

JOINT RRT IV & VI MEETING

ATLANTA, GA.

JULY 31 – AUG 02, 2012 Georgia Tech Research Institute 250 14th Street NW Atlanta, GA 30318

TUESDAY JUL 31

0800 RRT IV & RRT VI COMBINED EXECUTIVE COMMITTEE MEETING

- RRT Conference Calls/Communications issues
- Dispersant Use Plan
- Boundary Issues
- Review Agenda for the meeting
- Future RRT Meeting format

1300 RRT IV & RRT VI CONCURRENT MEETINGS

- Welcome/Introductions/Administrative Notes
- Approval of Nov 2011 Meeting minutes
- Committee Reports:
 - Executive Committee
 - Response Committee
 - Science & Technology Committee
 - Preparedness Committee
 - Industry Work Group
- USCG Captain of the Port (COTP) Reports
 - Sector Corpus Christi /Sector Houston-Galveston/ MSU Texas City/MSU Port Arthur/ MSU MorganCity/Sector New Orleans/Sector Mobile COTP Representatives
- RCP/ACP Updates and Developments Mr. Jim Staves, EPA; Mr. Mike Sams, USCG
- Planning, Preparedness, & Response: Oil Discharge
- April 3, 2012 MOA between BSEE & CG
- (OSRP Policy & Guidance Review) Mr. Michael Tolbert, BSEE; Mr. Mike Sams, USCG
- Government Initiated Unannounced Exercise Policy & Guidance Review Mr. Mike Sams, USCG; Mr. Jim Staves, EPA
- Federal Agency Reports:
- Data Workgroup Mr. Jim Staves, EPA
- Review of Action Items Mr. Steve Mason, EPA; Mr. Todd Peterson, USCG

WEDNESDAY AUG 01

0800 JOINT GENERAL SESSION

- Opening Remarks / Introductions Franklin Hill, EPA
- Administrative Announcements
- The Future of HazMat Responses
- Natural Disaster Operations Workgroup (NDOW) and Assessment Tools
- Subpart J Revisions
- Subsea Dispersant Monitoring Guidance
- Area Contingency Plans
- Regional Contingency Plan Structure
- RRT Meeting Attendance

THURSDAY AUG 02– JOINT GENERAL SESSION

0800 JOINT GENERAL SESSION

- Panel Discussion – GOM Sampling, Monitoring, Subsea Guidance
- Pre-Authorization, Chemical Counter Measures Discussion
- Regional and Agency Boundaries
- RRR IV & VI Communication (meetings + exercises)
- Co-Chairs NRT Report Highlights
- Facility Preparedness for Disasters
- Action Items
- Closing Comments

1500 Adjourn

SECTOR

CORPUS CHRISTI



Captain of the Port Report
Regional Response Team Meeting
July 2012

SIGNIFICANT EVENTS

- 62 pollution cases
 - 25 Letters of Warning issued
 - 12 Notices of Violation issued
 - 03 Civil Penalties
 - 08 Federal Projects
- M/V Hard Times – Sunken Vessel
- Rowan & FR8 Pride Collision
- Shell Prep Exercise

M/V HARD TIMES

- USCG, TGLO, Conn Brown Harbor joint pollution removal & disposal
- Owner could not be located & vessel was a continual source of sheen
- Pollution case federalized, pollution removed, local marina raised the vessel, TGLO worked alongside marina to dispose of vessel



ROWAN & FR8 PRIDE COLLISION

- May 2nd, M/T FR8 Pride, inbound traffic scheme, Aransas Pass
- Attempted to overtake inbound rig Rowan EXL-1
- M/T FR8 Pride lost propulsion, collided with Rowan EXL-1
- Both vessels suffered hull breach
- Resulted in minor pollution from damaged hydraulic lines
- Zero injuries



PREP EXERCISE

APRIL 12th, 2012

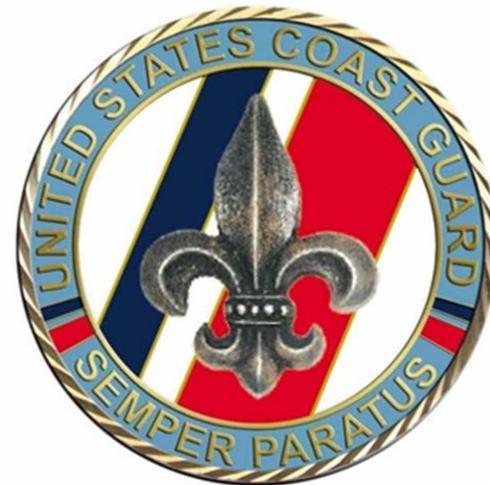
- Location: Omni Hotel, Corpus Christi, TX
- During the exercise a sheen was reported in Morgan City, LA
- Shell was suspected to be the source, sheen was traced back to a natural seep
- Shell deployed personnel to the sheen, while supporting the ICS structure, exercise went smooth
- A testament to the effectiveness & flexibility of the ICS system to manage multiple incidents & adapt to fit operations



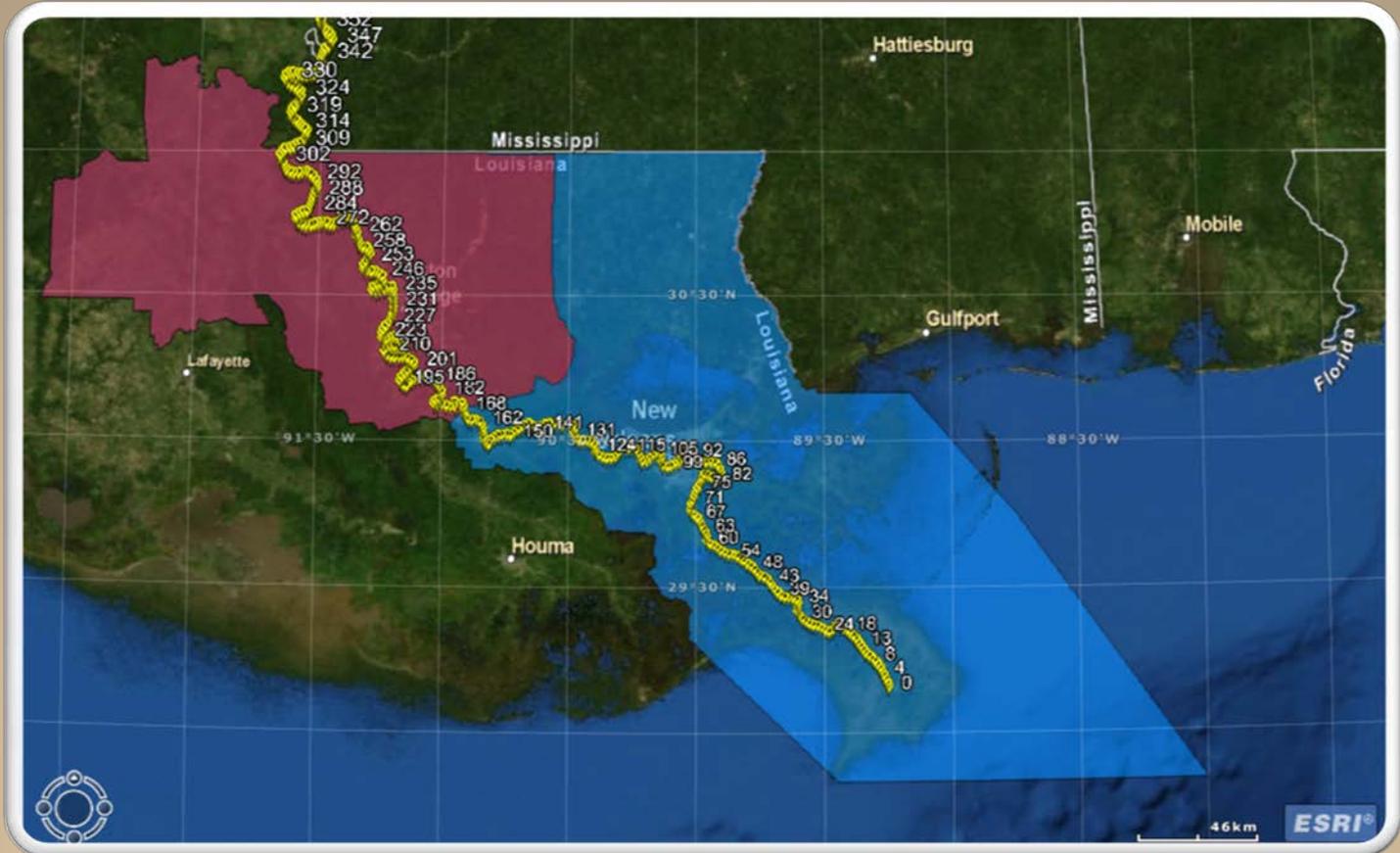
Sector New Orleans

Captain of the Port

RRT Region VI – 31 July 2012



Sector New Orleans COTP Area of Responsibility



IMD Cases: NOV 2011 – JUL 2012

NRC Reports	Investigations
599	310

IMD Enforcement Actions Taken

NOV's/Warnings	Total Fines
258	>\$90,500

Federal Projects

OSLTF Projects	CERCLA Projects
10	6

Notable Cases



Date: 11SEP11 TOT: 2325Z Dir=357 Lat=N29 30' 32.54" Lon=W089 59' 08.74" Alt=243ft MSL WGS 1984



N11056 – Cedyco Manila Village



Summary: On September 11, 2011, SEC NOLA received a report of a ruptured flow line on a production facility located in Bayou Dupont, North Barataria Bay. SEC NOLA IMD conducted an over flight and also sent a team to the incident location. Upon investigation, it was determined that there were three ruptured flow lines associated with the facility that were discharging crude oil. OMI Environmental Solutions, Inc. was contracted for initial assessment, containment, clean up and disposal. Wild Well Control, Inc. was contracted for well diagnostics and P&A operations.

Final Ceiling: \$11,200,000.00

Total CTR & Direct costs: \$11,138,555.75

All Response Operations were completed on January 19, 2012



N11056 – Cedyco Manila Village



Final Results:

- 5,200 ft of containment boom deployed
- 250 bbls of free-floating oil recovered
- 5,904 bbls of oily water recovered
- 500 cu ft of oiled debris recovered
- Plugged and Abandoned all 10 wells (9 Permanent, 1 Temporary)
- Removed the pollution threat from this facility by recovering all oil and oily material from the storage tanks, flow lines and processing equipment on the facility.
- Prevented any future illegal operations by cementing all open flow lines and welding covers on all tanks, processing equipment and barge deck openings.

N12017 - Settoon Barge SMI 30020 Collision/Spill



Summary: On February 17, 2012, SEC NOLA received a report of a collision between a crane barge and the tank barge SMI 30020 in the LMR at MM 139. SEC NOLA responded to the incident location and discovered an approximate 5ft. X 8ft. ruptary in the port #2 cargo tank. A Unified Command was established to coordinate response efforts and the OSLTF was opened for initial assessment and funding of GST personnel and PRFA's for OGA's. The RP assumed financial responsibility and took proper response actions under the direction of the UC and supervision of Sector New Orleans.

N12017 - Settoon Barge SMI 30020 Collision/Spill

Notes:

- 162 bbls discharged
- 77 barges impacted and decontaminated downriver
- 4 water intakes protected
- Early communication and coordination w/ stakeholders proved positive
- RP was very proactive; called in spill response team and cleanup teams immediately
- Sector and UC conducted a Worst Case Discharge Response
- Proactive press releases
- ADM Papp stated, “This was a text book response”



Office of Inspector General Audit of EPA Planning Practices

Finding – EPA could make its contingency planning structure more effective by simplifying the volume of plans and focusing on technological methods for some NCP requirements.

Proposed Recommendation:

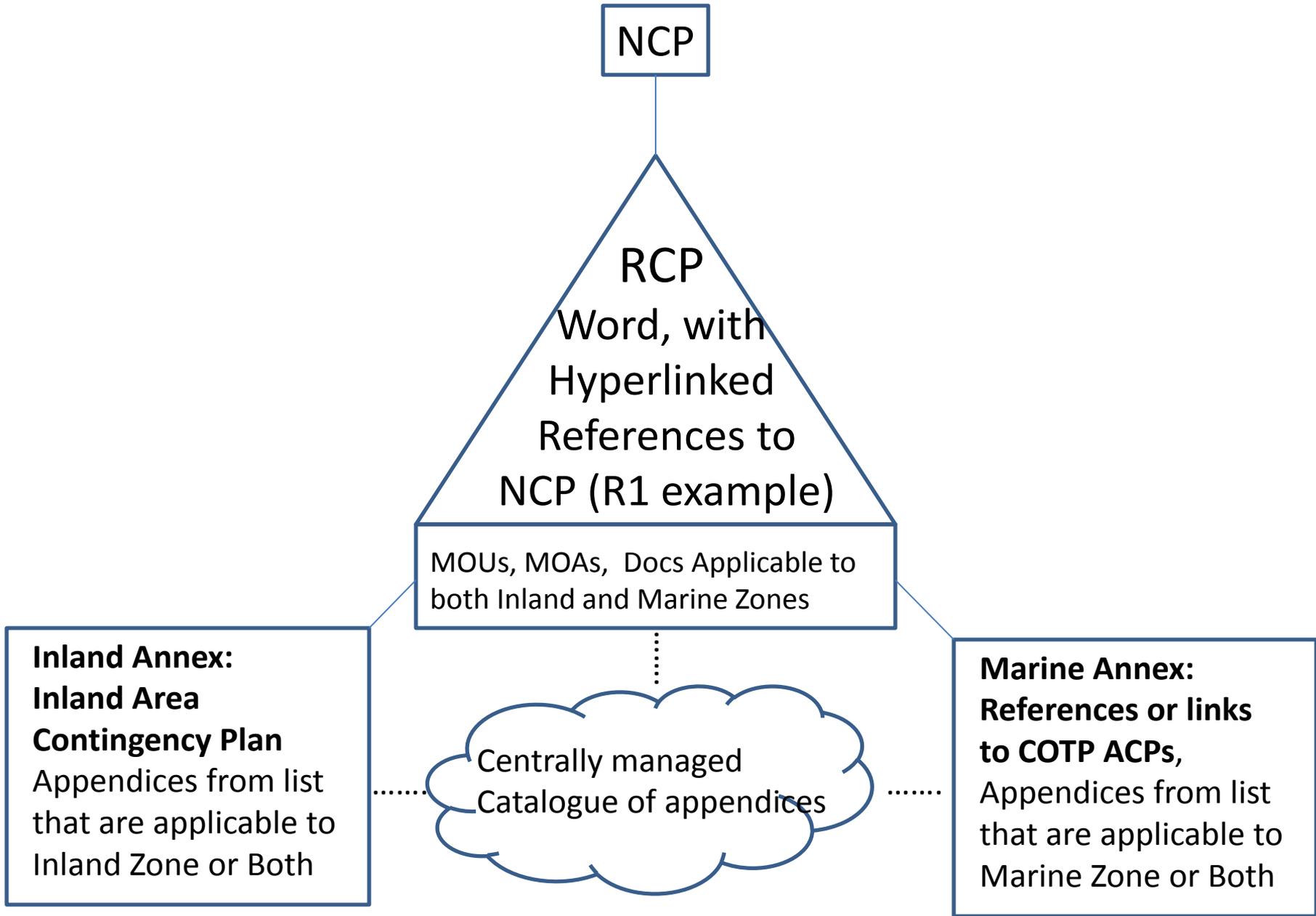
The AA of OSWER should require regions to include the RCP/ACP required elements outlined in the NCP using the most effective method available, which may not be in a written plan. The AA of OSWER should issue guidance outlining a contingency planning structure that avoids duplication and requires regions to keep critical planning information up-to-date.

Office of Inspector General Audit of EPA Planning Practices (Cont)

Finding – A gap exists in major discharge planning to address regional risks and events that could exceed regional capabilities.

Proposed Recommendations:

- The AA of OSWER should work with RRTs to identify scenarios that could exceed regional capabilities and use this information to maintain national preparedness.
- The AA of OSWER should include a risk analysis of major discharge of oil or release of a hazardous substance, pollutant, or contaminant in the ongoing evaluation of OSC distribution and allocate resources accordingly.



2012-2013 EPA Region 6 Planning Goals

- Revise RCP
- Inland Area Contingency Plan (Region 6 area)
- Supplement Coastal Area Contingency Plans
 - New Orleans
 - Houston/Galveston
 - Corpus Christi
- Inland High Risk Areas (GRPs)
 - DFW Metroplex, New Madrid Fault
- Use Response Manager and other web services to manage planning data elements

REGIONAL CONTINGENCY PLANS

NCP Requirement 300.210 (b)

- ◆ *Regional Contingency Plans.* The RRTs, working with the states, shall develop federal RCPs for each standard federal region, Alaska, Oceania in the Pacific, and the Caribbean to coordinate timely, effective response by various federal agencies and other organizations to discharges of oil or releases of hazardous substances, pollutants, or contaminants. RCPs shall, as appropriate, include information on all useful facilities and resources in the region, from government, commercial, academic, and other sources. To the greatest extent possible, RCPs shall follow the format of the NCP and be coordinated with state emergency response plans, ACPs, which are described in § 300.210(c), and Title III local emergency response plans, which are described in § 300.215. Such coordination should be accomplished by working with the SERCs in the region covered by the RCP. RCPs shall contain lines of demarcation between the inland and coastal zones, as mutually agreed upon by USCG and EPA.

Hurricane and Flood Preparedness for Aboveground Storage Tanks: *RRT-6 Recommended Best Practices*



Region 6 RRT

State of Arkansas

State of Louisiana

State of New Mexico

State of Oklahoma

State of Texas

U.S. Environmental Protection
Agency

U.S. Coast Guard

U.S. Department of Agriculture

U.S. Department of
Commerce/NOAA

U.S. Department of Defense

U.S. Department of Energy

U.S. Department of Health and
Human Services

U.S. Department of the Interior

U.S. Department of Justice

U.S. Department of Labor

U.S. Department of
Transportation

Federal Emergency Management
Agency/DHS

U.S. General Services
Administration

U.S. Nuclear Regulatory
Commission

U.S. Department of State

Due to the number and size of spills after hurricanes Katrina and Rita, the RRT-6 Executive Committee charged the Science and Technology Committee to review best practices: why some tanks failed, and why some tanks did not, and create a best practice.

The investigation of spills revealed that nearly all tanks failed due to one of three reasons. These reasons include storm surge, flooding or impact.

Typically the tanks that survived the event either had more product in them, and/or were securely anchored down to the ground surface.



Flooding hazard was looked at from a very basic viewpoint of raising water due to river/stream, rainfall, or snowmelt; while a storm surge was defined in layman terms as a wall of water of unknown size being pushed towards land from an impending storm.

The last cause, impact, is also the most difficult to prepare for. Whether it is a hurricane or flood event, debris is inevitable.

The tanks that had releases due to flooding and storm surge events eventually floated.

This was directly due to the surface area to weight ratio of the tanks and their contents to the external water level.

Once the external water level becomes equal to or greater than the product level inside the tank, the tank becomes buoyant.

A rule of thumb, repeated several times by industry representatives, is the contents should be at least 3-6 feet above the projected actual water level, based on the storm surge or event causing a rise in water level. This will help to prevent floatation, and not just above the ambient non-event water level.

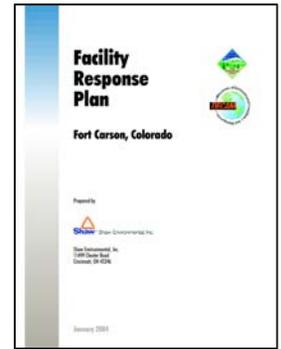
In addition, the product level to water level ratio is dependent on the type of product contained in the tank (Density / Specific Gravity with respect to water.) For example, a tank of gasoline would need a higher volume than a tank of asphalt.



Response plans for facilities located in high-risk areas, including but not limited to, coastal environments, flood plains, in/or near deltas, base of mountains, swamps or marshes, must address this issue.

These plans should outline specific risk factors and timelines in preparing for storm events. Facilities located away from these areas or “off water” can better predict the amount of water that will affect their tanks.

Generally the limiting factor affecting tanks in off-water facilities are the secondary containment areas and the “rule of thumb” from above can be used. No matter the location, the plan should also address the piping and valves associated with the tanks.



The best practice is to have a Storm Plan included in facility response plans.

The best practice for tank preparation is to have all tanks and piping securely anchored and the tanks should be either empty or full of water. This way there is less risk of a release and the tank becoming impacted by an object, thus causing a release from another source.

Some events do not allow an appropriate time frame to accomplish these items for all tanks at a facility.

In general, full and / or anchored tanks and piping are stronger, and greatly increase the probability the tank will survive the storm event.

Report Oil or Chemical Spills to the National Response Center: 800-424-8802

This document does not substitute for specific agency regulations, nor is it a regulation itself. It cannot impose legally binding requirements on federal departments/agencies, states, or the regulated community, and may not apply to a particular situation based upon circumstances. This guidance does not represent any final department/agency action, and may change in the future, as appropriate.



Government Initiated **Unannounced Exercises** **(GIUEs)**

Mr. Michael Sams
Incident Management & Preparedness Advisor
Eighth CG District



Background

- **Part of National Preparedness for Response Exercise Program (PREP)**
- **Multi-agency role**
- **Adjustments made after Sep 11, 2001**
- **CG draft Instruction**
- **CG HQ Policy Memo of Dec 5, 2011**



Current State

- **Confusion**
- **Inconsistency**
- **CG HQ is considering issuing policy memo**
- **CG HQ updated Instruction**



What are we doing?

