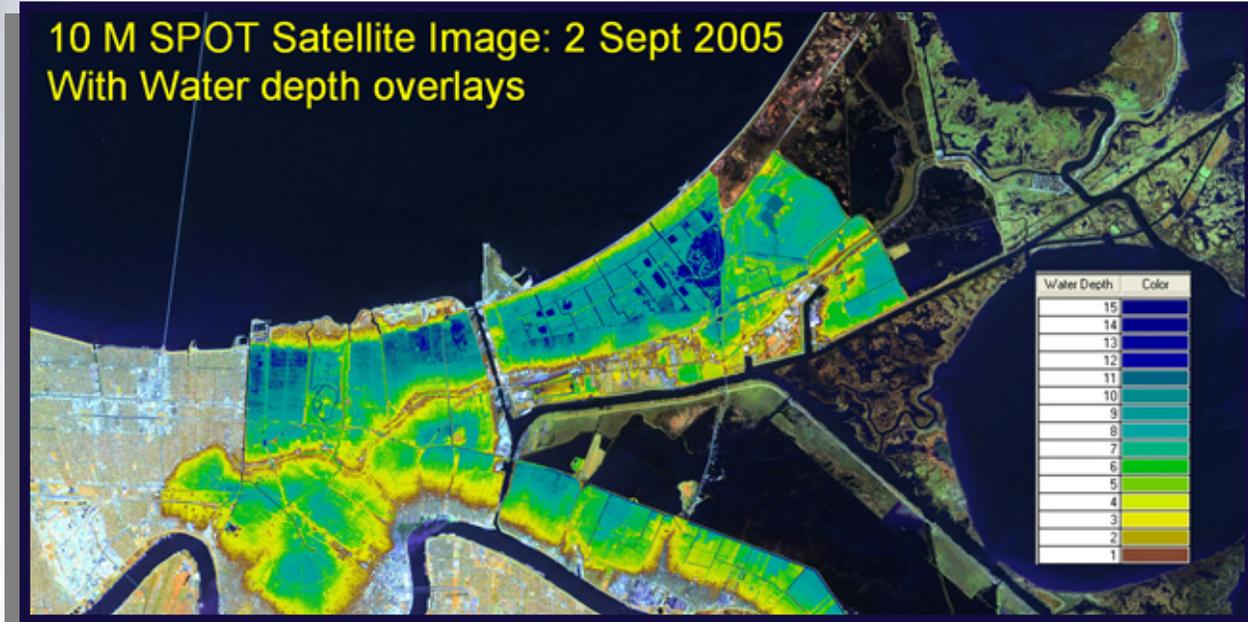
- Emergency Declarations
- Waivers
- Variances
- MOA/MOU (E.G. Ag Timber Recovery, Animal Carcass Disposal, etc.)



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-New Orleans Floodwaters

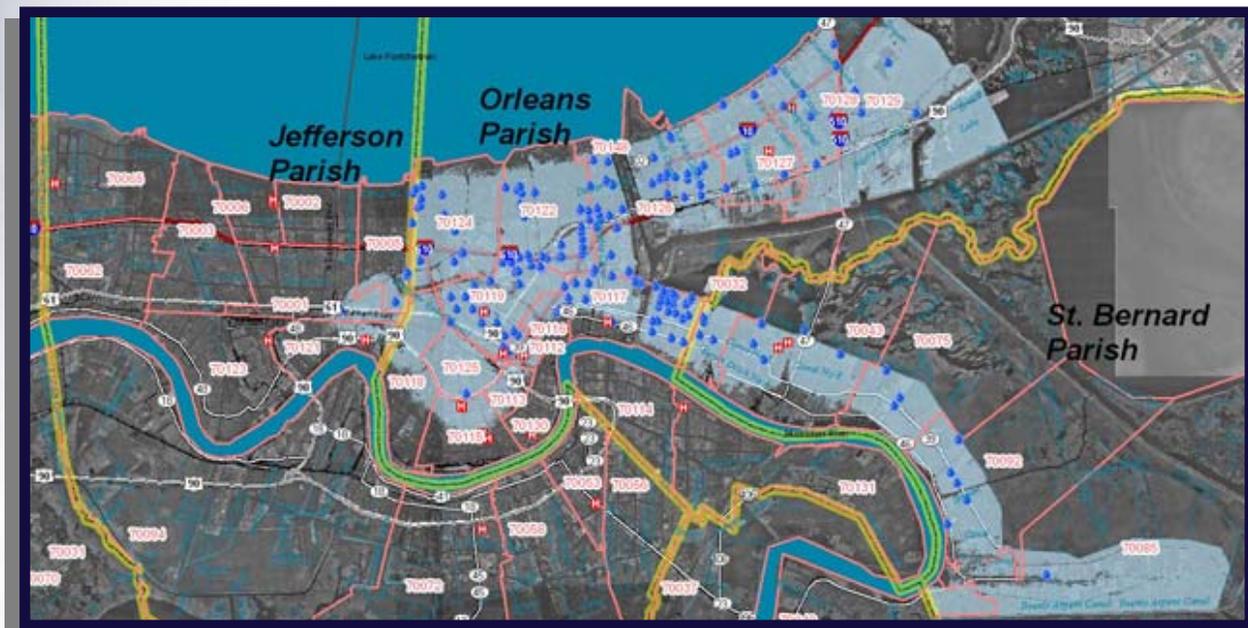
10 M SPOT Satellite Image: 2 Sept 2005
With Water depth overlays