- **Developing policy outlining clear expectations**
 - **Consistent**
 - **Existing regulations & draft CG Instruction**
 - **Discuss with EPA & BSEE**
 - **Discuss with Area Committees -- advertise**
 - **Establish process w/in unit (training; standard process)**
 - **Documentation (MISLE & CPS)**



Timeline for getting there

- **Aug 31, 2012: Publication of D8 GIUE policy**



Mr. Michael Sams
Incident Management & Preparedness Advisor
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American Petroleum Institute (API) Joint Industry Task Force (JITF) “Subsea Dispersants – D3”

RRT IV / VI Meeting

Atlanta, Georgia
1–2 August 2012

D3 Steering Committee Lead: Tim Nedwed (ExxonMobil)
EM&A Program Manager (for API): Joe Twomey
EM&A Subject Matter Experts (for API): Gina Coelho and Jim Clark



Team Members & Key Contributors

American Petroleum Institute
Anadarko
BP
Chevron
ExxonMobil*
Marine Well Containment Company
Nexen Petroleum
Shell
Statoil
Total
Wild Well Control

In addition to industry membership, Technical Advisory Committee members from various agencies, international organizations, and academia are providing oversight and input

* D3 Steering Committee lead

D3 Program Overview

- **Objective:** To conduct research and development on subsea dispersant injection to provide optimal implementation methods. The program will include research on application methods, effectiveness, and potential environmental effects
 - *Focus is ice-free open-water environments*
- **Study Duration:** 3 years – start 1 Oct 2011, possibly culminating in an open ocean field trial in 2014

Rationale and Considerations for Program Design

- Subsea injection is needed to maintain safe working environment for well containment
- In many well control scenarios, subsea injection should provide a net environmental benefit considering the limitations of other offshore response options

5 Project Teams

- Effectiveness
 - Chair/Co-Chair: BP / Chevron
- Fate and Effects
 - Chair/Co-Chair: Shell / Chevron
- Modeling
 - Chair/Co-Chair: Chevron / Shell
- Monitoring
 - Chair/Co-Chair: Wild Well / Chevron
- Communications
 - Chair/Co-Chair: ExxonMobil / Shell

Effectiveness Project Team

Focus: Develop recommended subsea dispersant injection methodology and equipment considering cost and need

- Literature review
- Scaled testing to evaluate injection methods and determine dispersant-to-oil ratios
- Conduct field testing as needed



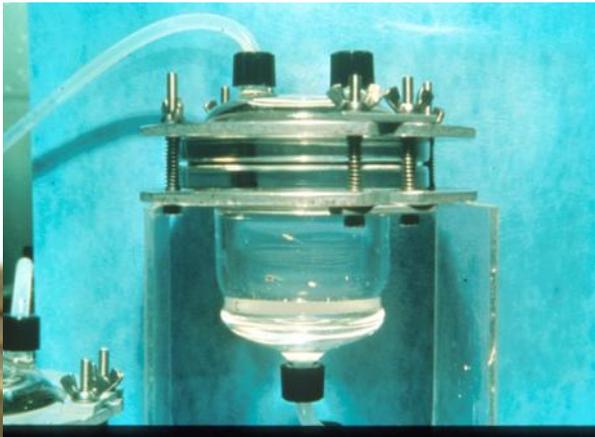
*Left: S.L. Ross
Tank Facility
used to evaluate
dispersant
effectiveness*

*Right: Tank
Facility for
examining
subsea
release*



Fate and Effects Project Team

Focus: Evaluate the biodegradation and toxicity of dispersants & dispersed oil on deepwater communities



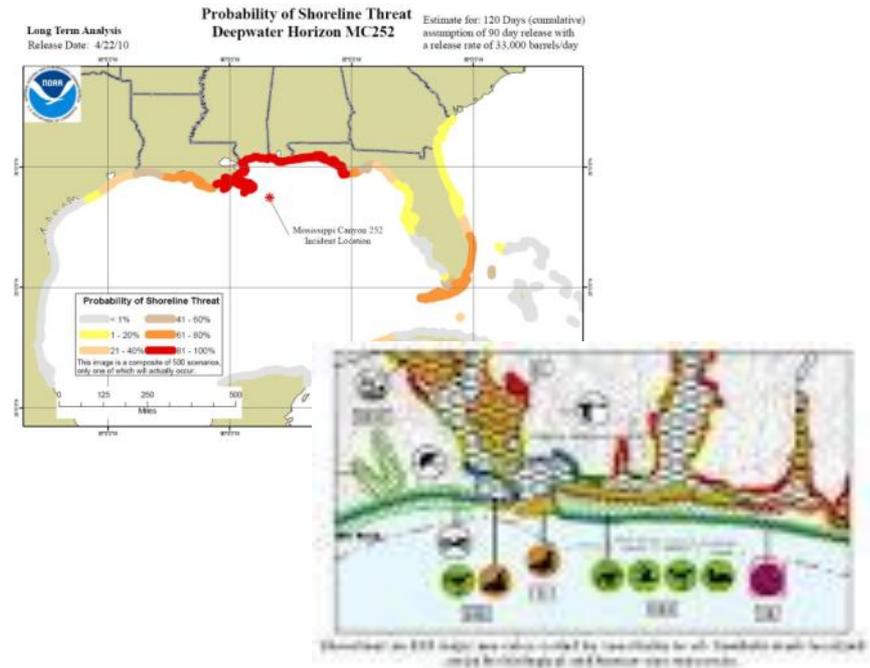
- Summarize previous research on dispersed oil biodegradation and toxicity
- Identify relevant deepwater test organisms and develop appropriate testing protocols
- Conduct biodegradation and toxicity tests on water samples and species representative of depth



Modeling Project Team

Focus: Enhance existing numerical tools to model dispersed oil plumes resulting from subsea injection

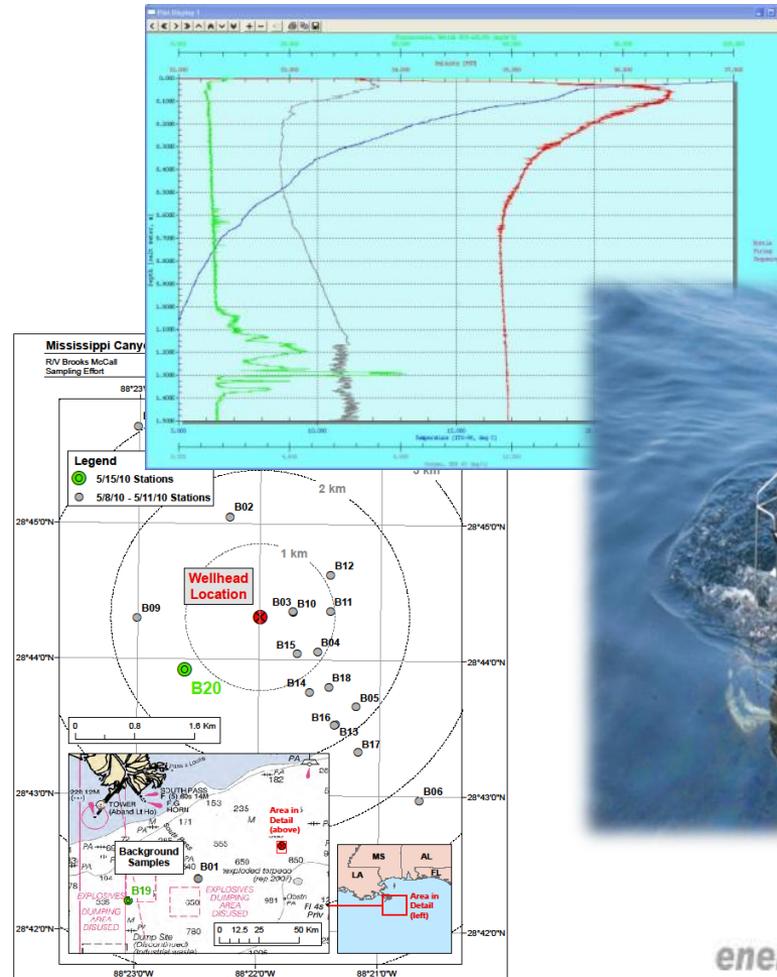
- Evaluate existing models to identify needs
- Upgrade models, as required
- Validate models using results of scaled/field testing



Monitoring Project Team

Focus: Establish field monitoring criteria and provide a recommended monitoring plan based on latest technology

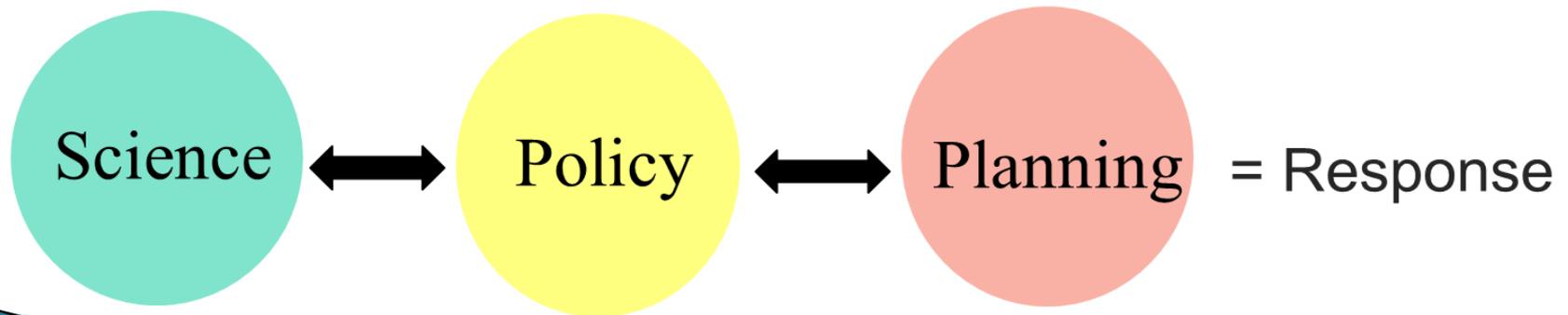
- Identify monitoring tools currently available
- Evaluate existing and emerging monitoring technologies
- Develop a recommended monitoring plan



Communications Project Team

Focus: This project will develop tools to communicate the resulting subsea dispersant injection research conducted by the other D3 project teams

- Education fact sheets will be developed
- Each project will have technical advisory teams to foster transparency
- Project Newsletter
- Conduct workshops



Q&A





BSEE MWCC Shell Capping Drill

24-31 July 2012



Eighth Coast Guard District
CAPT Ed Cubanski
(c) 314-651-9109
(w) 504-671-2231



Summary

- **BSEE initiated drill on 24 July 2012 with Shell as the RP & MWCC as**
- **Required Single Ram Capping Stack (SRCS) Deployment and pressure test**
- **RP, BSEE, and USCG as Incident Commanders (USCG FOSC)**
 - **BSEE lead for subsea containment**
 - **USCG in charge of overall Oil Spill Response Operations**



Drill Details

- **Mobilized SRCS to Walker Ridge 536 site**
 - Parking Pile
 - 7,000 ft of water
 - 111 miles offshore
- **Estimated 10-14 days**
- **Actual well capped at 4.77 days**
- **Perfect weather**
- **SRCS testing real-time**



Lessons Learned



- **Focused on Subsea containment tactics.**
- **Extend Spill Response Team activities past day 1**
- **Didn't mobilize subsea dispersant**
 - **Estimated 3 days to get on-scene**
 - **200,000 gals of dispersant available ~ 10 days**
- **Integration of NIMS protocols in MWCC**
- **Cap and Flow would take 21-28 days**
 - **Dependent on well bore integrity**



Questions?

Eighth Coast Guard District

CAPT Ed Cubanski

(c) 314-651-9109

(w) 504-671-2231

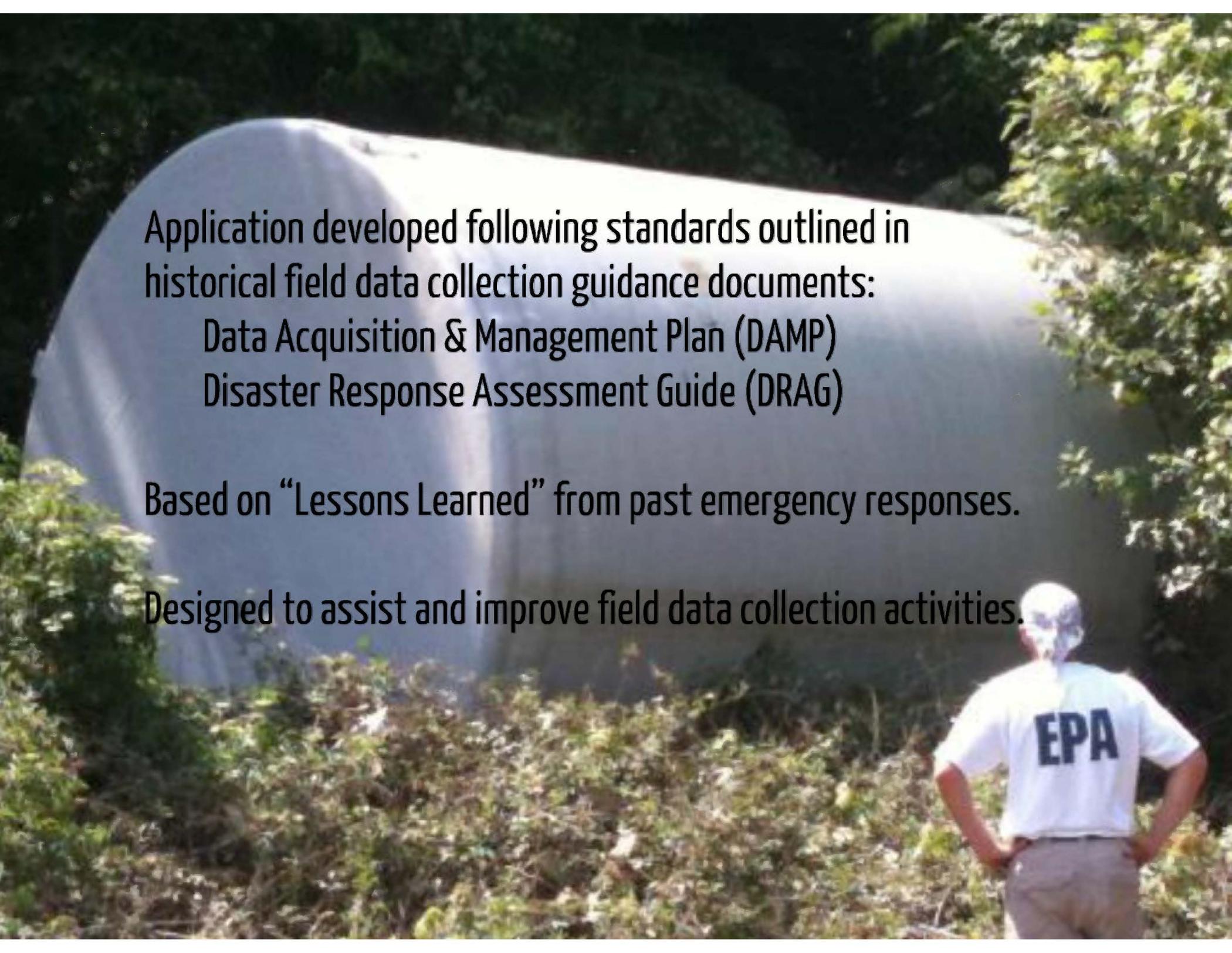
Edward.j.cubanski@uscg.mil



Field Assessment Mobile Application and Web Mapping Viewer

Joint Regional Response Team (RRT) Meeting
1 August 2012

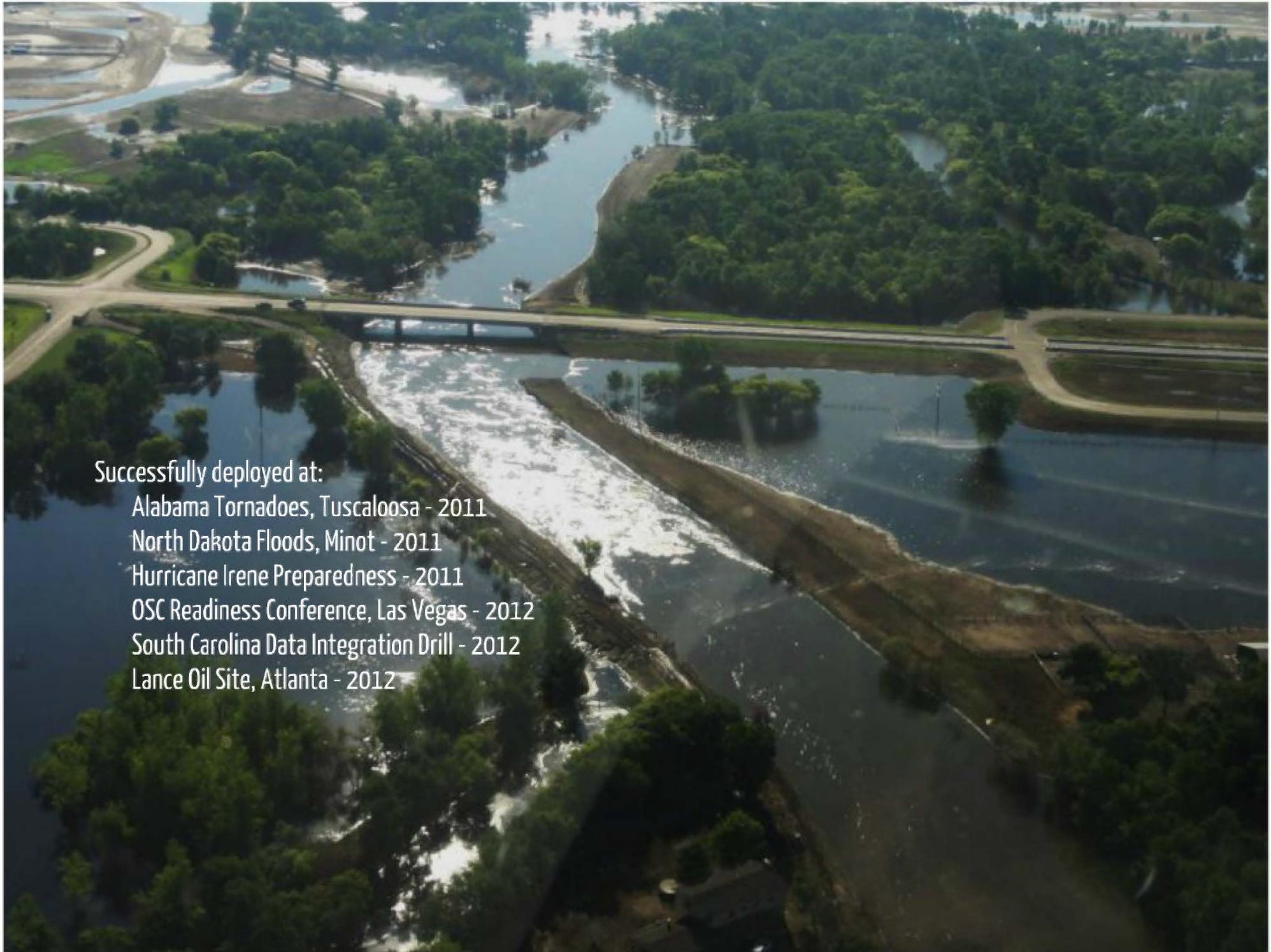
Developed for Region 4 EPA by  TETRA TECH

A photograph of a large white tarp covering a pile of debris in a wooded area. In the foreground, a person wearing a white t-shirt with "EPA" on the back and khaki pants stands with their hands on their hips, looking towards the tarp. The background is filled with green foliage and trees.

Application developed following standards outlined in historical field data collection guidance documents:
Data Acquisition & Management Plan (DAMP)
Disaster Response Assessment Guide (DRAG)

Based on “Lessons Learned” from past emergency responses.

Designed to assist and improve field data collection activities.



Successfully deployed at:

- Alabama Tornadoes, Tuscaloosa - 2011
- North Dakota Floods, Minot - 2011
- Hurricane Irene Preparedness - 2011
- OSC Readiness Conference, Las Vegas - 2012
- South Carolina Data Integration Drill - 2012
- Lance Oil Site, Atlanta - 2012

Field Data Collection Tasks



Household Hazardous Waste



Orphan Container/Spill



Structural Damage



Vermiculite Removal

Monitoring/ Sampling





Map



Info



Assessment

Actions



NOMAD hand held
devices developed by



Trimble®



Windows Mobile®
operating system



Info



Assessments



Exit



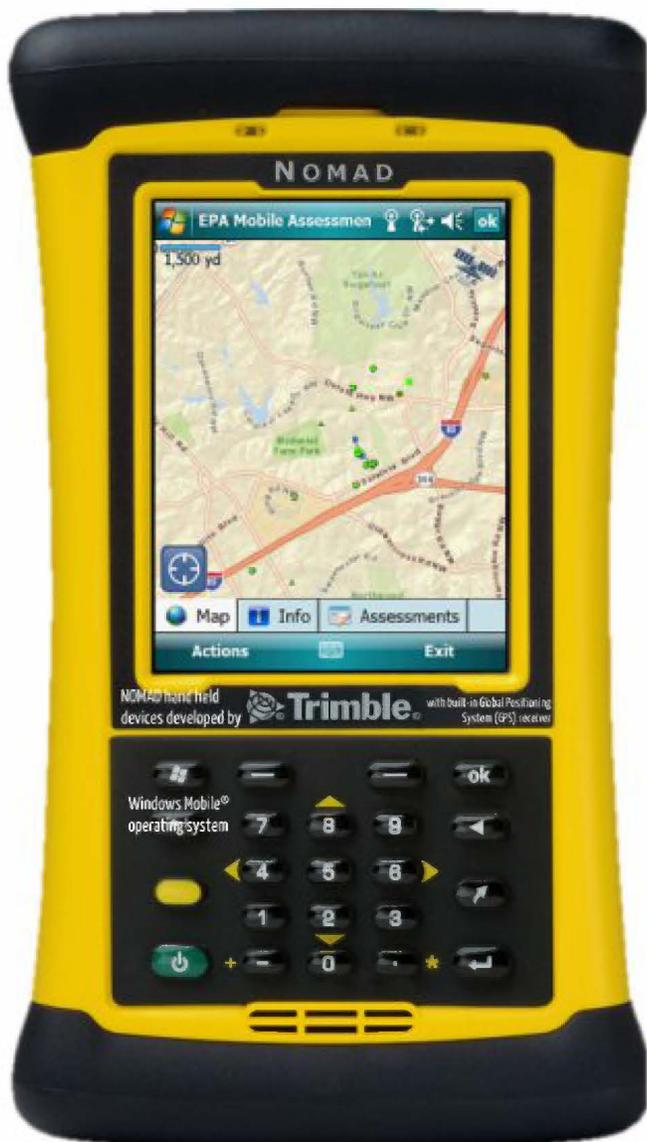
Trimble.

with built-in Global Positioning System (GPS) receiver





Windows Mobile[®] operating system



Innovative, effective, and easy to use field data collection tool.

Reduces data entry and post-processing.

Disseminates data quickly over the Internet for real time viewing.

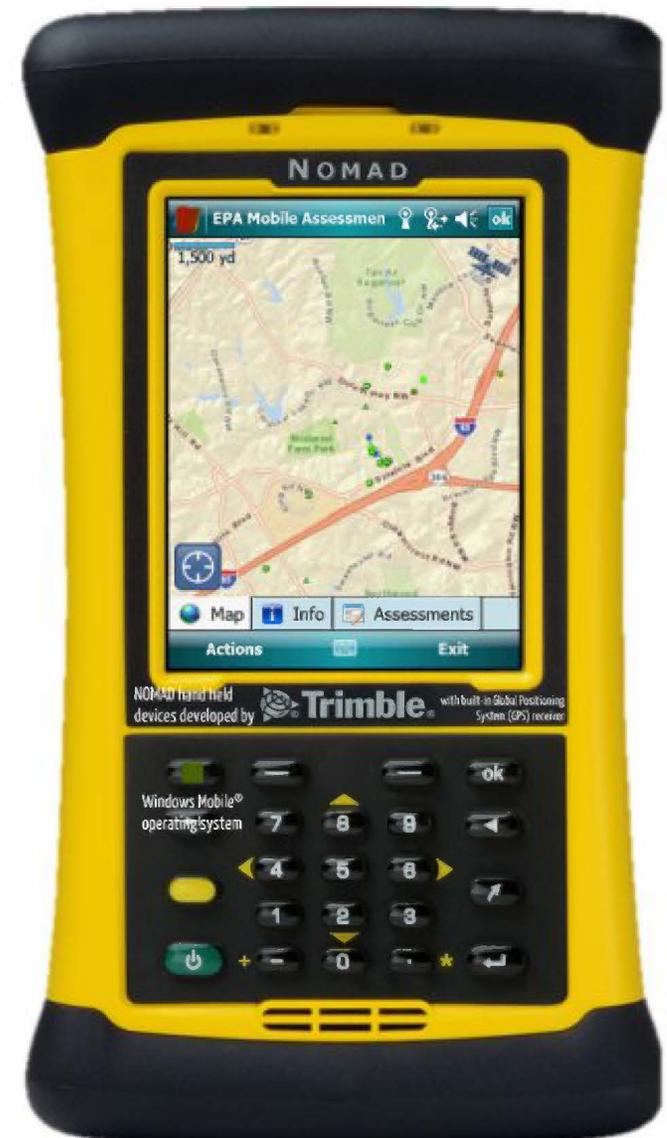
Enables more efficiency and timeliness into response planning, operations, and administration.

Customizable data collection forms, map backgrounds, and pre-set locations.

Transmits data directly to ArcGIS Server.

User settings are configurable to enforce data security and access control.

Automatic integration of location data, photos, and assessment information.