- Floodwater Depth Levels



ENVIRONMENTAL SAMPLING AND ASSESSMENT: Surface Waters-New Orleans Floodwaters



- Floodwater sampling locations



FLOODWATER SAMPLING:

New Orleans Area Sampling

250 floodwater samples

Approximately 200 compounds analyzed

- 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 have 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

- Used 19 historic water quality sites to assess impacts to area water bodies
- Conducted 36,000 analyses for water quality
- Conducted biotoxicity testing on floodwaters pumped into the lake



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Canal Outfalls

- No toxicity has been observed in 88 tests of fish
- 7 out of 88 test results for invertebrates indicated toxicity (3 canal sites)
- Retesting at the 3 canal sites has shown no further toxicity levels
- All other parameters at or near normal for this time of the year



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Lake Pontchartrain

One-half mile off Southshore:

- Atrazine was detected one-half mile off the Suburban Canal but at levels far below EPA's recommended benchmarks

Causeway sites:

- Atrazine was detected at Causeway Crossover 4 (mid-lake) but at levels far below EPA's recommended benchmarks



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Lake Pontchartrain

Northshore

- Northshore streams continue to be impacted by low dissolved oxygen
- Reported fish kills in the Northshore area are the result of low dissolved oxygen
- Oil sheen has been seen at five of seven sites
- These occurrences are expected following a hurricane, similar to what happened after Hurricane Andrew



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Lake Pontchartrain



- Lake Pontchartrain remains normal for this time of year and, to date, has been largely unaffected by the pumping of floodwaters from New Orleans
- Live shrimp & crabs have been found in traps on the Southshore immediately following Katrina
- Field observations have reported large schools of fish striking at bait