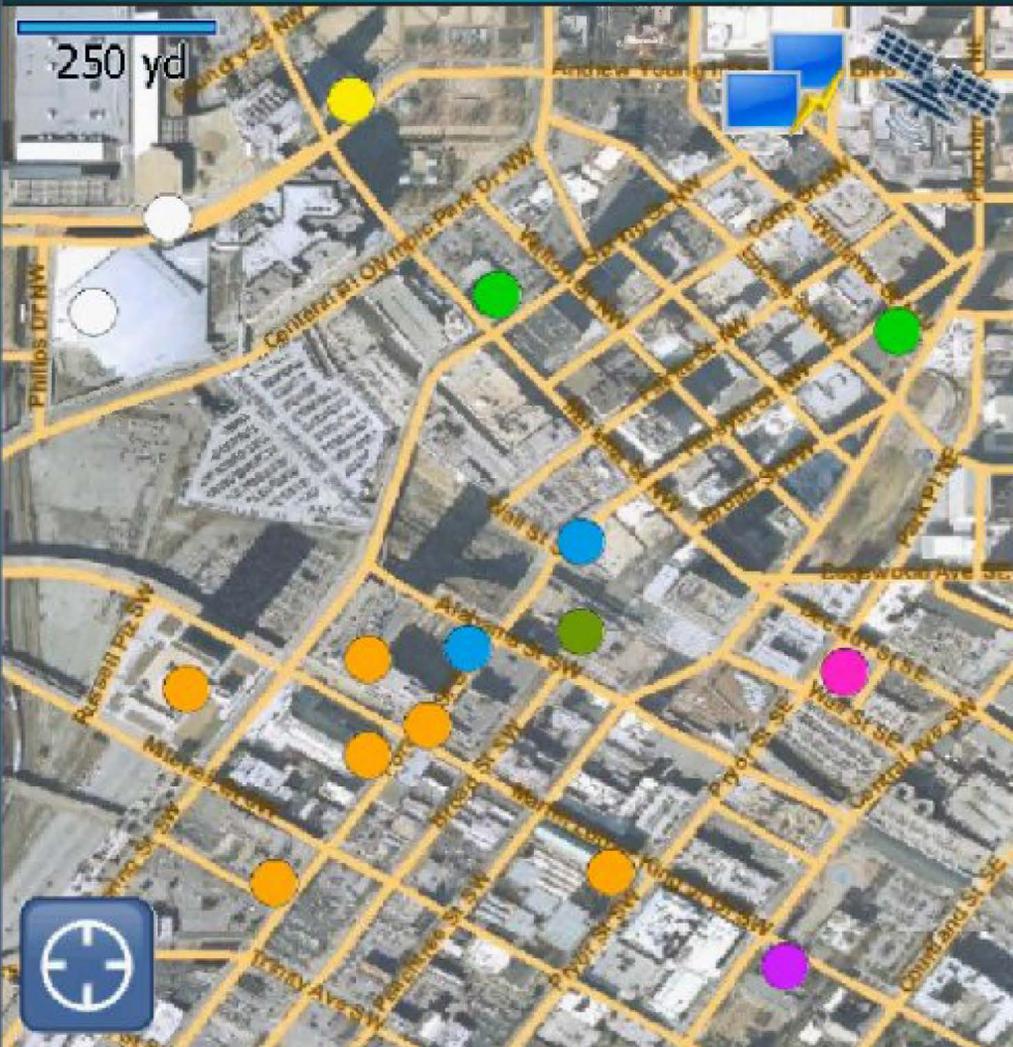




EPA Mobile Assessments A



ok



Map



Info



Assessments

Actions

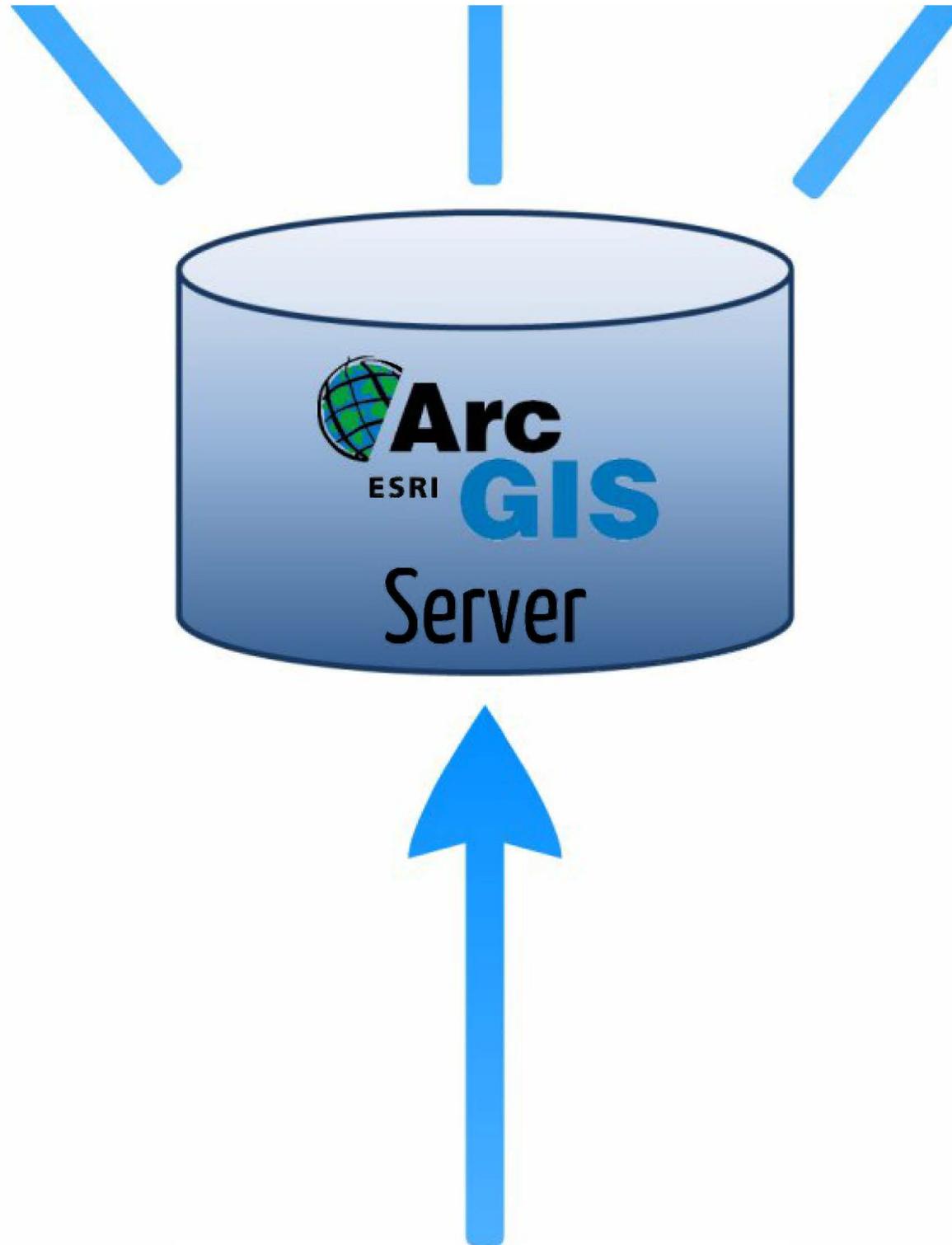


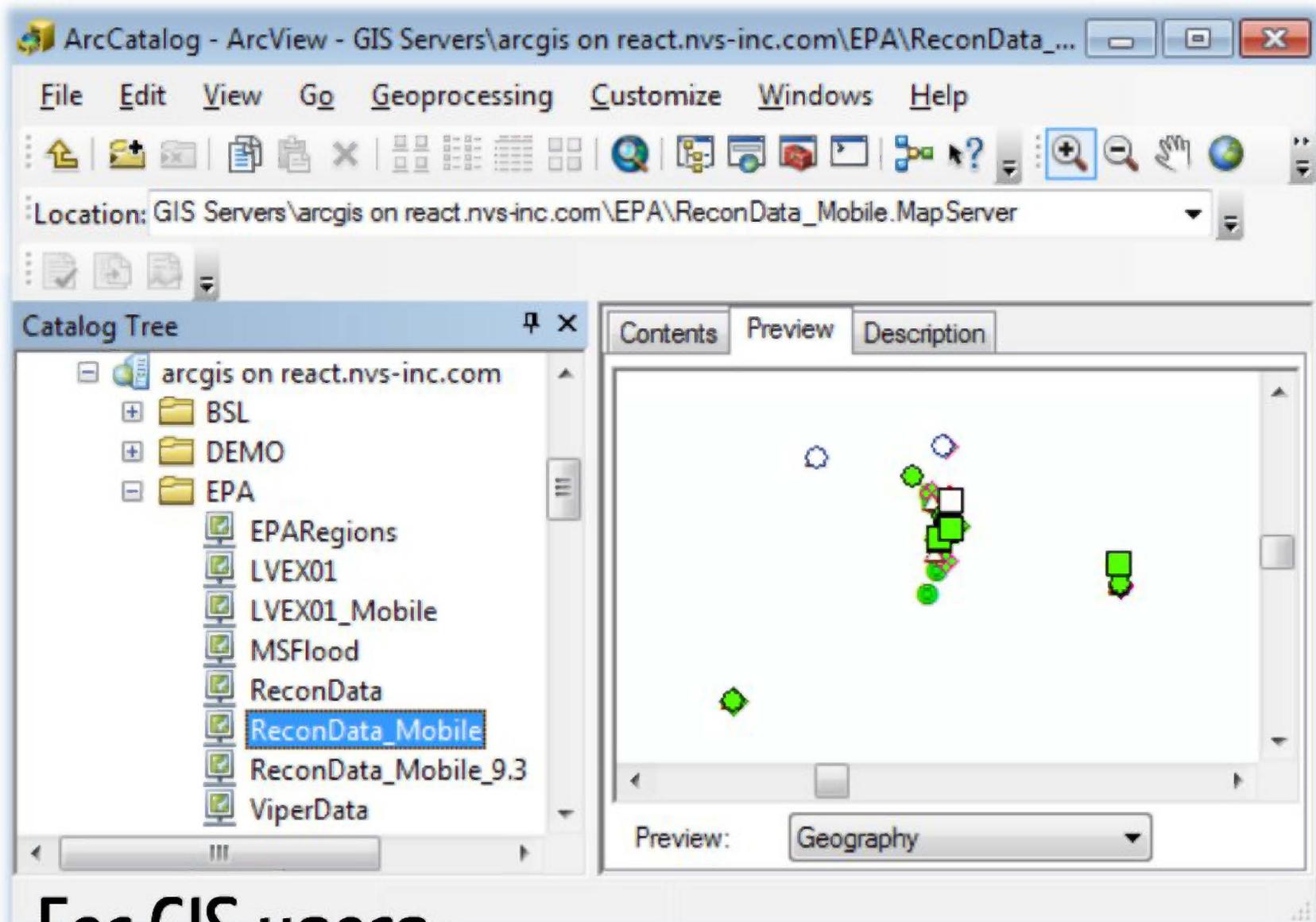
Exit





**Data Connection
(Wifi or Sim Card)**





For GIS users:

- Web Map Service through ArcCatalog.

EPA Field Assessment

inc.com/EPA/10/Services/Mgmt/Views/Assessments/AssessmentManagement.aspx

 **EPA Field Assessment** Welcome, admin [Logout](#)

By TetraTech and NVision

Accounts Sites Events Domains Assessments

Site:

Event:

Assessment Types:

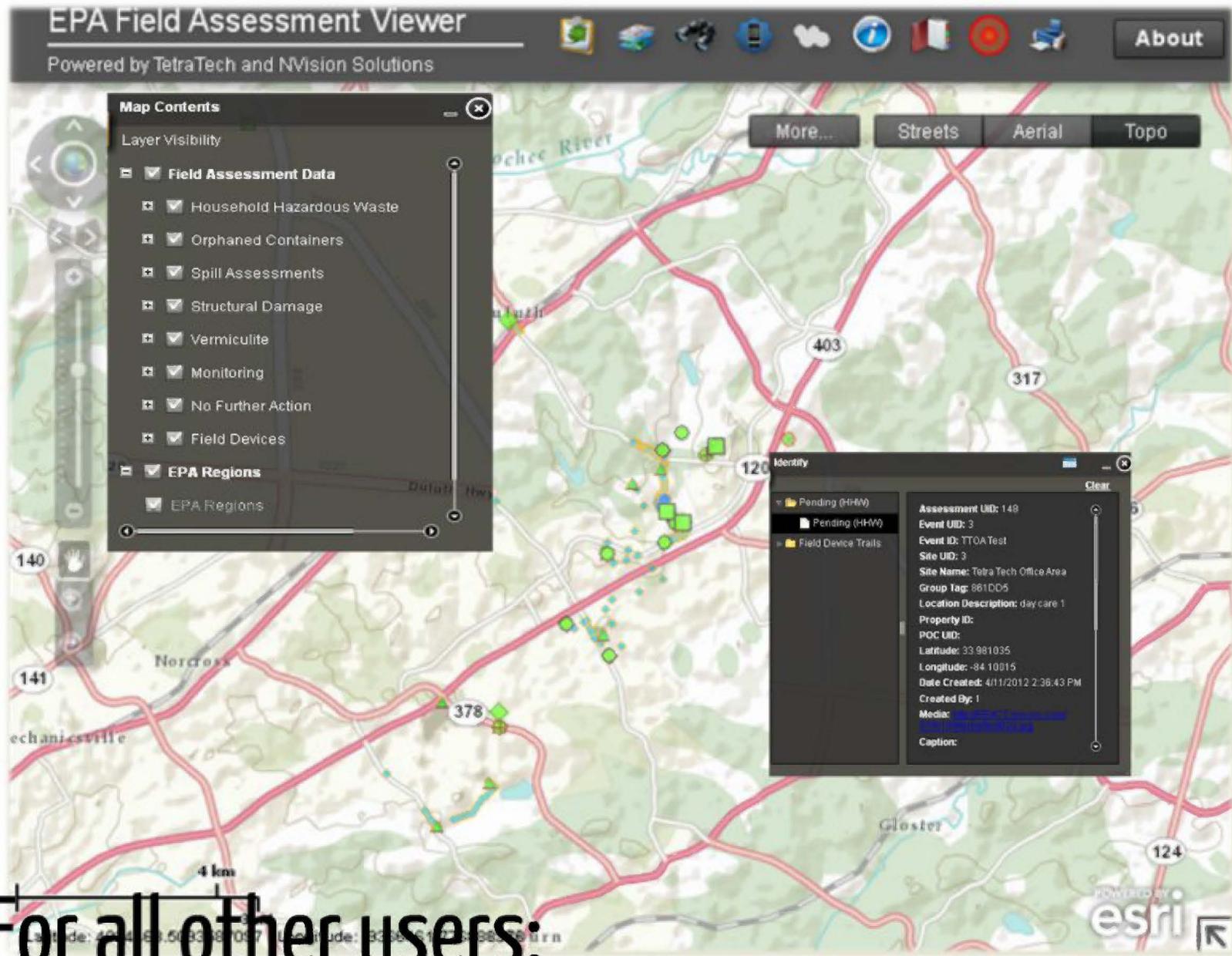
1 | 2

Assessment UID	Processed	Status	Comments	Event UID	Event ID	Site UID	Site Name	Group Tag	Location Description
252	<input checked="" type="checkbox"/>	Reassessed 	ongoing release from facility to water testing reassessment, reasses test 2 	13	EPA DHEC Drill 6/20/12	6	Charleston, SC	E20A1D	location of oil release to water
265	<input checked="" type="checkbox"/>		release of oil into drainage ditch contained on property 	13	EPA DHEC Drill 6/20/12	6	Charleston, SC	E21188	kindermorgan facility gps coordinates manual

For data management users:

- Custom data query and export web site.





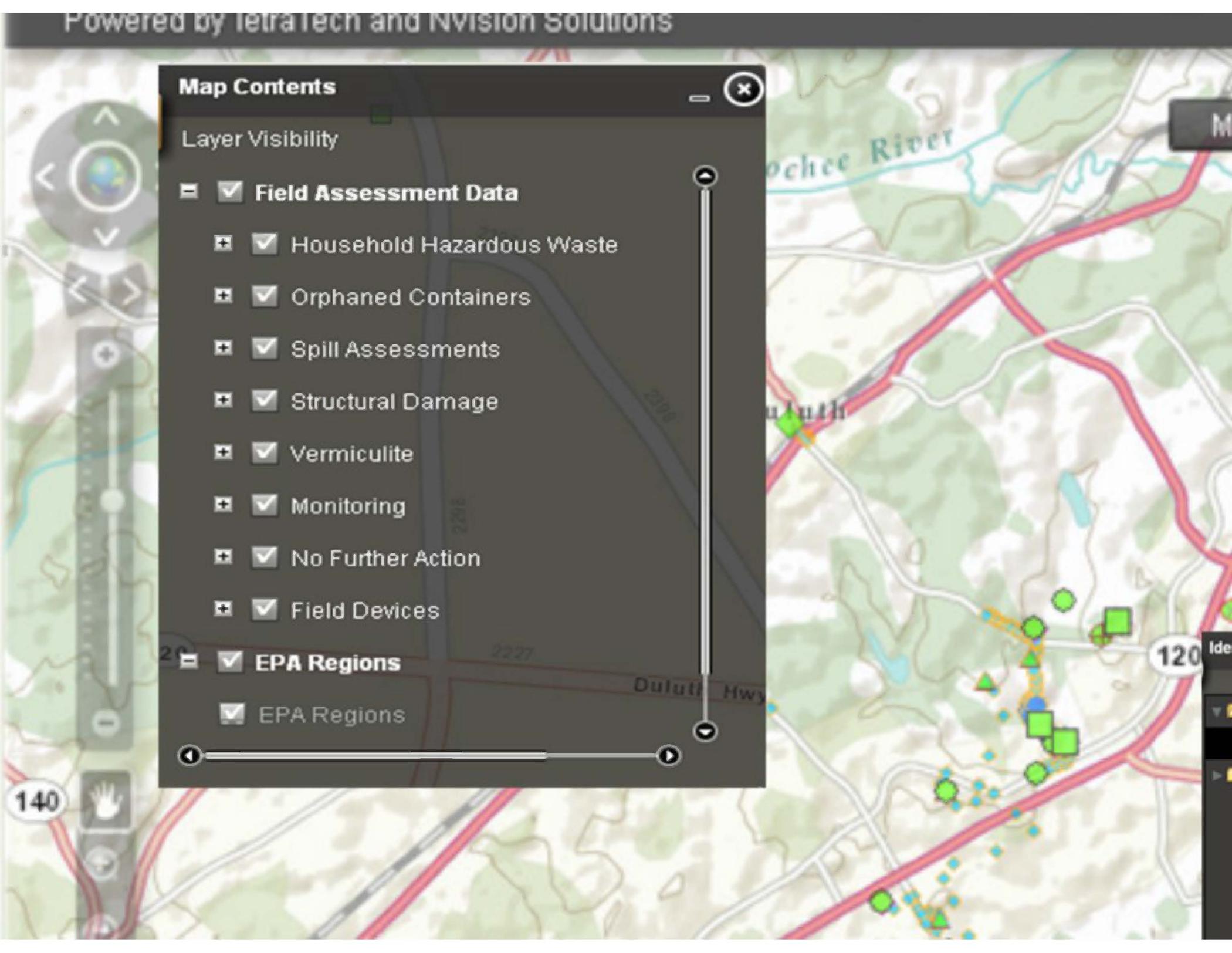
For all other users:

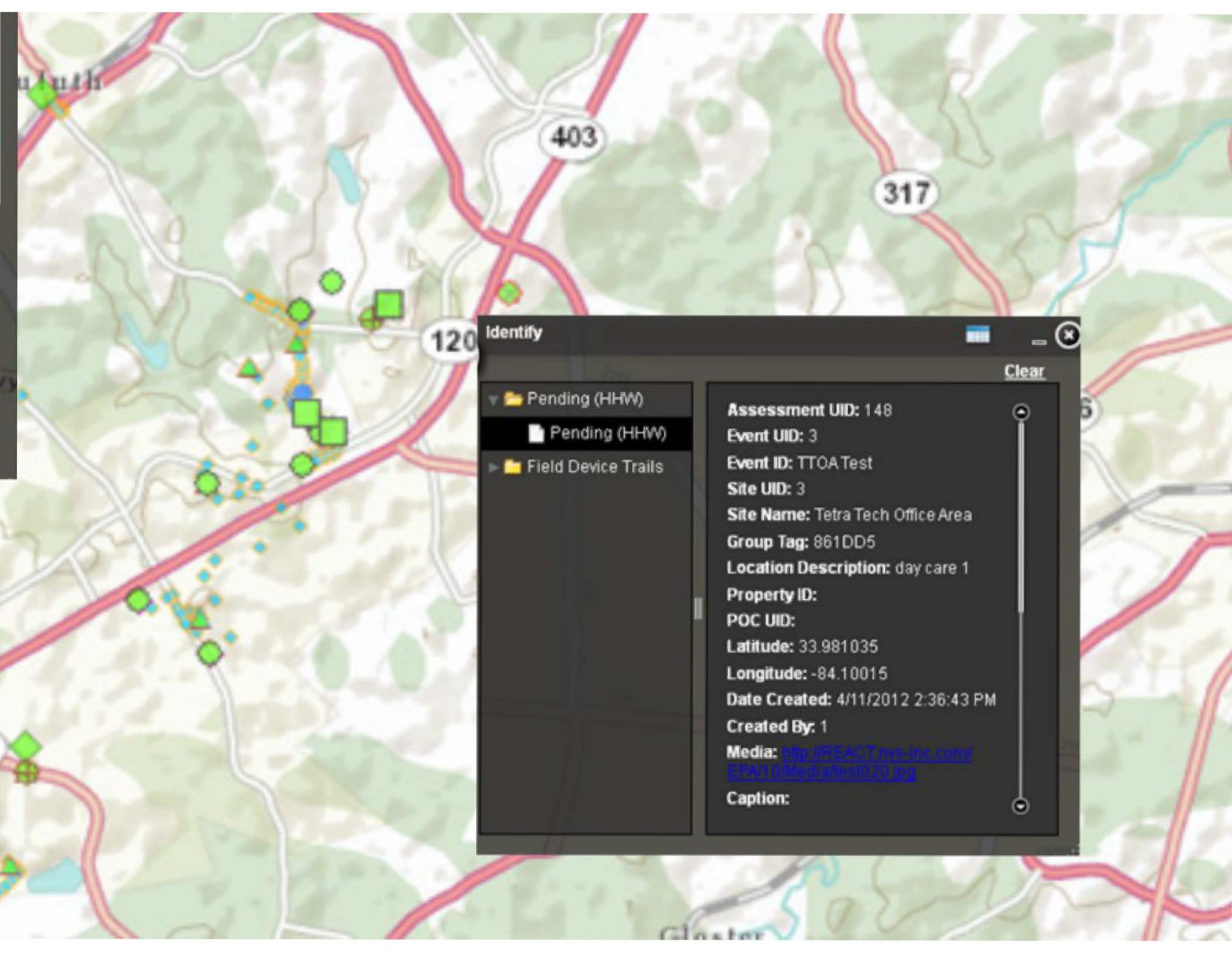
- Online Web Mapping Viewer.

Map Contents

Layer Visibility

- Field Assessment Data**
 - Household Hazardous Waste
 - Orphaned Containers
 - Spill Assessments
 - Structural Damage
 - Vermiculite
 - Monitoring
 - No Further Action
 - Field Devices
- EPA Regions**
 - EPA Regions





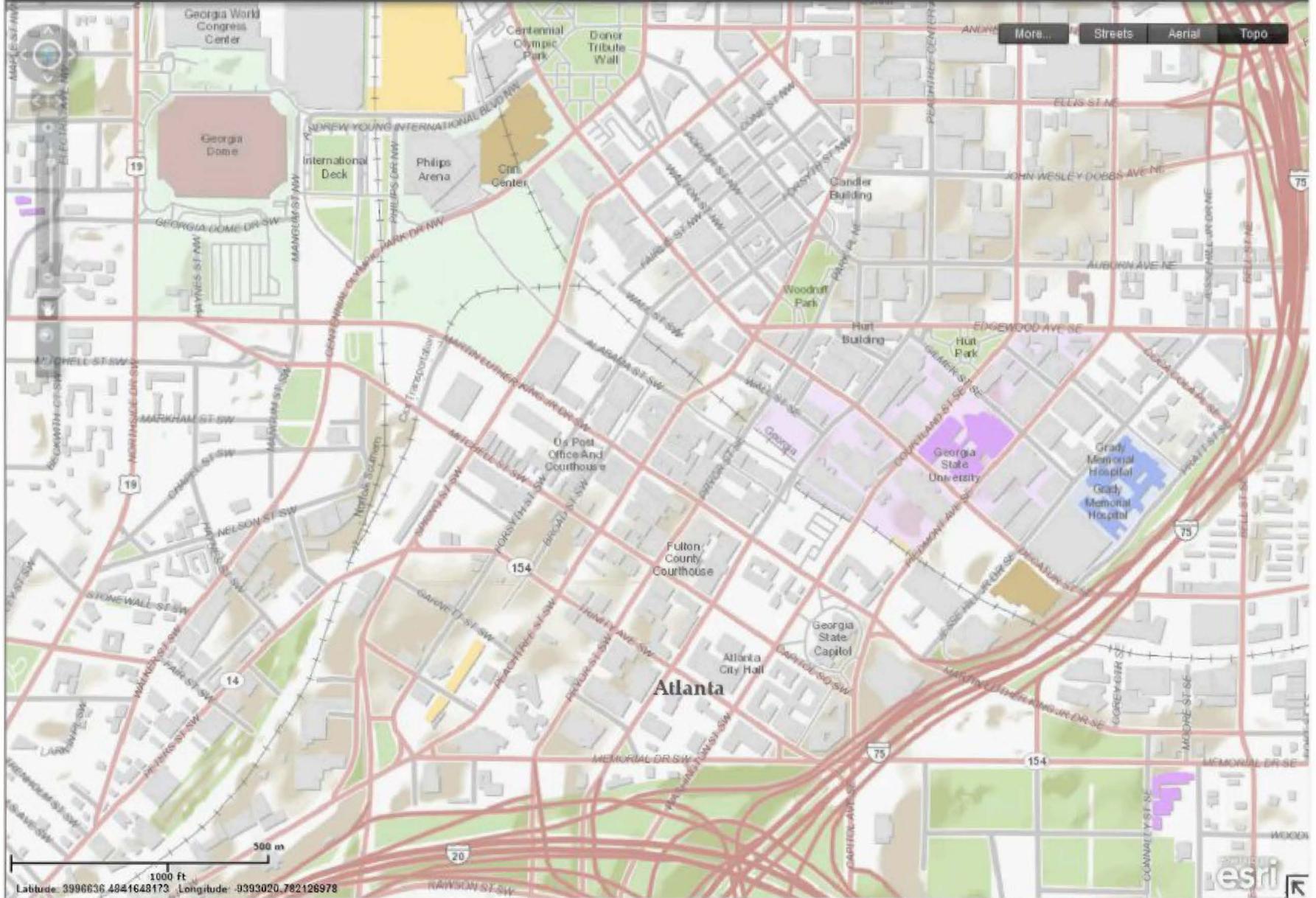
Identify Clear

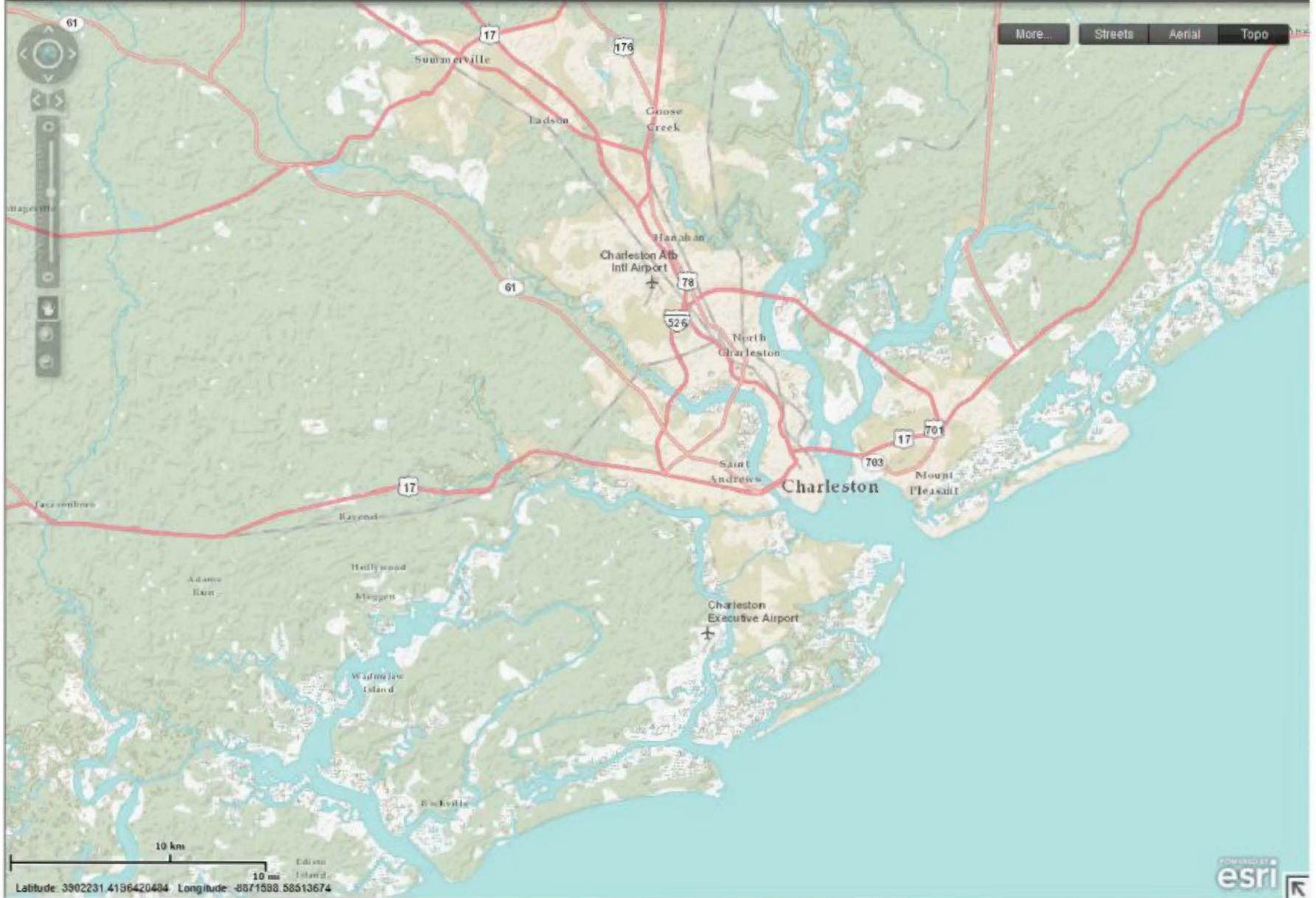
- ▼ Pending (HHW)
- Pending (HHW)
- ▶ Field Device Trails

Assessment UID: 148
Event UID: 3
Event ID: TTOA Test
Site UID: 3
Site Name: Tetra Tech Office Area
Group Tag: 861DD5
Location Description: day care 1
Property ID:
POC UID:
Latitude: 33.981035
Longitude: -84.10015
Date Created: 4/11/2012 2:36:43 PM
Created By: 1
Media: <http://REACT.mvs-hqs.com/EP/ID/med/plateid001.jpg>
Caption:

EPA Field Assessment Viewer

Powered by TetraTech and NVision Solutions





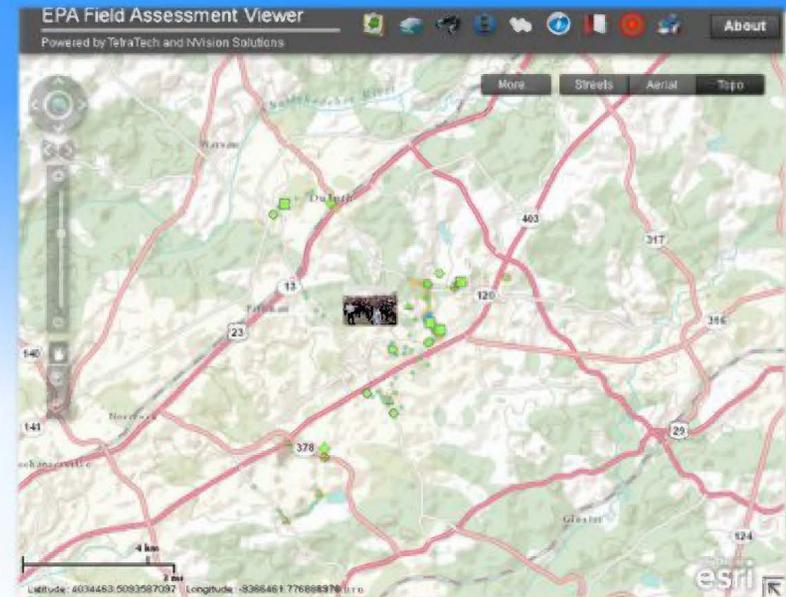
Multiple interactive map layers available for display (topo, street map, or satellite imagery).

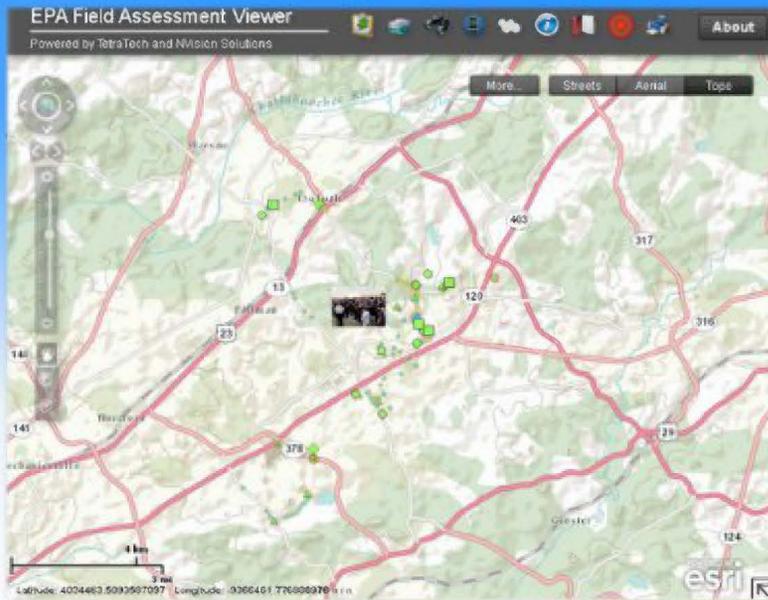
Can incorporate multiple web map services: EPA, USGS, NOAA, etc.

Configured to receive Viper data feeds, if available.

Can be connected via ArcGIS to Scribe database for lab results data.

Customize and produce operations maps in the field effortlessly.





Serves as a common operating picture (COP) and data dissemination tool for any type of incident.

Real-time tracking of operational information collected by assessment teams.

Share information with emergency management counterparts.

Assists with situation report drafting and field decision-making.





Online presentation available at:

http://prezi.com/81dpt3vquvz/epa-field-assessment-mobile-application/?auth_key=f8788571b64b99a6c113e2b73d3baf9805d49aec

Mission Assignments Overview



FEMA

Who Can Request Federal Assistance?

Disaster Assistance Needs Identified

Tribal
Government

State
Government

Local & County
Government

Voluntary
Organizations

Private Sector
(businesses
& citizens)

State Assistance

Federal Assistance

- A variety of sources may identify disaster assistance needs.

The State . . .

- Validates needs.
- Provides assistance.
- Requests Federal assistance, as needed.

Federal to Federal →



FEMA

How is Federal Assistance Requested?

Action Request Form (ARF)

- All official requests should be made to FEMA via the Action Request Form (ARF), Sections I and II.

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
ACTION REQUEST FORM (ARF)

See Reverse for Paperwork Disclosure Notice O.M.B No. 1660-0047 Expires March 31, 2014

I. REQUESTING ASSISTANCE (To be completed by Requestor)			
1. Requestor's Name (Please print)	2. Title	3. Phone No.	
4. Requestor's Organization	5. Fax No.	6. E-Mail Address	
II. REQUESTING ASSISTANCE (To be completed by Requestor)			
1. Description of Requested Assistance:			
2. Quantity	3. Priority	<input type="checkbox"/> Lifesaving <input type="checkbox"/> Life-Sustaining <input type="checkbox"/> Normal	4. Date and Time Needed
		<input type="checkbox"/> High	
5. Delivery Site Location		6. Site Point of Contact (POC)	
		7. 24 Hour Phone No.	8. Fax No.
9. State Approving Official Signature			10. Date and Time
III. SOURCING THE REQUEST - REVIEW/COORDINATION (Operations Section Only)			
1.		2. Source:	
<input type="checkbox"/> OPS Review by: _____		<input type="checkbox"/> Donations	
<input type="checkbox"/> LOG Review by: _____		<input type="checkbox"/> Other (Explain)	
<input type="checkbox"/> Other Coordination: _____		<input type="checkbox"/> Requisitions	
<input type="checkbox"/> Other Coordination: _____		<input type="checkbox"/> Procurement	
<input type="checkbox"/> Other Coordination: _____		<input type="checkbox"/> Interagency Agreement	
<input type="checkbox"/> Other Coordination: _____		<input type="checkbox"/> Mission Assignment	
4. Immediate Action Required <input type="checkbox"/> Yes <input type="checkbox"/> No			
3. Assigned to: ESF/OFA: _____ Other: _____ Date/Time: _____			
IV. STATEMENT OF WORK (Operations Section Only)			
1. OFA Action Officer		2. 24 Hour Phone No.	3. Fax No.
4. FEMA Project Manager		5. 24 Hour Phone No.	6. Fax No.
7. Statement of Work			<input type="checkbox"/> See Attached
8. Estimated Completion Date		9. Estimated Cost	
V. ACTION TAKEN (Operations Section Only)			
<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/> Requestor Notified			
Reason / Disposition			
TRACKING INFORMATION (FEMA Use Only)			
ECAPS/NEMIS Task ID:	Action Request No.	Program Code/Event No.	<input type="checkbox"/> Originated as verbal
Received by (Name and Organization)	State	Date/Time Received	

FEMA Form 010-0-7, (3/2011) PREVIOUSLY FF 90-136



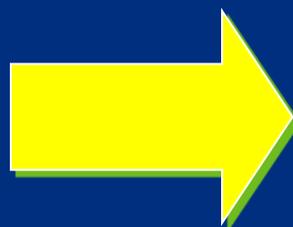
FEMA

Request Process



Requestor

- **Submits ARF to Operations Section.**



FEMA Action Tracker and/or MA Manager

- **Logs the ARF.**
- **Forwards to Operations Section Chief for review.**



FEMA

Operations Section Chief Reviews ARF



- ✓ Is the request eligible?
- ✓ Beyond State and local capabilities?
- ✓ Permanent restorative work?
- ✓ Another Federal agency authority?
- ✓ Appropriate requestor?
- ✓ Clarity of request?



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MA Determination



- **Operations Section Chief assigns MA to appropriate Branch Director.**
 - Branch Director is usually assigned as FEMA Project Manager (PM).



- **MA (Work Order) assigned to OFA.**
 - OFA appoints an Action Officer (AO).



FEMA

Developing a Statement of Work (SOW)



- The FEMA Project Manager and OFA Action Officer develop the:
 - Statement of Work (SOW)
 - Timelines
 - Estimated costs
 - May use Pre-Scripted Mission Assignments (PSMA)
 - Statement of Work, dollar amount, and timeline serve as a general guideline or template.
 - PSMA's are NOT pre-approved missions



FEMA

What is a Mission Assignment ?

- A mission assignment is issued by FEMA to direct other federal agencies and components of DHS to complete specified tasks in response to a Stafford Act event under the NRF
- Mission Assignments are provided in anticipation of, or in response to, a Presidential declaration
- Agencies can be directed to perform work under mission assignments, with or without reimbursement in accordance with the Stafford Act



FEMA

Mission Assignment (MA)

- Form used to mission assign other federal agencies is the MA form. (FEMA form 010-0-8)
- Identifies statement of work, fund citation, points of contact, projected completion “end” date, state cost share information, MA type, authorized signatures, date issued and authorized funding amount
- Once mission is approved, the MA form is used as FEMA’s obligating document.



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MA Classifications

Type #1: Federal Operations Support (FOS)

- FEMA Object Class Code 2501
- Pre or Post Declaration
- 100 % Federal funding, No State Cost Share
- Fed-to-Fed support – Assigned federal agency to provide administrative support

Example: Activation, Logistical Support



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MA Classifications

Type #2: Technical Assistance (TA)

- FEMA object class code 2507
- Post Declaration
- Federal Agency provides expertise to State
- 100% Federal funding, No State Cost Share
- State signature required on MA

Example: Assistance writing debris removal contract



FEMA

MA Classifications

Type #3: Direct Federal Assistance (DFA)

- FEMA object class code 2508
- Post Declaration
- Requested by State; subject to State cost share as designated by the President (in the Federal Register and FEMA/State Agreement)
- State signature required on MA
- Goods *and* services provided to the State to save the lives and protect property – i.e. emergency power, water, cots



FEMA

TA vs. DFA

TA

- Advise on test results conducted by the state
- Assist in plan development
- Assist in course of action development
- Usually small deployment (1 - 4 people)

DFA

- Conducting the tests
- Field operations
- Lab operations
- Monitoring
- Surveillance
- Detection



FEMA

Phase I – MA Issuance

- MA reviewed by Operations Section Chief (in eCaps) for content.
- MA is signed (eCaps) by:
 - MA Manager
 - Project Manager
 - State Approving Official (SAO)—(TA or DFA)
 - Federal Approving Official (e.g., FCO or Operations Section Chief)
- Comptroller certifies and obligates funds
- MA Manager provides a copy of the approved and obligated MA to the OFA



FEMA

Phase II – MA Execution

- Assigned agencies may only perform activities that are clearly within the SOW cited in the MA.
- Primary agency may subtask support agency (MA Subtask Form).
- Primary key staff involved in MA execution are the FEMA Project Manager (PM) and the OFA Action Officer (AO).
- Agency AO coordinates with FEMA PM
 - Work progress report
 - Financial status report



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Phase III – MA Billing, Reimbursement & Closeout

- Mission assigned agencies bill FEMA
- Lead agency reviews subtasked agency bills. Bills paid by FEMA from lead agency's obligation
- FEMA Finance Center (FFC) conducts financial review
- PM/MA Manager/FAO conducts program review
Remaining funds deobligated, MA file closed
- State billed for cost share



FEMA

Questions???



FEMA

Thank You

christopher.manowski@dhs.gov

770-853-6437



FEMA

NATURAL DISASTER OPERATIONAL WORK GROUP

TEXAS



NDOW Products Completed as of July 2012

A centralized database system (RNA and evaluation/recovery)-Response Manager

3 Field Data Sheets

- Hazard Evaluation(RNA, Orphan Containers/ Facility/ Vessel Oil Discharges)**
- Water Infrastructure status(Drinking Water and Waste Water Facilities)**

7 Final SOPs to date

ICS NDOW 214B Form (Combined State and Federal which replaces ICS 214 form)

Marsh Operation Plan Templates- Upper and Lower Texas Gulf Coast Plans

Multi-Agency Health and Safety Plan Template created with JSAs

42 Staging Areas Identified along the Texas Gulf Coast for ICPs and Ops Camps

Multi-Agency Health and Safety Team created for planning

Multi-Agency Communication Team created for interoperability

NDOW public Website launched June 2012

www.ndow.net

NATURAL DISASTER OPERATIONAL WORKGROUP

Home

Calendar

Contacts

Documents

Links

Documents

Field Data Sheets

Facility Spill Data Sheet

Hazard Evaluation field datasheet

ICS Forms

ICS 201 - Incident Briefing

ICS 202 - Incident Objectives

ICS 203 - Organization Assignment

ICS 204 - Assignment List

ICS 204A - Assignment List Attachment

ICS 205 - Radio Communication Plan

ICS 205A - Incident Communication Plan

ICS 206 - Medical Plan

ICS 207 - Incident Chart-EPA



One Centralized Database System

RESPONSE MANAGER

- Response Manager is the new centralized data management system to be utilized.
- Data Quality Objectives have been created by all agencies to utilize during a natural disaster event to fit all operational and reporting requirements
- Standardized field data sheets have been created to utilize in the field during the assessment/closure process for both ESF10 and ESF3

2012 Multi-Agency Field Hurricane Exercise Corpus Christi, TX (July 16-19, 2012)

- Exercised NDOW products for field operations
- Exercised “Team Building” among the agencies
- Exercised communication/logistics/and health and safety among the agencies
- Approximately 185 government personnel from seven different agencies played in the exercise
- Agencies included: USEPA, USCG Sectors Port Arthur/Houston/Corpus, USCG District 8, TCEQ, TGLO, TPWD, USFWS, and NOAA

2012 Multi-Agency Field Hurricane Exercise Corpus Christi, TX

Unified Command- ICP



Operational Branches



Natural Disaster Operational Workgroup

EPA Region 6 August 2012



For more information contact NDOW Team Leads EPA Nic Brescia and Eric Delgado

Presentation Outline

1. Natural Disaster Operational Work Group
 - Mission
 - Accomplishments
2. Intro to NDOW Database for Disaster Response
 - Data Forms and SOP's
 - Modules/Architecture
 - Valid Values and standard data entry
3. Reporting
 - Field Reports
 - Operational Reports
4. Executive/Enterprise Briefing Tools
 - Enterprise Google Earth Reporting
 - Geo-spatial viewers
 - iPad/iPhone Viewers

Natural Disaster Operational Workgroup Objectives

- Conduct Multi-Agency Pre-Landfall Response Planning: Co-location and coordination of agencies pre-landfall at pre-selected locations (COOP locations for USCG Sector's, TXDEM Pre-deployment Areas)
- Create Standard Operating Procedures (SOP) and forms (Field Evaluation & Recovery Procedures, ICS forms for both State and Feds) for field personnel
- Standardize one Centralized Data Management system with agreed upon Data Quality Objectives (DQOs) that are scalable to fit each agency's needs per disaster
- Formalize and deliver NDOW product training including Data Management system training and software delivery to agencies and to field personnel
- Create one Master Equipment Pick List for all agencies
- Accumulate more pre-determined staging areas and Waste Collection Pads

Natural Disaster Operational Workgroup Accomplishments

Delivered 5 (3-day) training events for field personnel across the Texas Gulf Coast
Training included: SOPs, Data Sheets, 214B, Response Manager, Tabletop Exercise

- (2) Corpus Christi, Texas (TCEQ Corpus, TGLO Corpus, TXPW Corpus, USCG Sector Corpus) (2010-2011)
- (1) Baton Rouge, Louisiana (LDEQ, LDHH, USCG) (2012)
- (1) Harlingen, Texas (TCEQ Harlingen, TGLO Harlingen) (2011)
- (1) Houston, Texas (TCEQ Houston, USCG Sector Galveston) (2010)
- (1) Port Arthur, Texas (TCEQ Beaumont, TGLO Port Arthur, USCG Sector Port Arthur) (2011)
- (3) Austin, Texas (TGLO, TCEQ) Response Manager
- (1) Mobile, AL (USCG Strike Team) Response Manager
- (2) 1-Day refreshers prior to exercises

Natural Disaster Operational Workgroup Accomplishments cont.

- Participated in (2) Full Scale Hurricane Field Exercise in Corpus Christi under TCEQ providing support for utilization of NDOW products and Response Manager implementation (2011, 2012)
- Integrated NDOW products into the TGLO Toolkit
- Created an online Response Manager Training Course(Available in 2012)
- Provided NDOW Products and 1 round of training to LDEQ/LDHH/LDNR/USCG for potential use during Mississippi Floods (30 personnel trained) (2011)
- Provided NDOW products to USEPA Region 1 & 2 for use during the Hurricane Irene Response (Utilized Field Data Sheets and Response Manager and executive briefing tools)
- Provided Response Manager Support to TXPW (2011)

Natural Disaster Operational Workgroup Data Quality Objectives

- Purpose was to determine what Data Quality Objectives existed between the Response Agencies and come to a common data collection SOP.
- Result NDOW standard Data Valid Values and Forms for the following Missions:
 - Orphan Container Hazard Evaluation/Recovery
 - Facility Assessment
 - Oil Spill Evaluation/Recovery
 - Drinking Water Facility Assessment
 - Waste Water Facility Assessment

Response Manager and the Natural Disaster Operational Workgroup

Field Data Sheet

HAZ

O: Item Status:
(check box that applies)

<input type="checkbox"/> Assessment Required (Open)	<input type="checkbox"/> Recovery Required (Open)
<input type="checkbox"/> Leave in Place (Open)	<input type="checkbox"/> Access Denied (Open)
<input type="checkbox"/> Item Recovered (Closed)	<input type="checkbox"/> Item Not Found (Closed)
<input type="checkbox"/> Leave in Place (Closed)	<input type="checkbox"/> Access Denied (Closed)

A: Item ID (Location Name): _____

B: Affiliation: _____

F: Physical Address/Cross Str: _____

G: City: _____

K: Latitude: _____

N: Item Number/Type: _____ Drum _____ Cylinder _____ Tote _____ Tank _____ Misc. Container _____ Carboy
(Add number to those that apply)

O: Item Status:
(check box that applies)

<input type="checkbox"/> Assessment Required (Open)	<input type="checkbox"/> Recovery Required (Open)	<input type="checkbox"/> Special Operations (Open)
<input type="checkbox"/> Leave in Place (Open)	<input type="checkbox"/> Access Denied (Open)	<input type="checkbox"/> Refer to Other Agency (Open)
<input type="checkbox"/> Item Recovered (Closed)	<input type="checkbox"/> Item Not Found (Closed)	<input type="checkbox"/> Refer to Other Agency (Closed)
<input type="checkbox"/> Leave in Place (Closed)	<input type="checkbox"/> Access Denied (Closed)	

P: Item Condition: _____ Damaged, No Spill _____ Damaged, Spill/Release _____ No Damage _____ Cannot Discern
(Circle one)

Q: Item Priority: _____ Emergency/Immediate Response _____ Non-Emergency/Immediate Response
(Circle One)

R: Item Over Pack _____ No _____ Yes _____ If yes, Poly _____ Steel _____ Other
(Circle One)

S: Item Contents Level _____ Full _____ ¾ _____ ½ _____ Residual _____ Unknown
(Circle one)

T: Monitoring Hazard Present _____ Yes _____ No
(Circle One)

U: Item Comments/Additional Information

RM Form

Update Recon Item

Location ID: [Back](#) [TCQ-HE1-110824-001](#)

Item Name:

Item Type:

Item Status:

Item Condition:

Item Priority:

Found Date:

Size of Measure:

Unit:

Count:

Content:

Affiliation:

Team Group Name:

Item Over Pack (Y or N):

Item Contents Level:

Monitoring Hazard Present:

Item Overpack Type:

Comments

Drums located across the river from the boat ramp. Drums near shoreline.

Closed per TCEQ. Drums recovered on 08-25-2011 @ 0900.

Response Manager Modules and Valid Values

EPA Response Manager, Version 5.1.1267

EPA Response Manager
Current Incident

Water Facility Assessment

BISHOP FACILITY DW-TX

Assessment Date/Time: 11/21/2011 1031

Assessment Type: **ATTACHMENT E – DRINKING WATER OPERATIONAL STATUS CODES**

Lead Assessor: **Current Status:** At the end of the evaluation choose the operational status code (from the table) that best describes the condition of the system AT THE TIME OF THE CURRENT ASSESSMENT. Codes that result in Red & Yellow will require follow up.