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

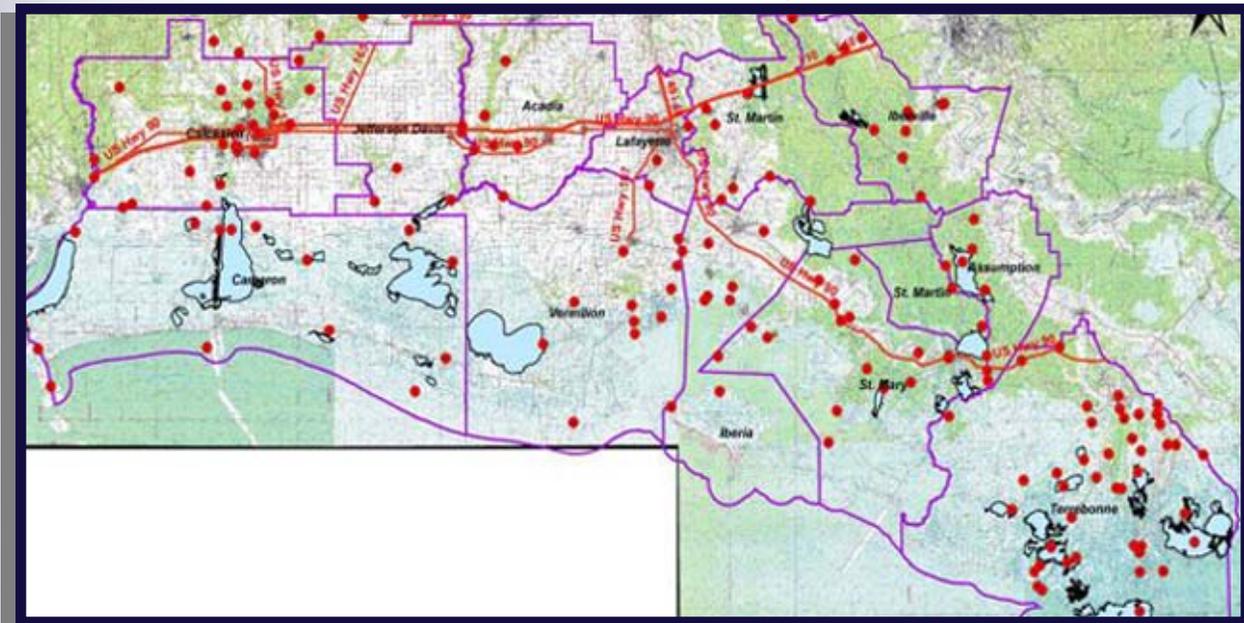
Surface Waters-Mississippi River

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 meet water quality standards

ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Calcasieu Estuary



- A water quality sampling program has been planned and is being initiated in the Hurricane Rita impact area



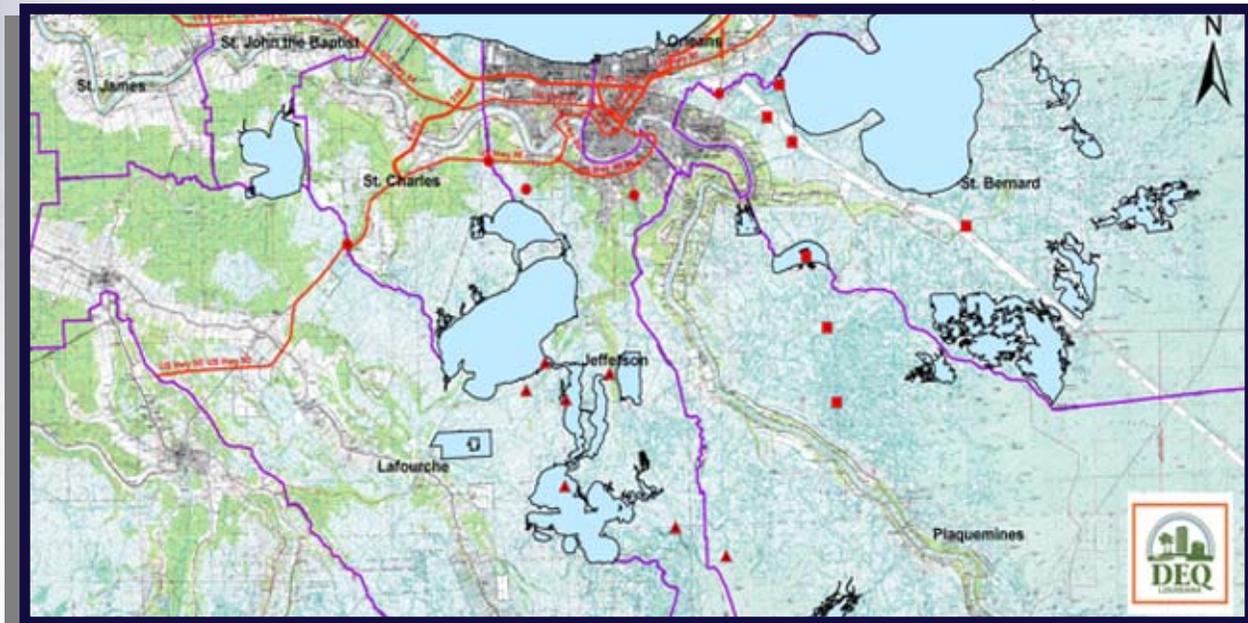
ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Calcasieu Estuary

- 20 sites selected to start sampling next week
- Same sampling/analysis protocols as Lake Pontchartrain
- Field data, conventionals, organics, pesticides, dissolved metals
- Work with PPG on fish tissue sampling
- Work with EPA & industry on an official sediment sampling plan
- Will continue to move into Acadiana

ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Coastal Louisiana (Including Seafood)



- Environmental sampling and assessment is also commencing 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 initiated sampling in Lake Pontchartrain last week



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Surface Waters-Coastal Louisiana (Including Seafood)

NOAA “Nancy Foster” Cruise

Sampled fish, water and sediment to determine bacterial and chemical contamination

- None of the fish and crab samples (154) harbored *E. coli*
- Water samples below EPA safety levels for swimming
- Fish tissue analyzed for pesticides and other industrial chemicals (DDT, PCBs)
- Levels far below FDA safety levels
- Marine sediments (8) tested positive for Enterococcus bacteria, but at very low levels
- Marine life showed no elevated hydrocarbon contamination which would be common after oil spills