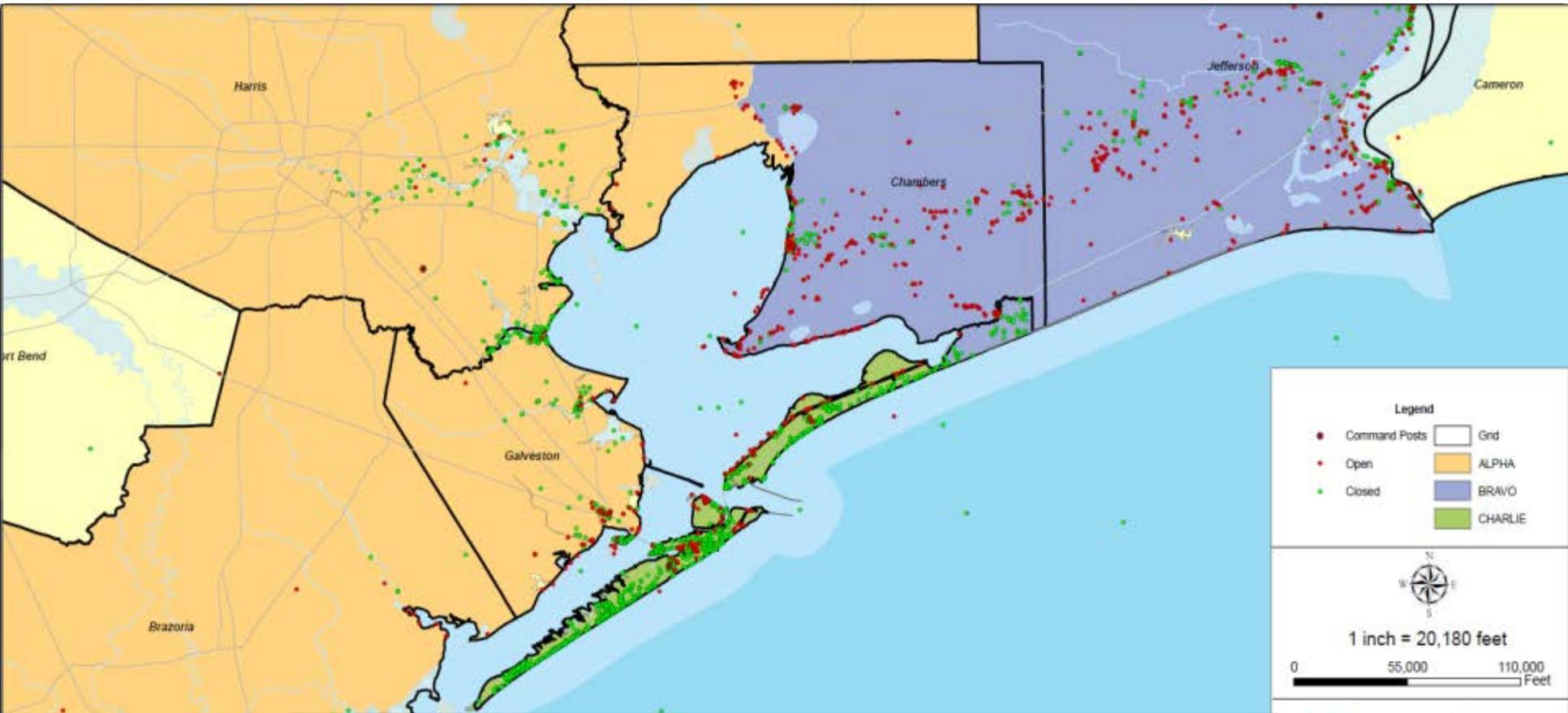
Status Code	Status Detail	Status Code Description	BWN Detail
OK	No problems	Normal power was never lost (or was restored before pressure loss) AND System never lost treatment	Null
CLEAR	Lifted BWN due to negative BacT samples. Normal operations resumed	BW lifted – negative BacT results. System has returned to normal operations, on grid power and with treatment. Only use clear when sampling has been used to lift BWN, otherwise use OK	BWN lifted date
DESTROYED	System destroyed	No follow-up is necessary since the system no longer exists. Will work with residents to ensure potable water is supplied via connection to another system or other means	Null
GENOK	On generator – never lost pressure	Currently operating on emergency power/generator but system never lost pressure and/or treatment	Null
GENLP	On generator – lost pressure	Currently operating on emergency power/generator and system lost pressure and/or treatment before getting emergency power	BWN start date
LP/LT	Lost pressure & or Treatment	System on grid power but has lost pressure and or treatment and has not been able to lift BWN	BWN start date
RESULTS	BacT sample results pending	System functional, flushed, & BacT samples collected to clear BWN	BWN start date
LEOK	Lost Power – maintaining pressure	System has lost power but has enough storage capacity to maintain required pressure on a temporary basis. Will move to INOP if pressure is lost.	Null
INOP	Not Operating	Contact made with system. System is offline & or unable to maintain required pressure and/or treatment	Null
SITE	Site visit needed	Contact attempted multiple times by phone. Site visit will be conducted.	Null
OUT	Out of Contact	Contact attempted by phone but system is unreachable. Will call again.	Null
UNKNOWN	Contact Pending	No information is available. No contact has been made	Null

Water Operational Definition: – All drinking water served to customers is treated to National Primary Drinking Water Standards and is moving through all parts of the distribution system at or above the state required minimum pressure (20 psi OR 35 psi for Harris County). The system is able to meet these requirements on a permanent basis in lieu of a temporary basis in response to the incident.

Boil Water Notice: A BWN is required any time a system drops below 20 psi at any point in the distribution system. A 24 Hour public notification is required and a system must take bacteriological samples once the minimum 20 psi can be consistently maintained. Bacteriological sample analysis must return an “absent” result indicating the sample is absent of bacteriological contamination.

Today is : 11/21/2011

Response Manager Queries and Reporting



BRANCH		CLOSED	OPEN	TOTAL
ALPHA	Debris Line	118	26	144
	Single Point	592	104	696
	ALPHA Total	710	130	840
BRAVO	Debris Line	483	158	641
	Single Point	501	423	924
	BRAVO Total	984	581	1565
CHARLIE	Debris Line	236	26	262
	Single Point	1428	118	1546
	CHARLIE Total	1664	144	1808
Out of Operational Area	Debris Line		4	4
	Single Point	51	19	70
	(blank) Total	51	23	74
Grand Total		3409	878	4287



Recon Target Status
10/11/2008



Help

Today is: 11/22/2011

Response Manager

EPA Response Manager, Version 5.1.4267.11509

EPA Response Manager > **Facilities/Spills**
Current Incident > EPA 06 - Deep Water Horizon Incident - Deep Water Horizon Incident

Modules: General, Response, Reconnaissance, **Facilities/Spills**, Drinking Water, Waste Water, HHW, Calls, Containers, Shipping, Properties, Materials, Daily Reports, Contacts, Data Files

Facilities | Reports

Action... [Dropdown] [Go]

Grid View: Assessments [Dropdown]

Facility ID	Facility Name	Address	Latitude	Longitude	Assess D.
AmW01	Amelia Waste...	352 DeGravelle...	29.657023	-90.365057	8/18/2010
CocW01	Cocodrie	Cocodrie Marina	29.25057	-90.365057	8/26/2010
110013981824	Colonial Landfill	5328 Highway 70	30.14927	-90.365057	8/26/2010
DulW01	Dulac Waste St...	9202 Grand Cai...	29.36036	-90.365057	8/26/2010
MarW01	Franklin Waste...	8000 Hwy. 317	29.562135	-90.365057	8/26/2010
GonW01	GonW01	9039 St. Landry...	30.19966	-90.365057	8/26/2010
GrW01	Grand Isle Was...	432 Minnich La...	29.241583	-90.365057	8/26/2010
Hammond Wildif...	Hammond Wildl...	200 Lear Drive	30.5043583	-90.365057	8/26/2010
VenW01	Heritage Enviro...	308 Halliburton...	29.260833	-90.365057	8/26/2010
HopW01	Hopedale West...	7222 Hopedale...	29.82018	-90.365057	8/26/2010
MarW02	Horseshoe Wa...	8000 Hwy 317	29.562135	-90.365057	8/26/2010
IntW01	IntraCoastal W...	25817 Louisian...	29.781531	-92.365057	8/26/2010
LafW01	Lafitte Waste St...	4932 Kenal Road	29.656207	-90.365057	8/26/2010
SlW01	Middle River (Sl...	Highway 90	30.23701	-89.365057	8/26/2010
Newpark Environ...	Newpark Environ...	213 Coast Guar...	29.25648	-89.365057	8/26/2010
FourW01	Pod Fourchon	570 Dudley - B...	29.14545	-90.365057	8/26/2010
MonW01	Port-Aux-Chen...	1650 Hwy 665	29.42277	-90.365057	8/26/2010

Assessment	Date	Comments	isOpen	Pric
Ground Asse...	07/18/2010	The collection s...	<input checked="" type="checkbox"/>	
Ground Asse...	07/26/2010	Site collects sol...	<input type="checkbox"/>	
Ground Ass...	08/02/2010	this site does...	<input checked="" type="checkbox"/>	
Ground Asse...	08/24/2010	WASR arrived...	<input checked="" type="checkbox"/>	
Ground Asse...	08/31/2010	WASR team arr...	<input type="checkbox"/>	
Ground Asse...	09/13/2010	WASR arrived...	<input type="checkbox"/>	
Ground Asse...	09/23/2010	WASR arrived...	<input checked="" type="checkbox"/>	

Facility ID	Facility Name	Address	Latitude	Longitude
110021299138	River Birch Lan...	2000 S Kenner...	29.93041	-90.25974
110006808062	Tide Water Lan...	266 Coast Guar...	29.25516	-89.36539

Today is: 11/21/2011
 Current User: Morgan, Brad (EPA 6, 7, 1, 2, 3, 4)

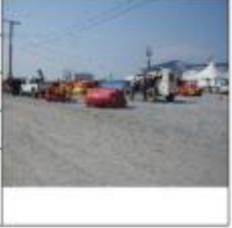
Assessment Date: 8/2/2010

Deep Water Horizon Incident - Deep Water Horizon Incident
 Port-Aux-Chenes Waste Staging (Terrebonne Parish) Facility Report

Facility Details			
Facility ID	MerW01	Facility Name	Port-Aux-Chenes Waste Staging (Terrebonne Parish)
Address	1650 Hwy 665	Parish/County	Terrebonne
City	Montegut	State	LA
Latitude	29.42277	Longitude	-90.445037

Assessment Details	
Assessment Status:	
Assessment Type:	Ground Assessment
Assessment Date:	8/2/2010 10:00:00 AM
Assessment Priority:	
Assessment Condition:	
Comments:	this site does not collect liquid waste or skimmer oil. This site does not decontaminate hard boom.
Facility Representative/Title	Floyd Boudroux PM
Facility Representative Phone No.	804-912-4411
Contractor Representative/Company/Title	Floyd Boudroux PM Heritage
Contractor Representative Phone No.	805-533-6569
Lead Inspector	Mike Carillo EPA RG
Other Inspectors	Rob Tichenor EPA START
All BPM/252 wastes stored in lined roll off boxes?	Yes
Roll off boxes covered after filled (or end of day)?	Yes
Are contaminated PPE & solvent containers covered?	NA
Any evidence of oily waste or oily waste waters?	No
If yes, was it adequately addressed?	NA
How many samples were collected?	-

Photo Details	
Photo Name:	MerW01-0295
Photo Date:	8/2/2010
Photo Type:	Facility Overview
Heading:	0
Latitude:	
Direction:	
Longitude:	
Photographer:	Rob Tichenor
Witness:	Mike Carillo
Description:	MerW01 site, loading clean hard boom



Response Manager Field Reporting

Hurricane Ike TX Recon Targets

- ALPHA Operations Area**
 - Open Recon target
 - Closed Recon target
- BRAVO Operations Area**
 - Other Open
 - Referred to RP (Open)
 - Closed Recon target
- CHARLIE Operations Area**
 - Open Recon target
 - Closed Recon target

TX GK Reference Grid

- TX GLO boatramp
- TX GLO marina
- Gulf Intercoastal Waterway Ship Channel

TX GLO ESI Priority Protection Areas

- TX GLO Outer Lease Area
- TX GLO ESI Natural Mobile Refuge

Hurricane Ike Response - Operational Areas

- ALPHA
- BRAVO
- CHARLIE

PRIORITY

- HIGH
- MEDIUM
- LOW

Location Information Panel:

- Location Name: TCED-12-092008-1033-057
- Location Type: Single Point
- Address1: Sabine River
- City Name: ORANGE
- County: ORANGE
- Latitude: 30.0208333333333
- Longitude: -93.7476666666667
- Location Description: could not be recovered by airboat or road, see bigger equipment
- Item Name: Conex container
- Item Type: Item
- Condition: Recovered
- Size Measure: Unit Of Measure
- Total Items: 1
- Item Contents: Conex container (GPS N00° 01' 25" W093° 44' 56")
- Status: Recovery Required (Open)

Map Labels: San Bernard, Moody, Westport, Westport, STARTWATER STRIKE TEAM 02-081004-1095-002

Map Footer: DNR SID NOAA U.S. Navy NSA GEBCO Texas Cartography Program Image Houston/Silvestri Area Covered 32° 22' 41.81" N 95° 07' 31.08" W elev. 173 ft

Google Earth Eye alt: 119.46 mi

Response Manager Field Reporting

EPA Response Manager, Version 5.1.3628.29649

EPA Response Manager **Drinking Water**
 Current Incident **EPA 06 - LDEQ/LDHH October 21, 2009 Severe Weather Drill - October 21, 2009 LDHH**

Population Status Report
 Quartz Mountain

Status	Population Served
GEN OK	635
OK	2335
RESULTS	23
UNKNOWN	246097

Grid View: System-Assessments

System ID	Name	Type	NonProfit	populationServed	phone	QuestionGroupName	region	state	wvlCurrentStatus	zip
LA1117023	29 PALMS TRA...	C								
LA2117093	A & G ENON Q...	NC								
LA1047029	ANGELLOZ SU...	C		Not Given					Not Given	
LA1117008	ANGIE WATER...	C		Not Given					Not Given	
LA1047011	ANNADALE PL...	C		Not Given					Not Given	
LA1083012	ARCHIBALD W...	C		Not Given					Not Given	
LA1007001	ASSUMPTION...	C		Not Given					Not Given	
LA1083016	B.C.C. DETEN...	C		Not Given					Not Given	
LA1039001	BASILE TOWN...	C		123 HUNTER ST	VILLI PLATTI					
LA2047041	BAYOU CHOC...	NTNC		Not Given					Not Given	
LA1039016	BAYOU DES C...	C		Not Given					Not Given	
LA1011012	BEAUREGARD...	C		Not Given					Not Given	
LA1075001	BELLE CHASS...	C		Not Given					Not Given	
LA1069014	BELLWOOD W...	C		Not Given					Not Given	
LA1043016	BOB COMMUN...	C		Not Given					Not Given	
LA1117001	BOGALUSA, CL...	C		Not Given					Not Given	
LA1117009	BOGUE-LUSA...	C		Not Given					Not Given	
LA2011002	BOISE PAPER...	NTNC		Not Given					Not Given	

Status	Damage Level	Comments	Photos
NEED	Minor		0
NEED	Severe	No power, gene...	0
GENOK	Minor	lost power, gen...	0
OK	Minor	Did not lose po...	0
INOP	Severe		0

Facility ID	Name	Type	address	City
LA2011002	WELL #32	WL	Not Given	Not Given
LA2011002	WELL #33	WL	Not Given	Not Given

System ID	Name	Type	address	City
LA2117183	BRUCE CRAIN...	NC	Not Given	Not Given

Status	Percentage
GEN OK	98.80%
OK	0.25%
RESULTS	0.94%
UNKNOWN	0.01%

Today is: 1/27/2010

Current User: Morgan, Brad (EPA 6, 7, 1, 2, 3, 4, 5, 8, 9, 10)

Response Manager Field Reporting

Water Facility Assessments Report

BOISE PAPER MILL - DERIDDER
LA2011002

Water Facility Information

Permit ID		Region	R5
Facility Type	NTNC	Phone	
Classification		Address	Not Given
Non Profit	False	City	Not Given
Pop. Served	650	County	BEAUREGARD
Latitude		State	LA
Longitude		Zip	00000

Site Assessments

Assessment Date: 10/21/2009 12:00:00 AM

Assessment Type	OnSite Visit	Comments
Lead Assessor	Jacob Bertrand	Did not lose power, no major damage.
Assessor Affiliation	LDHH-Regional	
Facility Status	OK	
Damage Level	Minor	
Critical Damage	NO	
Generator In Use?	Not Needed	
Generator Fuel Type?	Diesel	
Generator Operating Time(Hrs/Day)?	8	
Request Made To Parish for Generator?	No	
All Customers Supplied?		

Yes
Critical Infrastructure Type?

Hospitals

Power Loss?

No

Pressure Loss?

No

Treatment Loss?

No

Assessment Date: 10/21/2009 12:00:00 AM

Assessment Type	Phone	Comments
Lead Assessor	Jacob Bertrand	
Assessor Affiliation	TCEQ	
Facility Status	INOP	
Damage Level	Severe	
Critical Damage	YES	
Generator In Use?	No	
Generator Fuel Type?	Diesel	
Generator Operating Time(Hrs/Day)?	8	
Request Made To Parish for Generator?	Yes	
All Customers Supplied?	Yes	
Critical Infrastructure Type?	Hospitals	
Power Loss?	Yes	
Pressure Loss?	Yes	

Response Manager Executive/Enterprise Reporting

Water Samples View

[Back to Google Earth](#)
https://solutions.westonproject.net/RMAnalytical/Categories/voc.aspx - RM Analytical Results

Samp No	Sample Date	Sample Time	Property ID	Matrix	Parish/County	Latitude	Longitude	Exceeded?
	From: <input type="text"/>	To: <input type="text"/>	<input type="text"/>					

Select Chemical Category:

[View Documents](#) | [View Photos](#) | T001-001-100501-SW-1
[View Documents](#) | [View Photos](#) | T001-1001-100521-SW-1
[View Documents](#) | [View Photos](#) | T001-1001-100521-SW-1

Go Back To R | Generate Report | Export View

Definition of J = The associ B = Result rep U = Undetect Exceedances & [Water Benchm](#) [Sediment Bench](#) [Human Health](#)

Title	Document Date	D
O65VWST1 214b FLB 100602	6/2/2010	0
O65VWST1 COCs 100602	6/2/2010	0
T53706	1/20/2011	0
T53706	1/20/2011	0
Accutest T53706 Dispersant R1	7/2/2010	0
Accutest T53706 Dispersant val memo	6/29/2010	0
Accutest T53706 Dispersant	6/29/2010	0
T53706 dispersant_dv	6/29/2010	0
T53706-Rev1	7/1/2010	0

Photos for 1001



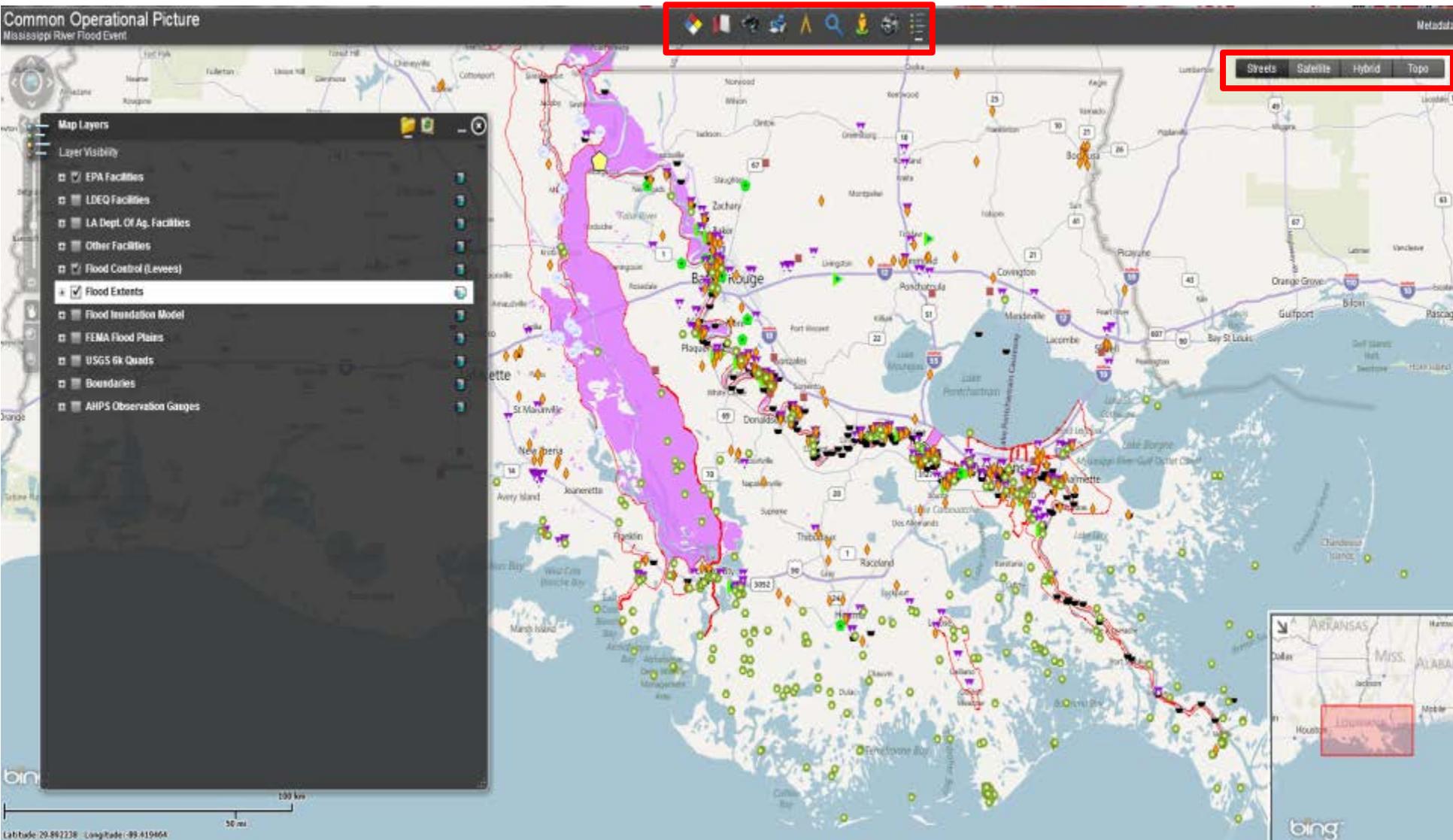
Photo Name: T001-1001-100521-L 1
 Date: Jun 2 2010 10:28AM
 Description: Overview of re-sampling at location 1001

28.95041	-89.3848033	No
28.950417	-89.384933	No
28.93506667	-89.38581667	No
28.950417	-89.38485	No
28.950417	-89.384883	No
28.950417	-89.38485	No



©2010 Google

Response Manager Executive/Enterprise Reporting

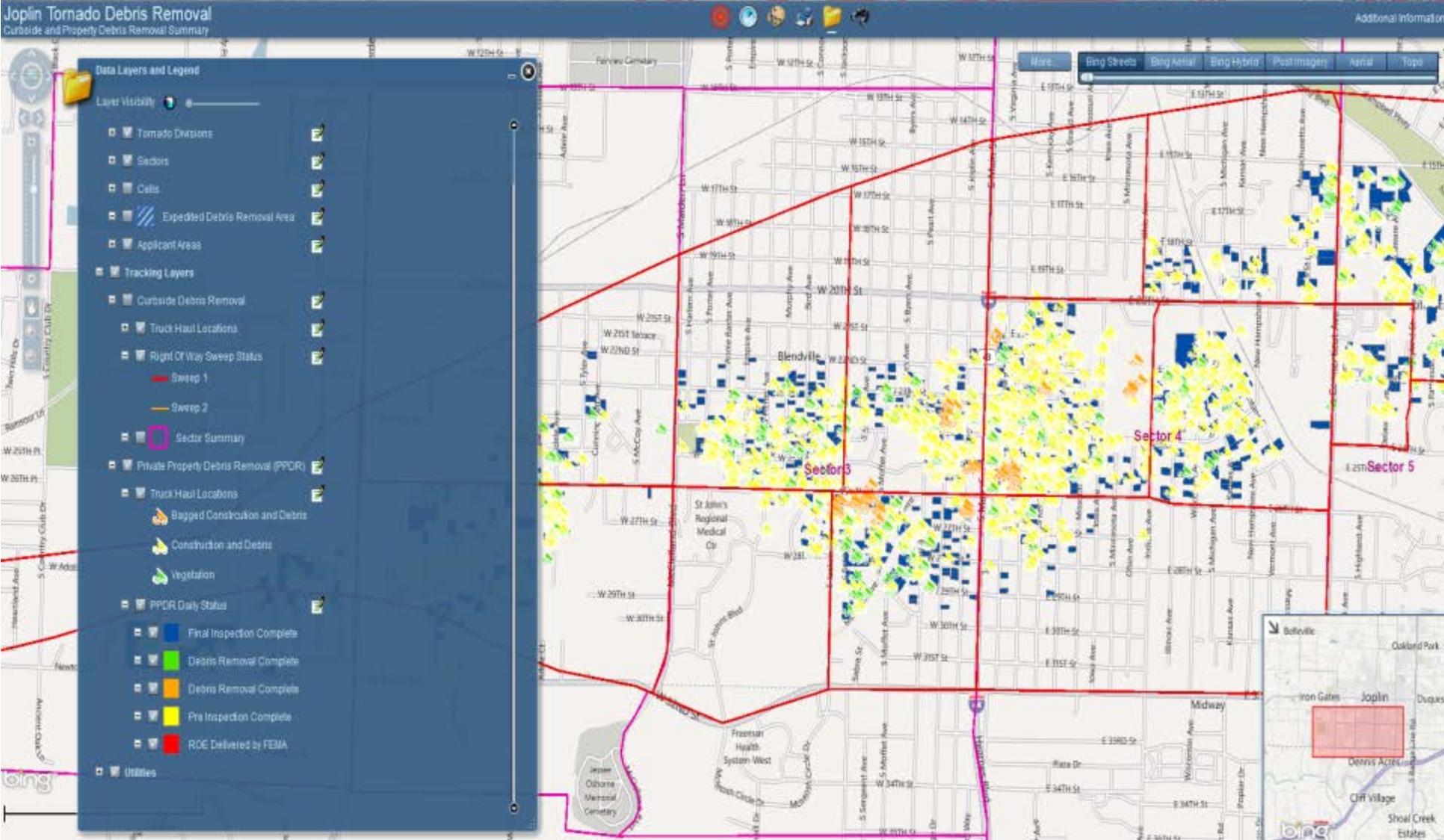


Response Manager Executive/Enterprise Reporting

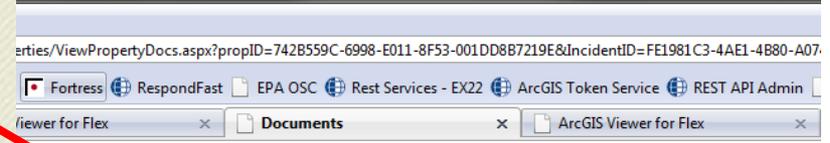
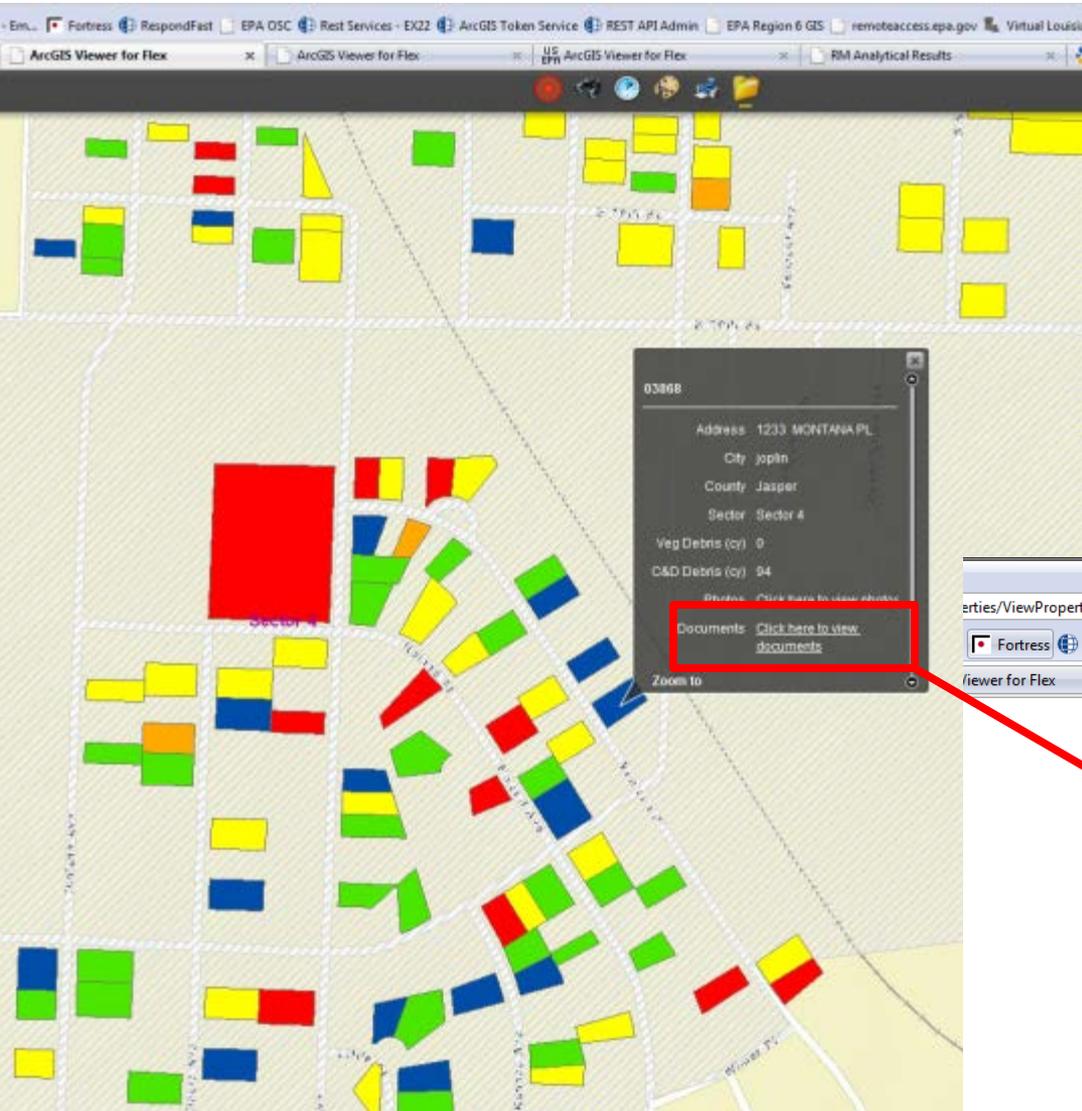
The screenshot displays the Response Manager software interface. On the left is a 'Map Contents' panel with a tree view of layers. The main area is a map showing a river and several colored markers. A popup window for 'EPA-HE4-110831-001-001' is open over a marker, showing details like 'Action Required: Leave in Place (Closed)', 'Priority: Non-Emergency/Immediate Response', and 'Item Type: Misc. Containers'. A red box highlights a 'Photos' link in the popup, with an arrow pointing to a photo gallery window. The gallery shows a photo of hazardous waste and includes a metadata table.

Field	Value
Photo Name	EPA-HE4-110831-001-11
Date	Aug 31 2011 9:03AM
Description	

Response Manager Executive/Enterprise Reporting



Documents Loaded into RM



Property Documents

[View Document](#)
Document Name: Initial Assessment.pdf
Date Uploaded: 7/29/2011 2:41:09 PM
Description:

[View Document](#)
Document Name: 03868 USACE ROE.pdf
Date Uploaded: 7/29/2011 2:41:01 PM
Description:

[View Document](#)
Document Name: 03868_ROE.pdf
Date Uploaded: 7/10/2011 7:57:26 PM
Description:

[View Document](#)
Document Name: 03868_IAC.pdf
Date Uploaded: 7/10/2011 7:57:26 PM
Description:

PDFs are
downloadable and
viewable

Time Animation to show status by Day for entire response

Animate by Time

06/24/2011



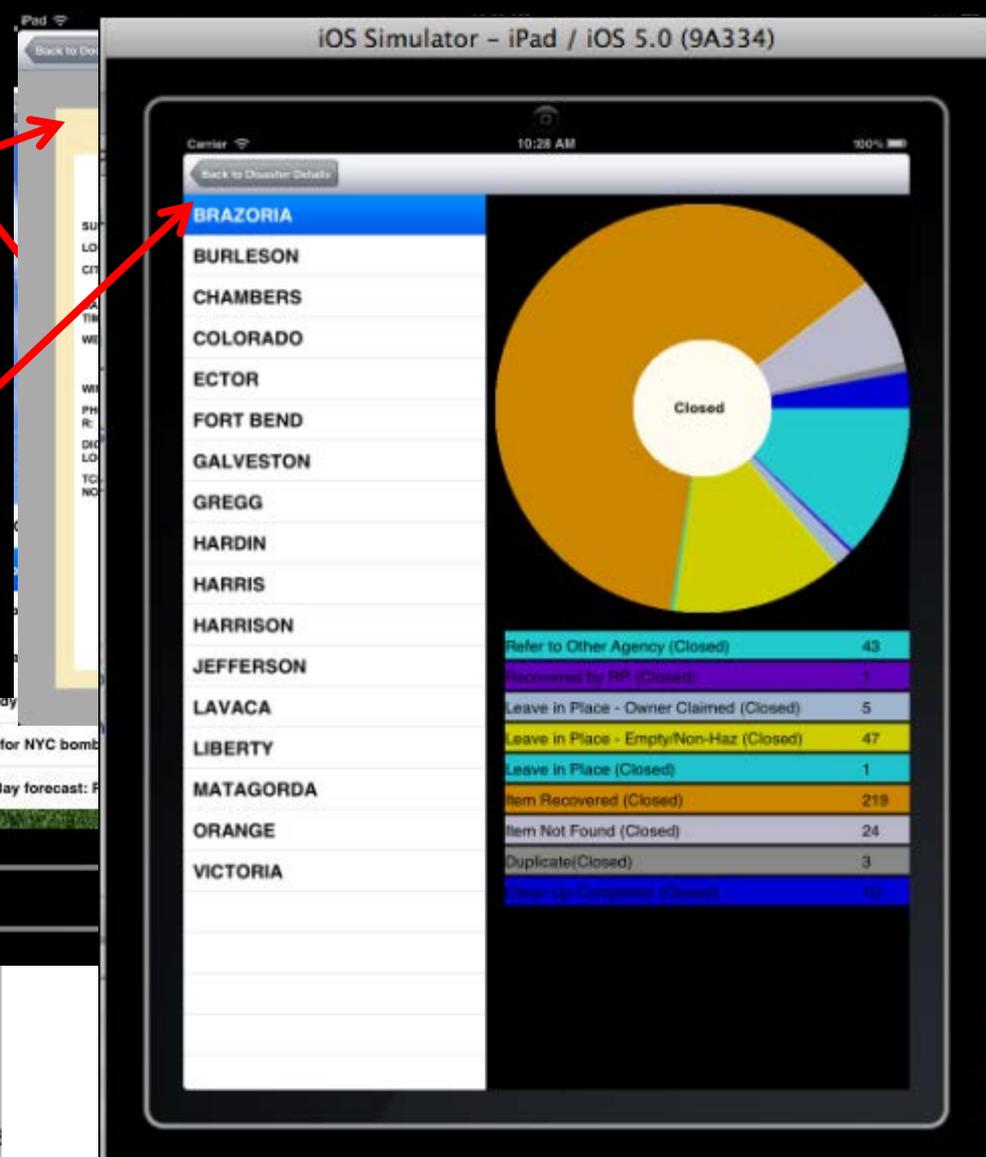
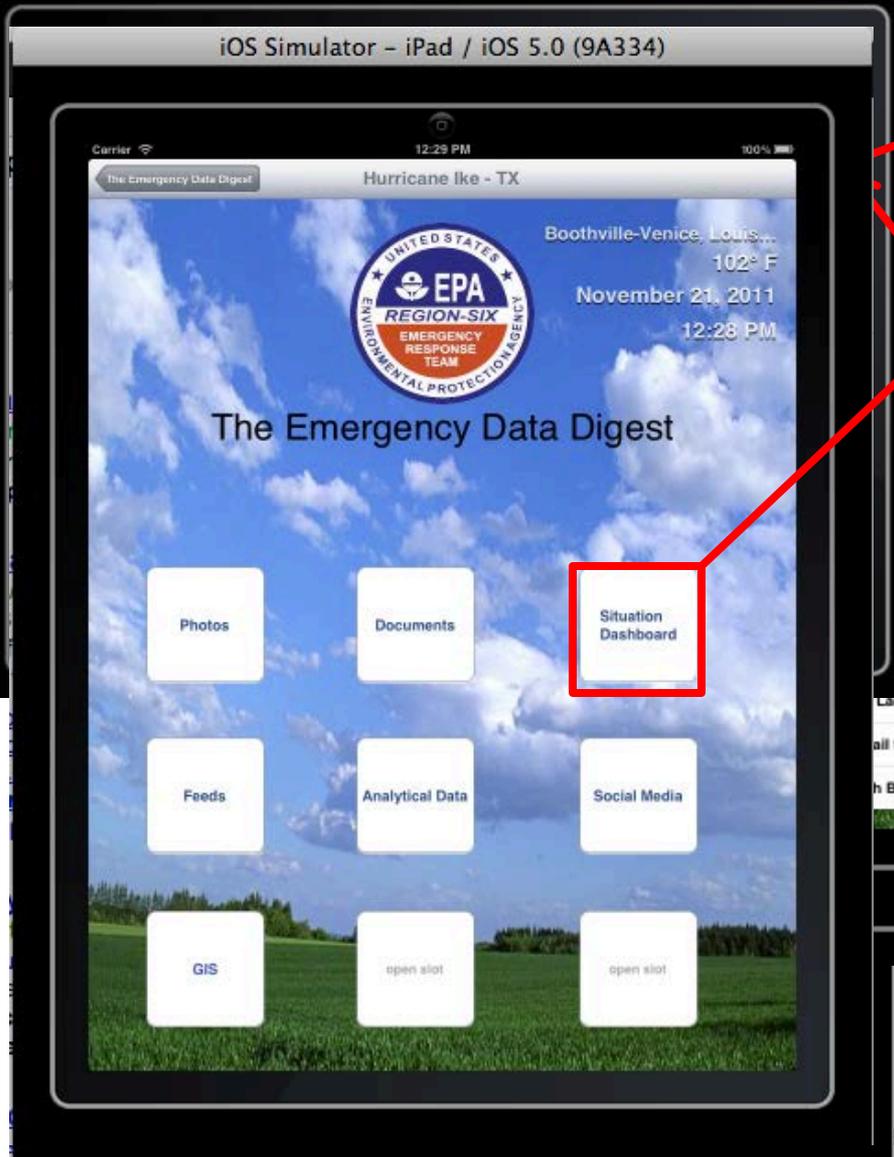
Animate by Time

07/08/2011



- Estimated Debris Removal Progress
-  Final Inspection Complete
-  Debris Removal Complete
-  Debris Removal Complete
-  Pre Inspection Complete
-  ROE Delivered by FEMA

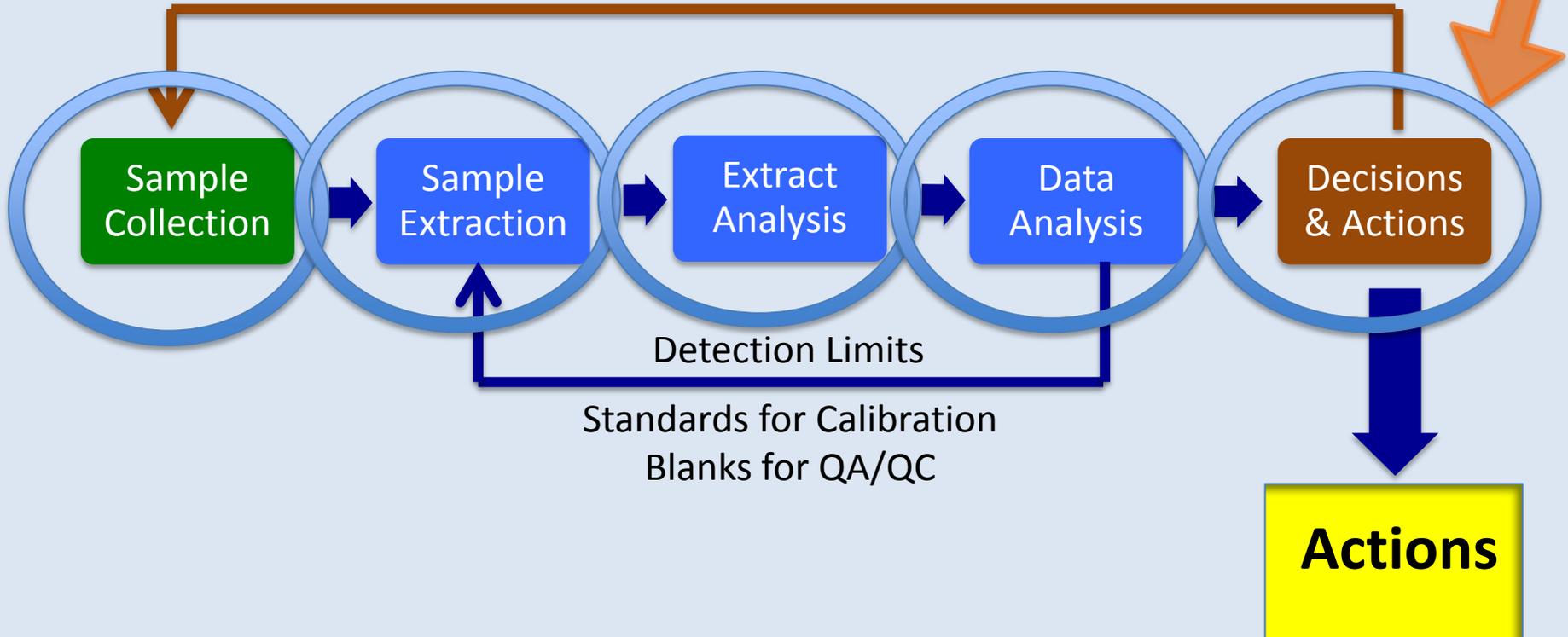
Response Manager Executive/Enterprise Reporting



Analytical Process

Providing Information Needed for Decision Making

Analytical Rational, Data Quality Objectives, Cost, Time



Analytical Contributions To Oil Spill Responses

- **Detection of subsurface oil:**

1. near surface and at depth
2. Gaseous markers of oil
3. buried or tar mats

- **Identification of oil**

1. weathering
2. fingerprinting
3. ID petrogenic material

- **Dispersant/ISB/Skimmer Monitoring**

1. effectiveness at depth and from surface application
2. oil concentrations in water column
3. dispersed oil degradation
4. dispersant detection in water column

- **Worker and general population safety (direct exposures)**

1. at ground zero
2. cleanup sites
3. population centers at risk from exposures

- **Seafood safety**

1. detection of contamination
2. is the seafood safe to eat from PAH concentration perspective

Analytical Techniques for Oil Spills (organics):

- GC (gas chromatography): TPH, cheap-use carefully
- GCMS (gc mass spectrometry): TPAH, fingerprints, biomarkers, dispersant indicators
- GCxGC TOFMS: more selective GCMS
- HRMS (high resolution MS): petronomics?
- GCMSMS: a bit more selective GCMS for seafood analysis
- LCMSMS (liquid chrom MSMS): a bit faster PAHs in seafood
- Taste and Smell: petroleum contamination in seafood
- LCHRMS: DOSS in deep water samples
- Cyclotron X-ray fluorescence: sulfur speciations
- FTIR
- UV
- UV Fluorescence

Analytical Techniques for Oil Spills (organics):

- **GC (gas chromatography):**

lab based, inexpensive, easy to use

use carefully for TPH in soil/sediments, water and oily samples,
not used for biota samples

- **GCMS (gc mass spectrometry):**

workhorse method for TPAH, fingerprints, biomarkers, dispersant indicators, seafood contamination, provides detailed data
fairly expensive, requires expert interpretation, lab based

- **UV-F (ultra violet-fluorescence):**

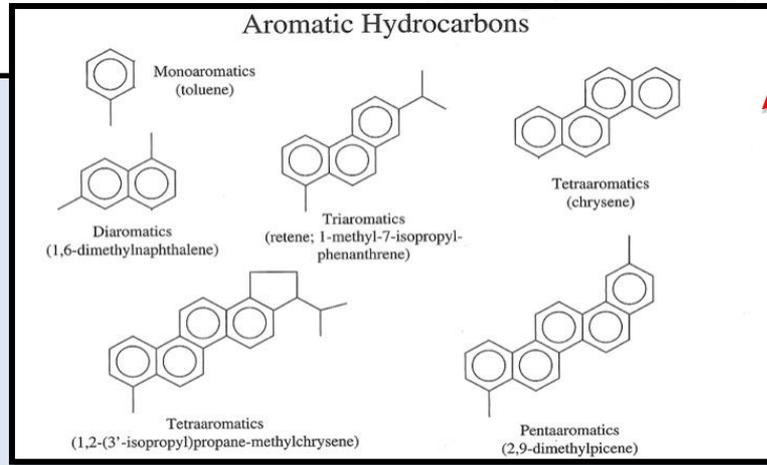
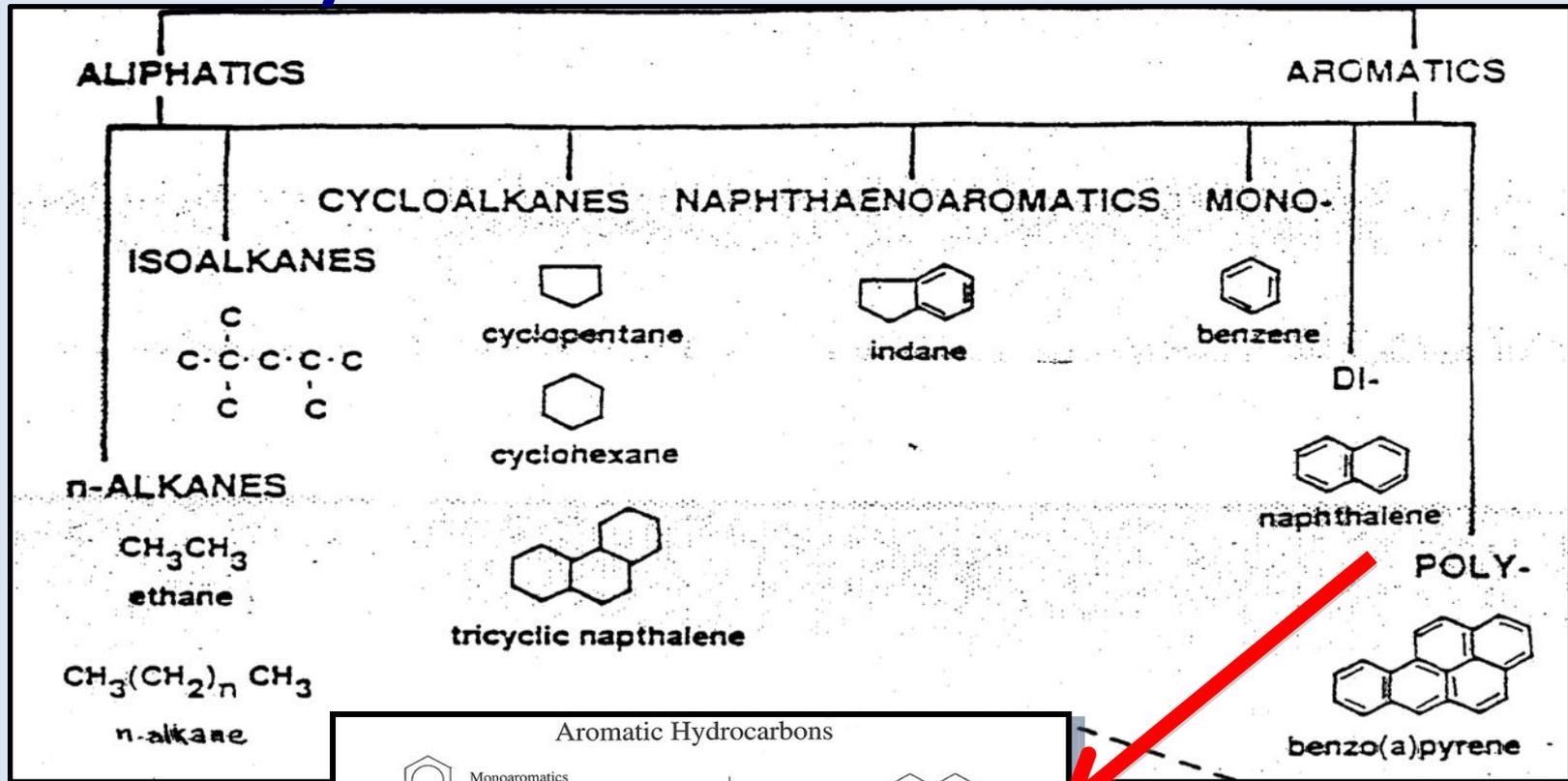
Field and lab, easy to use, very sensitive, not very specific

Subject to interferences, best used as indicator, not accurate
quantitation

Other Oil Spill Test (Assays)

- **Particle Size Measurements: instrument in field (water)**
- **Dissolved Oxygen: in water and/or with an on-scene lab**
- **Viscosity: on-scene with instrument**
- **Dispersant: in lab with liquid chromatography**
- **VOC exposure in workers for BTEX**

Hydrocarbon Structures in Oils



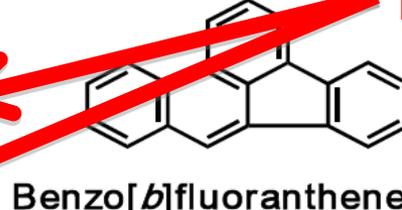
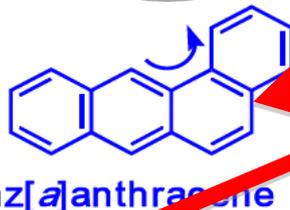
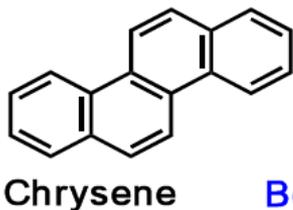
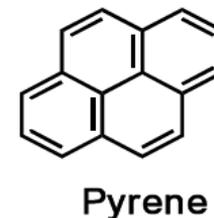
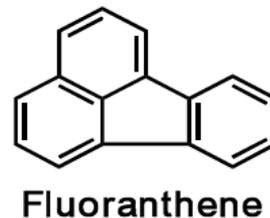
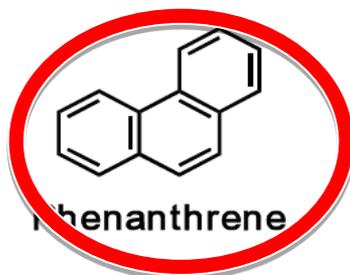
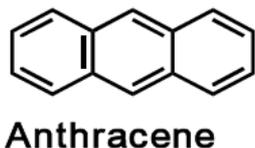
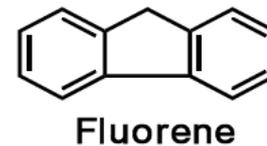
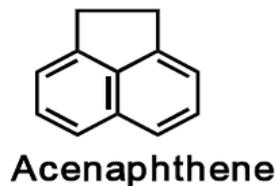
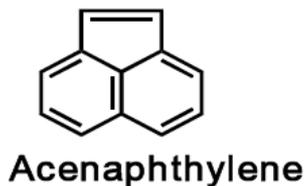
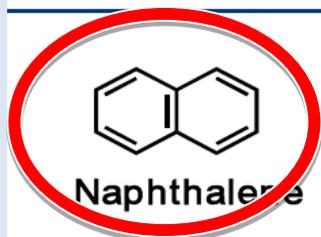
Alkyl homologs are the predominant aromatic species in oils