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Drinking Water Sources

- LDEQ and USGS are sampling 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
- Sampling will continue

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 350 New Orleans area sediment samples were 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 are expected to fall as the sediments dry 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
- Thicker layers of sediments throughout the area are planned to be removed and disposed of



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)
- 5760+ hours measured since Katrina for the parameters below:
 - Carbon Monoxide
 - Hydrogen Sulfide
 - Nitrogen Oxides
 - Ozone
 - Particulate Matter 2.5 (PM_{2.5})
 - Sulfur Dioxide (SO₂)



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Air Quality-New Orleans Area

- Portable particulate matter (PM) monitors to be used during burning operations
- 9 monitors to be deployed throughout the Greater New Orleans area
- 4 monitors already in place at Kenner, New Orleans, Marrero and City Park locations
- Hourly data will be sent via satellite to EPA's database at: airnowtech.org (not available to the general public yet)



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 – 1600+ parameters measured** 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



ENVIRONMENTAL SAMPLING AND ASSESSMENT:

Air Quality-Lake Charles Area

- 5 monitoring stations with minimal damage
- Ragley site is the only operational station
- Remaining 4 sites will be operational after minor repairs and power is restored
- The EPA TAGA unit is scheduled to be deployed in the near future



STORM DEBRIS MANAGEMENT:

Storm Debris Quantity Estimates

Based upon Corps of Engineer Debris Models:

- 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-By Parish

Katrina Impacted Parishes	Number of Debris Management Areas		Rita Impacted Parishes	Number of Debris Management Areas
Ascension	4		Allen	1
Jefferson	17		Beauregard	2
Lafourche	4		Calcasieu	20
Livingston	6		Jefferson Davis	2
Orleans	21		Lafayette	2
Ouachita	1		Natchitoches	1
Plaquemines	4		Rapides	1
Pointe Coupee	1		Sabine	1
St. Bernard	4		Vermilion	3
St. Charles	9			
St. James	2			
St. John	2			
St. Martin	2			
St. Tammany	23			
Tangipahoa	3			
Terrebonne	1			
Washington	11			
Total	115			33
As of 10/12/05				



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 22% of the Katrina and Rita generated debris.

- Approximately 115 Sites in Katrina Impacted Parishes
- Approximately 33 site in Rita Impacted Parishes



STORM DEBRIS MANAGEMENT:

Construction & Demolition Wastes Management



- 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
- All thermostats will be removed because they contain Mercury
- All smoke detectors will be removed because they contain small amounts of radioactive materials
- Household Hazardous Waste (pesticides, bleach, solvents, etc.) will be removed from each home for disposal



STORM DEBRIS MANAGEMENT:

White Goods Management



- 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.
- RCAs will be delivered to approved collection sites for refrigerant removal. EPA certified refrigeration technicians will remove refrigerants and handle in accordance with EPA standards.
- Refrigerants will be removed from condemned structures with split system air conditioning units prior to demolition. Only EPA certified refrigeration technicians will remove and handle refrigerants in accordance with EPA standards. Condensing units will then be removed from site and sent to appropriate collection site.



STORM DEBRIS MANAGEMENT:

White Goods Recycling Protocol

- White goods (e.g., unsalvageable air conditioners, stoves, range tops, and refrigerators or freezers from which food has been removed) will be stored in an area separate from other wastes and will be stored in a manner that prevents vector and odor problems and will be removed from the facility or staging area within ninety (90) days.
- Putrescible waste (e.g. rotting food has been removed from unsalvageable refrigerators and freezers) will be disposed in a permitted Type II landfill.

White Goods Table

Location (Parish)	Days White Goods	Grand Total White Goods
St Tammany	317	317
Upper Jefferson	640	640
Grand Isle	75	0
Lafourche	0	0
	Daily Grand Total	957
	White Goods Cumulative Grand Total	6796



STORM DEBRIS MANAGEMENT:

Vehicle Management



- 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:

Boat Management



- 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



STORM DEBRIS MANAGEMENT:

Current Status: Vehicles and Boats

- 1,500 vehicles at government aggregation sites
- 200 boats aggregated in St. Bernard.

- 68000 vehicle VIN's recorded in State Police Anti-Fraud Task Force database (4,000 by Task Force, 2,800 reported by insurance companies)

New Orleans Lakefront Marina (airport)

- 67 boats salvaged
- 170 remaining

Coast Guard

- 1,907 Katrina vessels identified
- 157 Rita vessels identified
- 2,054 total identified

- 493 salvaged (all Katrina)



MEDIA CALLS:

DEQ Interacts With The Press to Inform the Public