<4% aromatic content

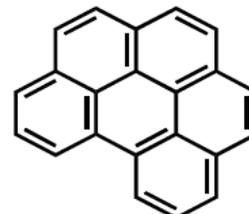
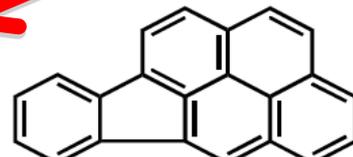
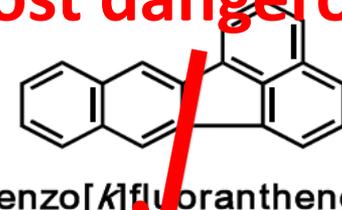
>90% Alkyl Homologs of PAHs (C1 to C4)

Mostly Alkyl Naphthalenes and Phenthanenes

EPA-Priority PAH



Most dangerous



From Prof Trevor Penning

Unique Petrogenic PAHs

Table 1. Oil Analytes of Interest

Anthracene

Benzo (a) Anthracene

Benzo (a) Pyrene

Benzo (b) Fluorene

Benzo (e) Pyrene

Benzo (g,h,i) Perylene

Benzo (k) Fluorene

Chrysene

C-1 Chrysene

C-2 Chrysene

C-3 Chrysene

C-4 Chrysene

Dibenzo (a,h) Anthracene

Dibenzothiophene

C-1 Dibenzothiophene

C-2 Dibenzothiophene

C-3 Dibenzothiophene

Fluoranthene

Fluorene

C-1 Fluorene

C-2 Fluorene

C-3 Fluorene

Hopanes

Indeno (1,2,3-cd) Pyrene

Naphthalene

C-1 Naphthalene

C-2 Naphthalene

C-3 Naphthalene

C-4 Naphthalene

Naphthobenzothiophene

C-1 Naphthobenzothiophene

C-2 Naphthobenzothiophene

C-3 Naphthobenzothiophene

Perylene

Phenanthrene

C-1 Phenanthrene

C-2 Phenanthrene

C-3 Phenanthrene

C-4 Phenanthrene

Pyrene

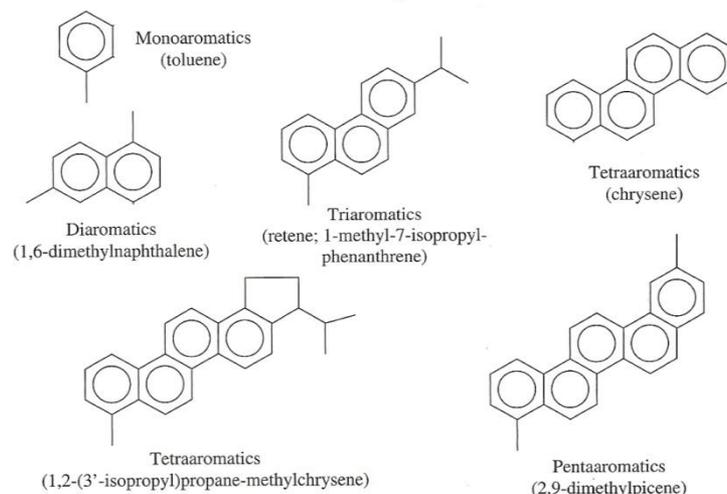
C-1 Pyrene

C-2 Pyrene

C-3 Pyrene

C-4 Pyrene

Aromatic Hydrocarbons



The Effects of Weathering on Spilled Oil

Days

Weeks

Months

Surface Oil Weathering

Toxic & Sticky
Floating

Sticky
Floating
Sinking?

Gunky
Floating
Sinking

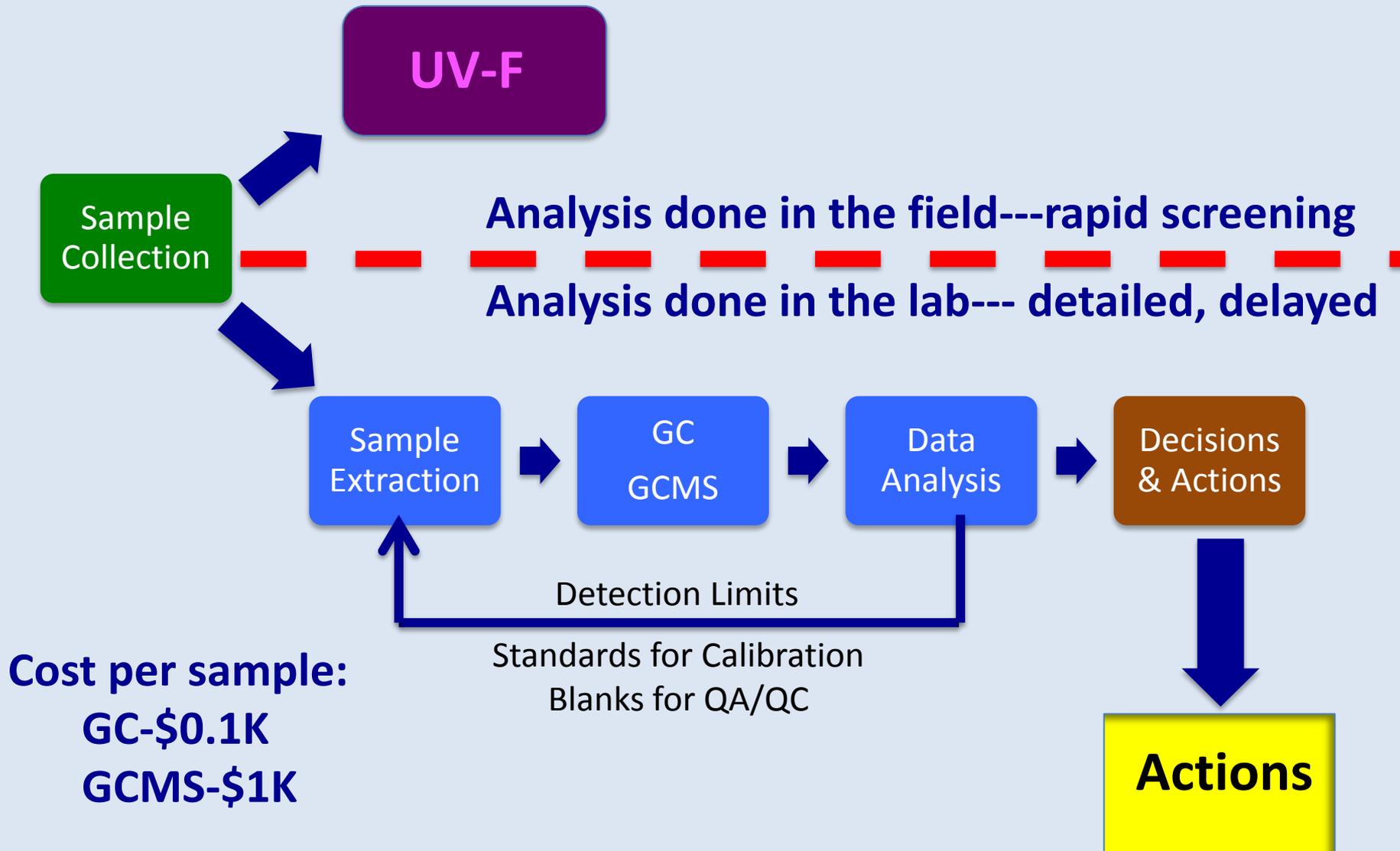
Tarball Nuisance



Harm = {Toxicity + Dose} + Route of Exposure



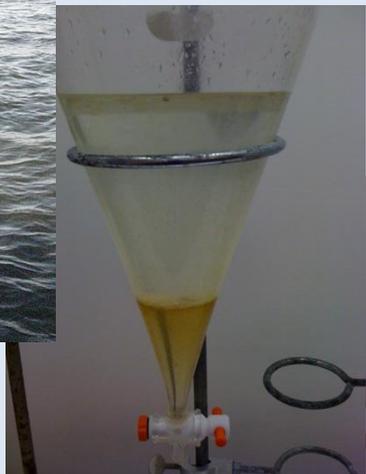
Oil Spill Analytical Options



GC/GCMS Analytical Process



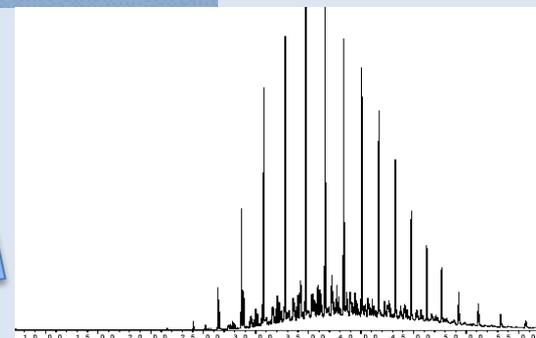
sampling



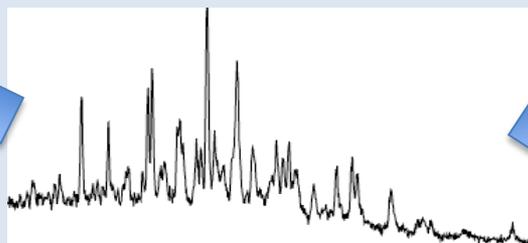
Sample
Extraction



Extract
Analysis



Data Generation



Data Interpretation



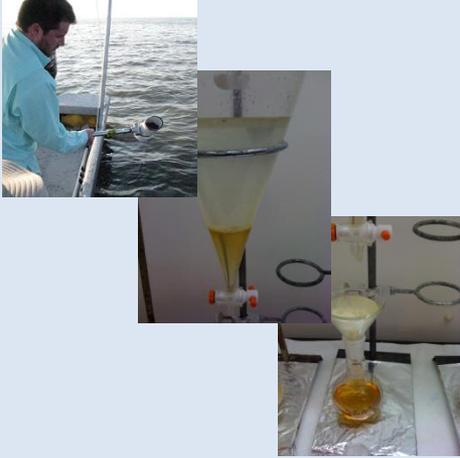
Decisions and Actions



GC/GCMS

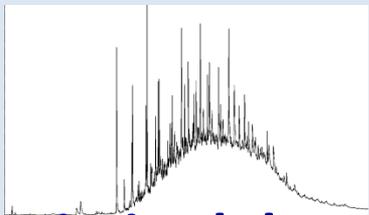
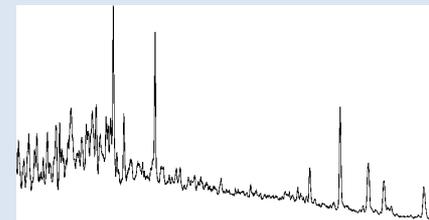
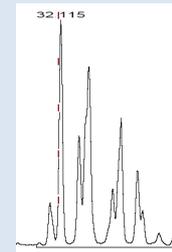
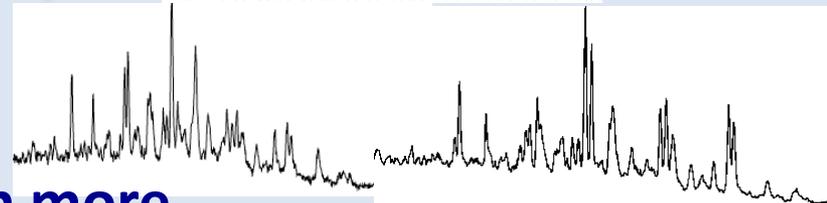
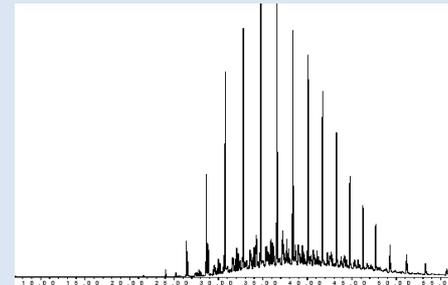
Analytical

Process



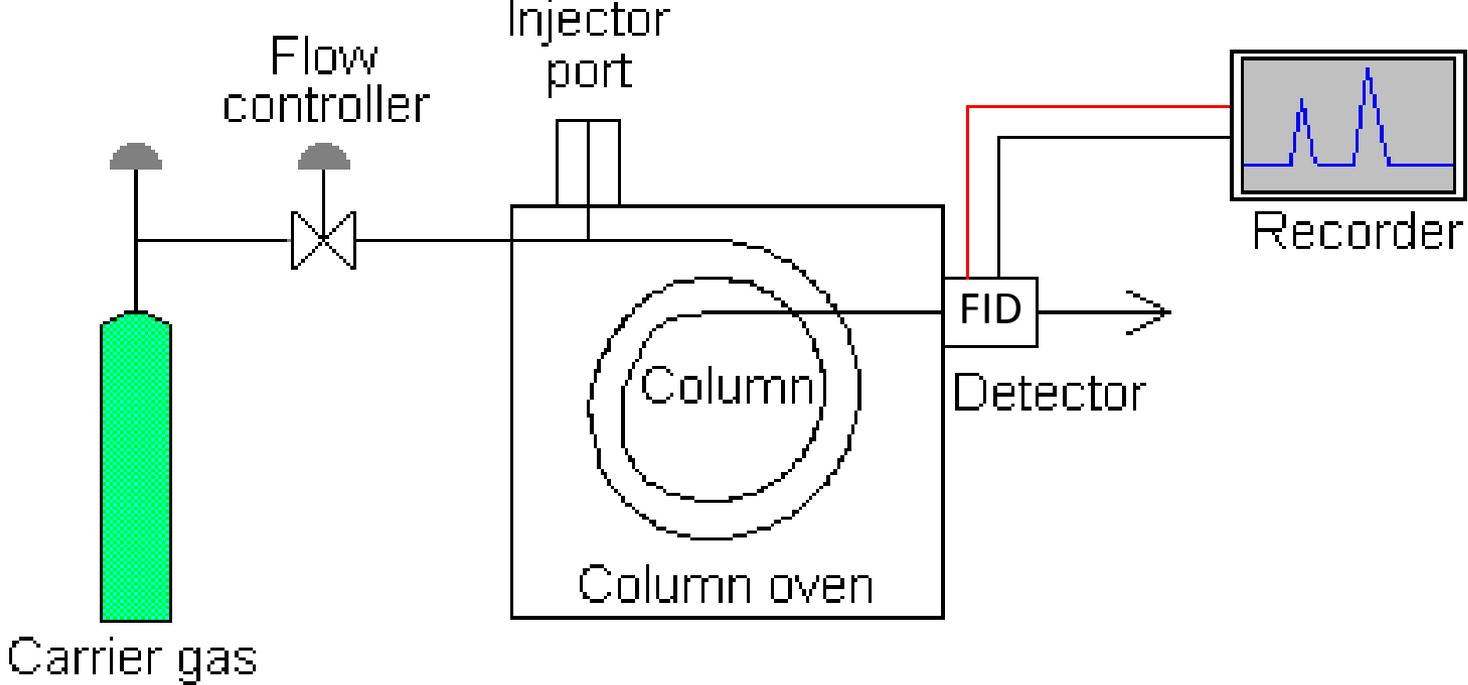
GC or GCMS

Total
Petroleum
Hydrocarbon
or **TPH**

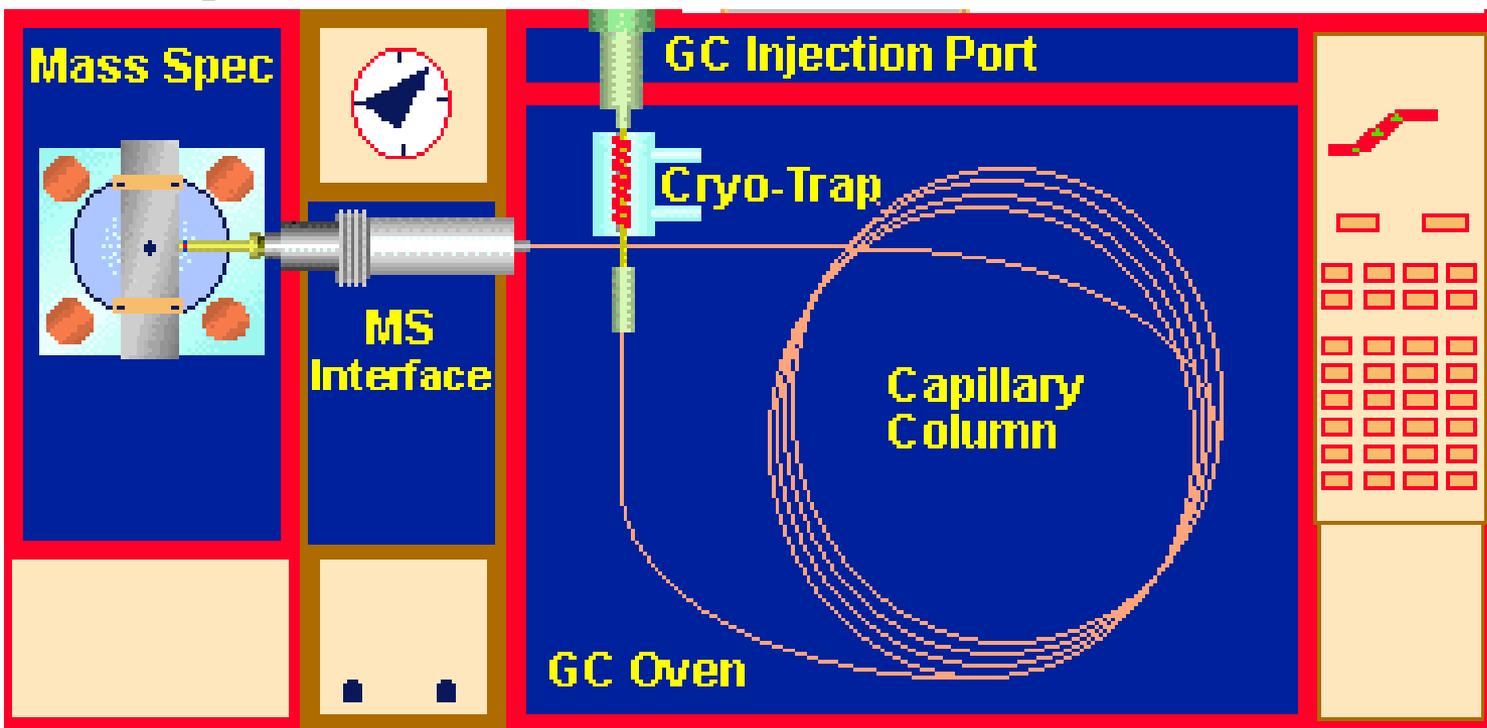


Limited data
~0.1 \$k

**Much more
definitive
useful data**
~1\$k



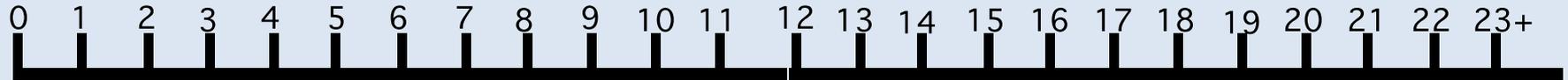
**GC
for
TPH analyses**



**GCMS
For
TPAH,
Weathering,
Fingerprinting
Analyses**

GC Dynamic Ranges

Carbon Number Range
(RI = Carbon # times 100)



Permanent Gases



>250mmVP

% to ppm

micropacked
GC column,
loop
injector

VOCs



250 to 0.1mm VP

ppm to high ppb

thick film capillary
sorbent trap

SemiVOCs



0.1 to .000001mmVP

low ppm to low ppb

thin film capillary
sorbent trap or flash heated

CWA Compounds



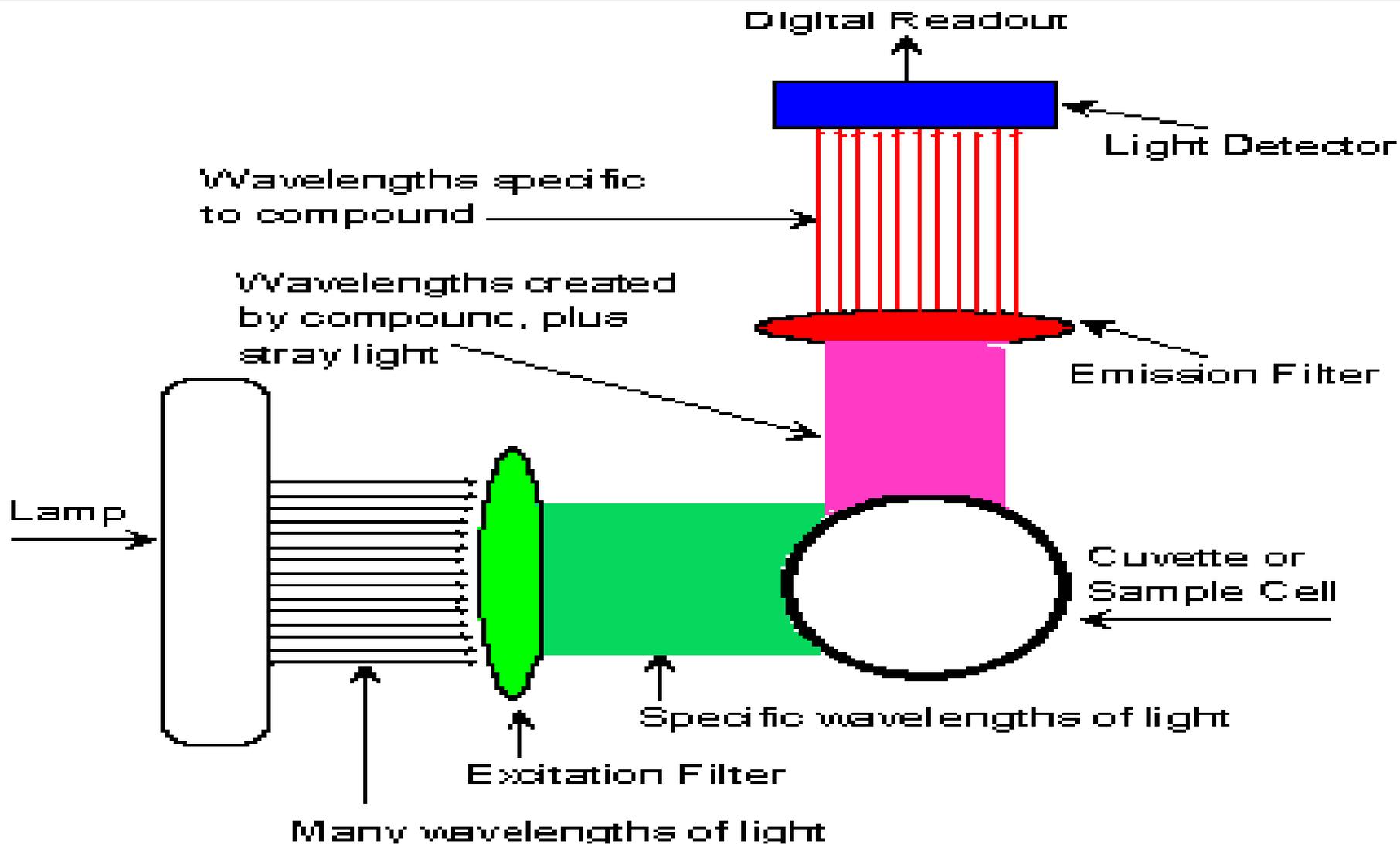
TO-14 Compounds



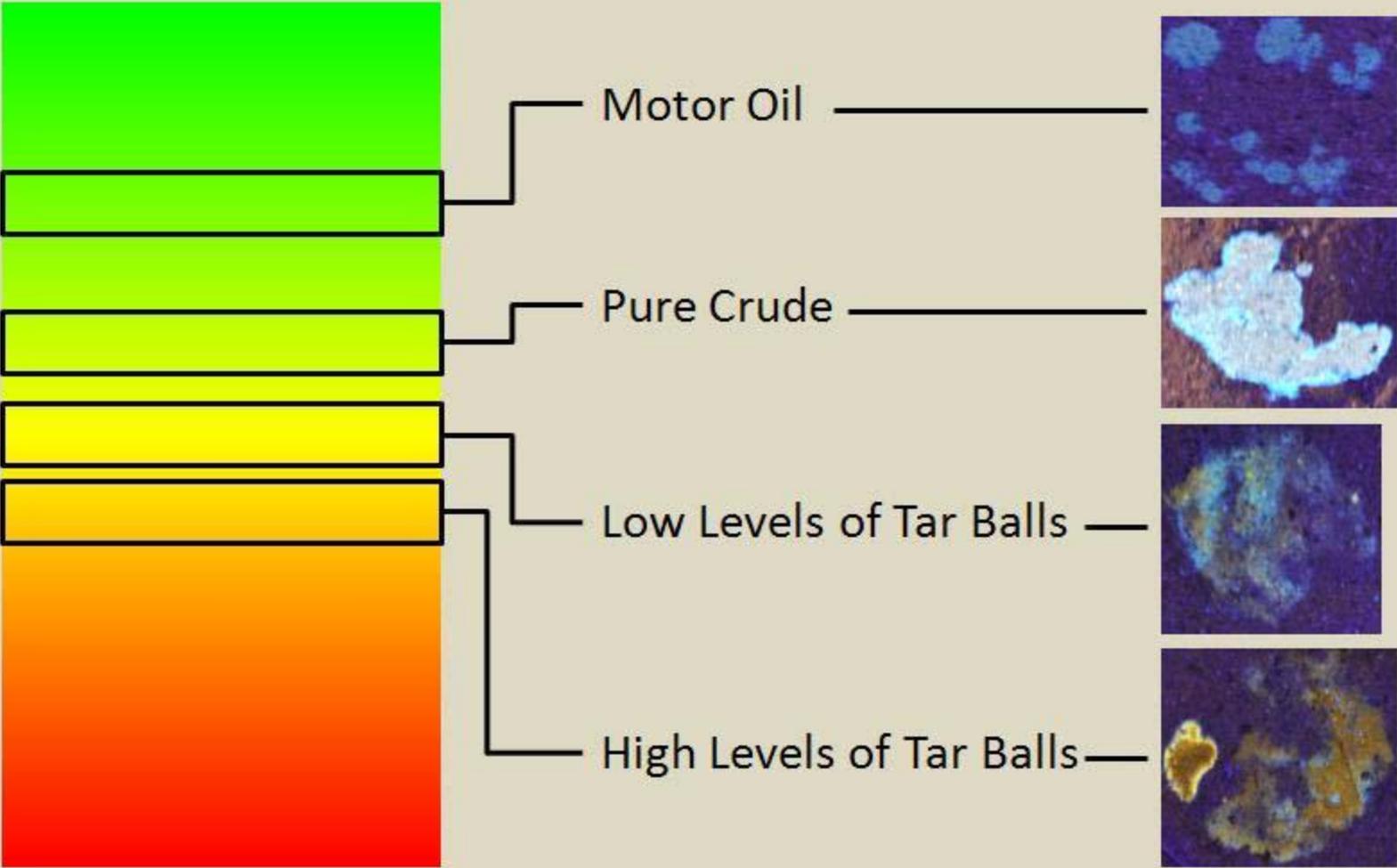
Field vs. Laboratory



How a Fluorometer Works



Hydrocarbon Contaminant Color Chart



In-situ Fluorometers Used During DWH Spill Response



WetLabs Eco
Ex/Em 370/460nm



Chelsea Aqua tracka
Ex/Em 239/440nm



Turner Design C3
Ex/Em 380/460nm

Vertek's Low Voltage Ultra Violet Spotlights

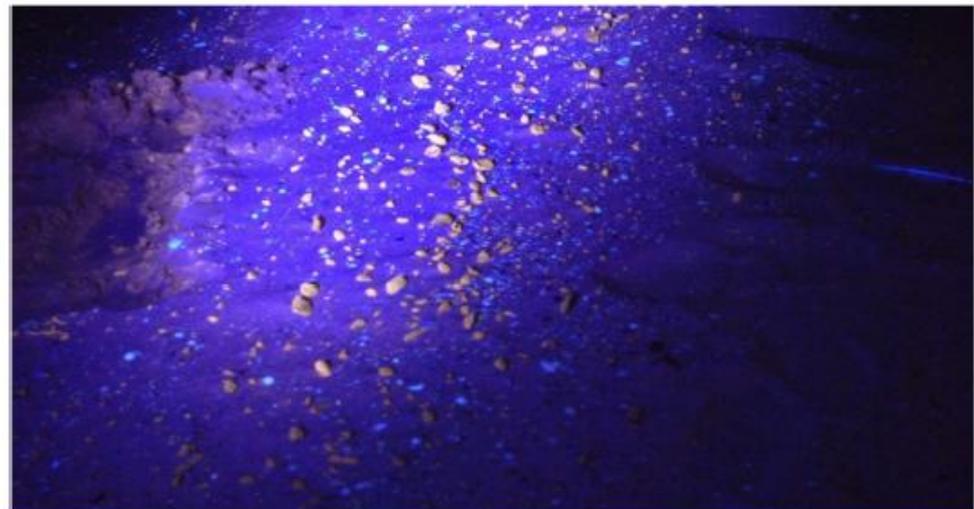
- High powered UV LEDs combined into spotlights provide screening of fluorescent contaminants on surfaces
- Obvious application is Gulf Coast Beaches – Deepwater fallout
- Also applicable to “sheen” monitoring
- Can be used to quickly assess environmental core or dig samples

Gulf Shores, AL December 2010

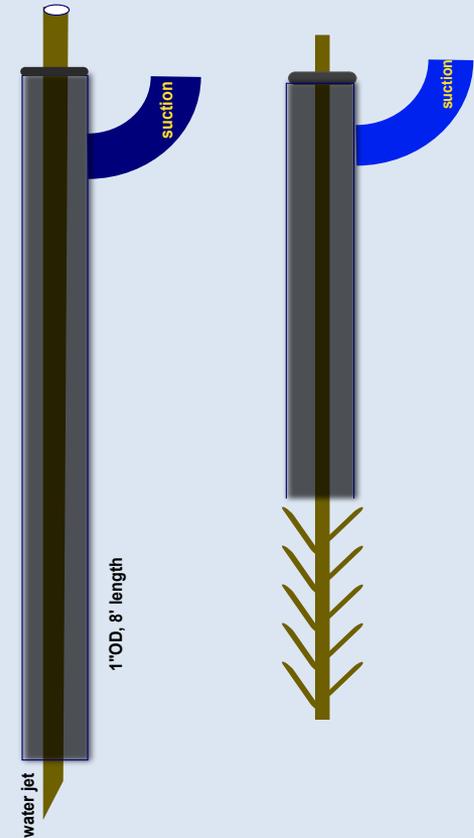
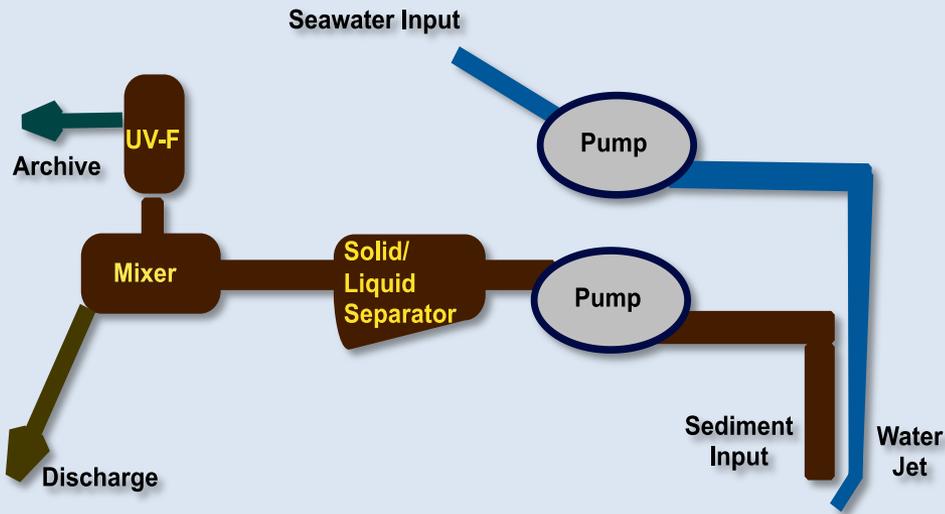
Daylight



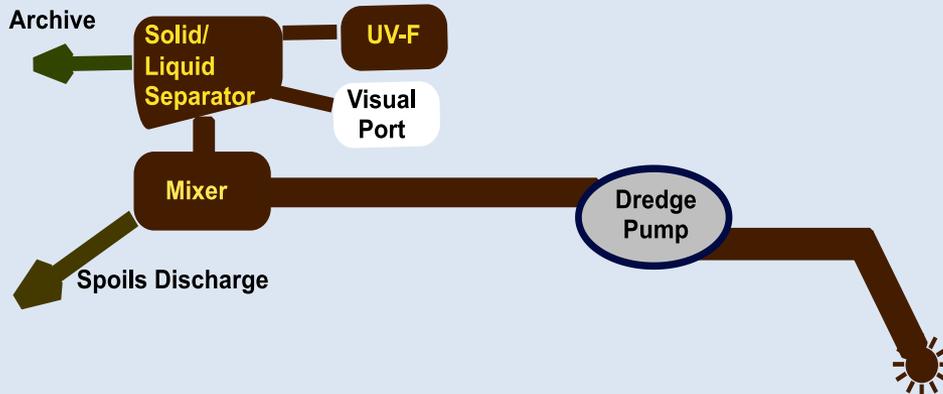
Under LVUV Light



UV-Fluorescence On-Site Detection

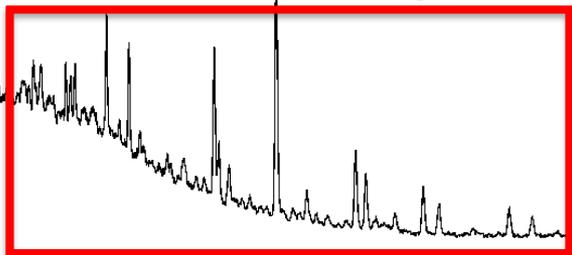


Tarmat Sampling Probe or use with Dredge

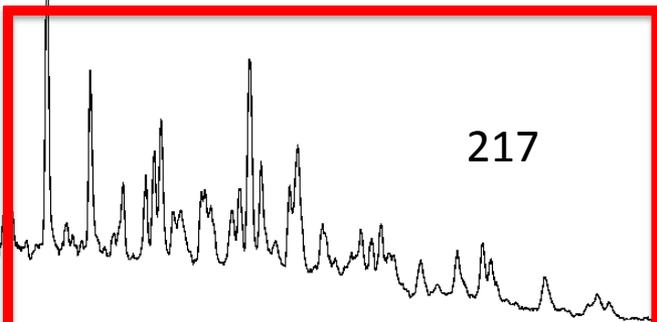


Thank You

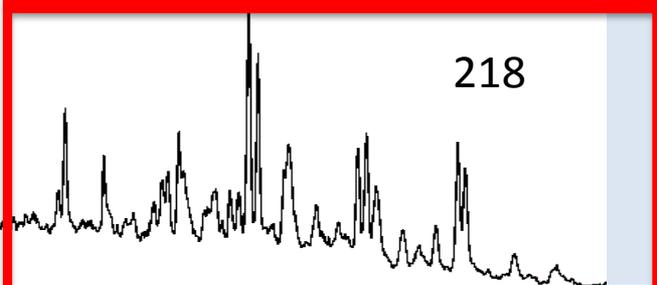
Source MC252 fresh
191



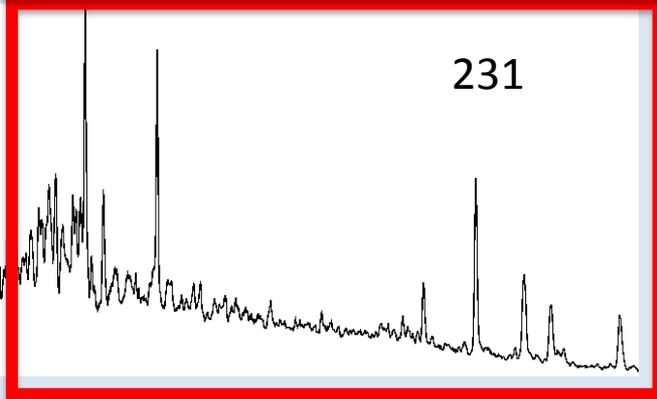
217



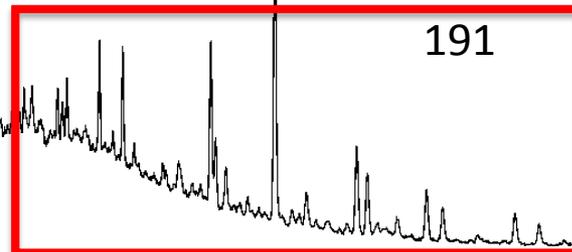
218



231

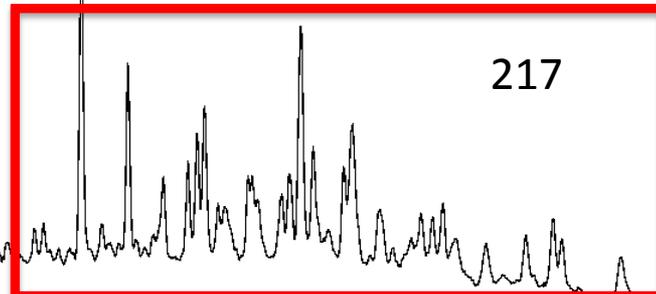


Weathered source
191

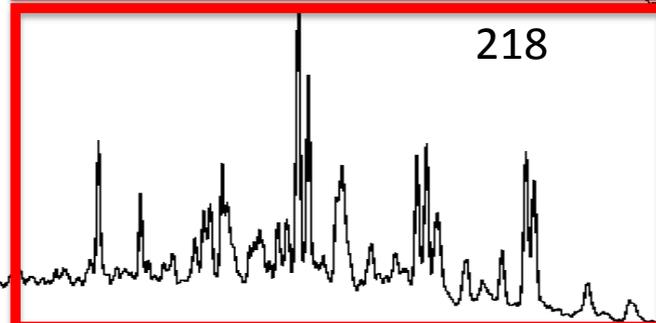


191

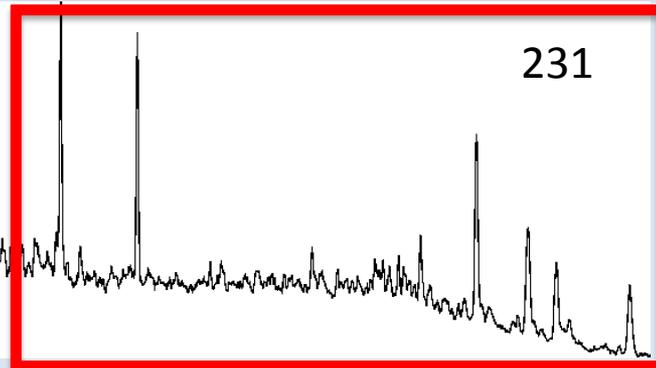
217



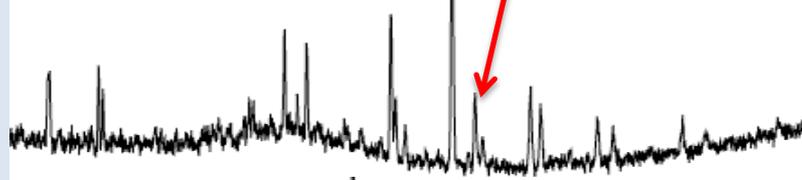
218



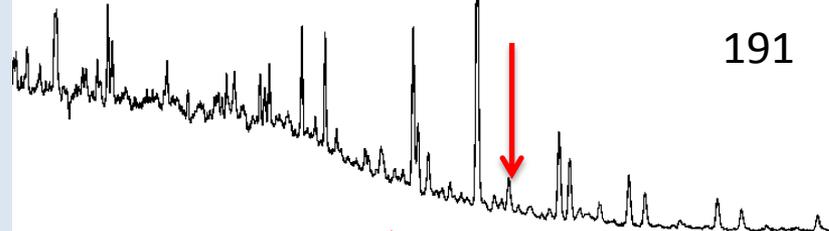
231



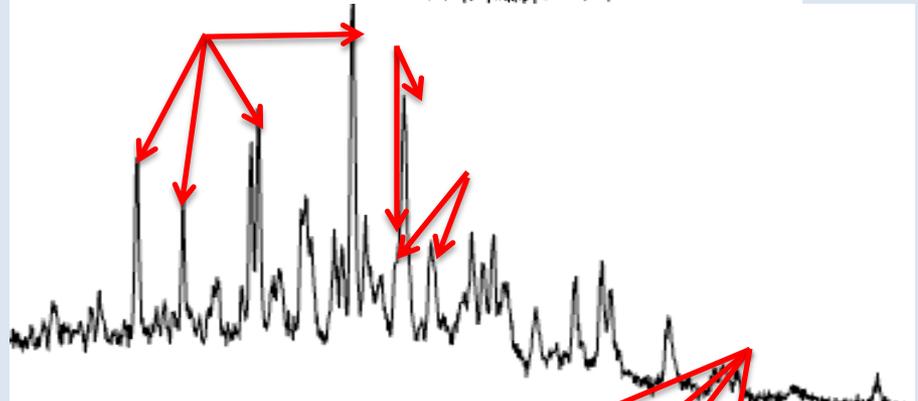
C66871



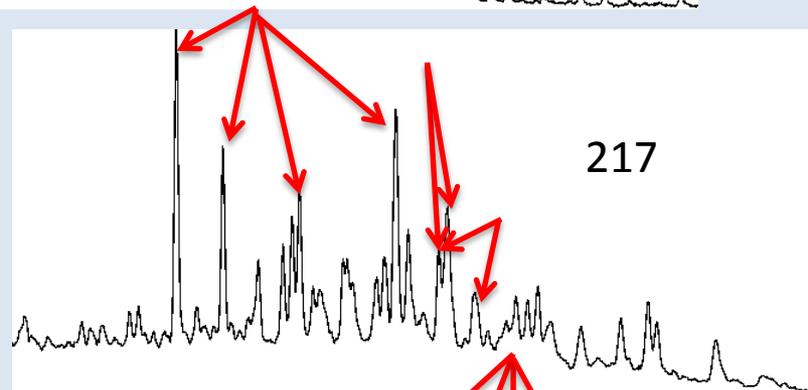
Weathered source



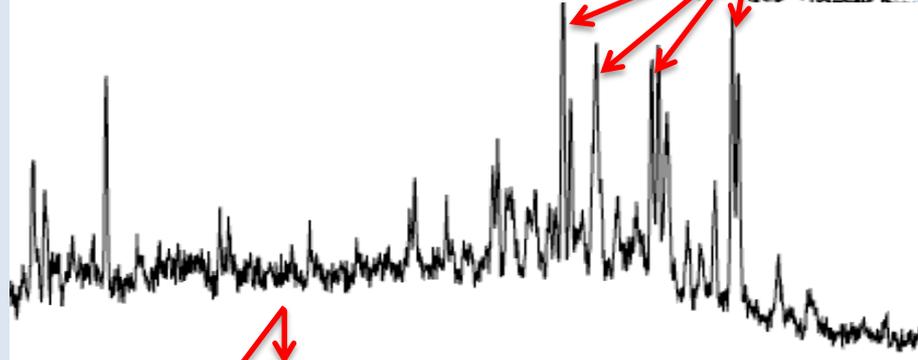
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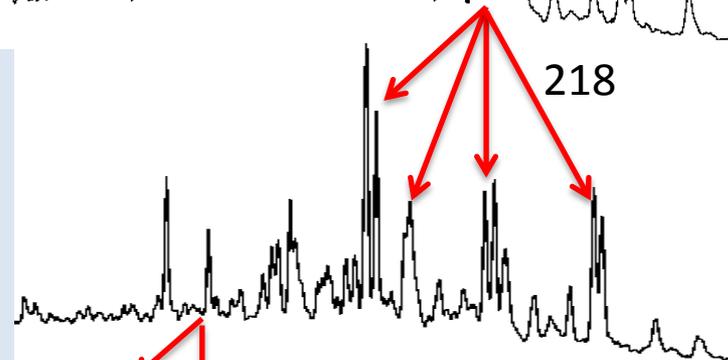
X



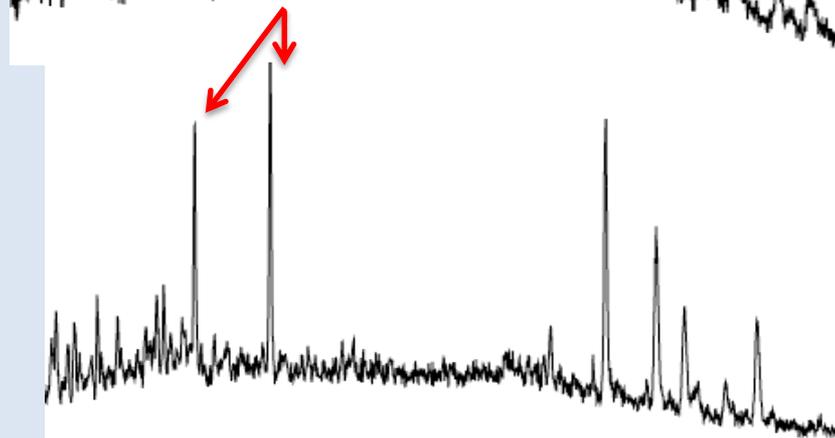
217



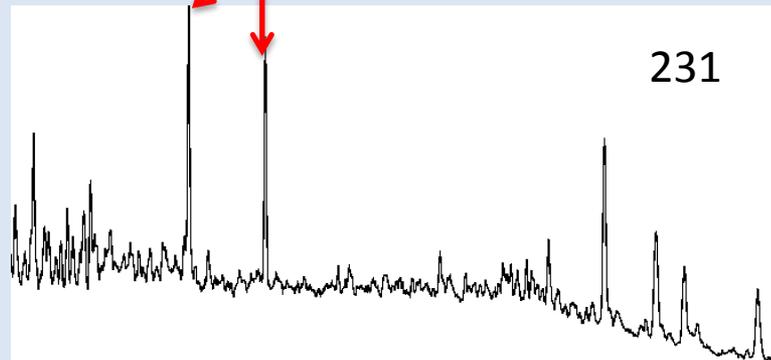
X



218



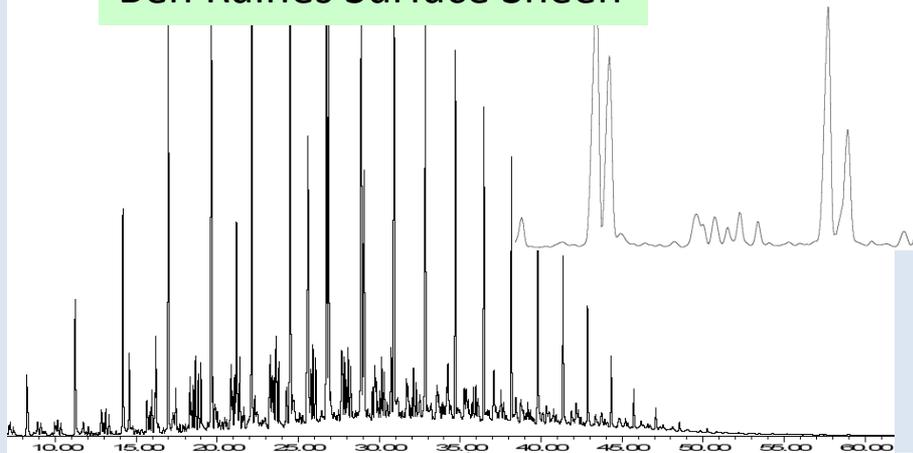
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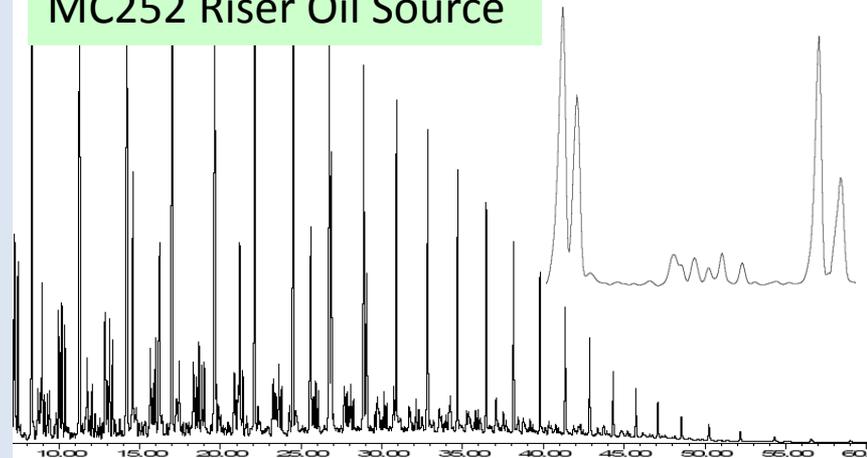
231

Oil Fingerprinting

Ben Raines Surface Sheen



MC252 Riser Oil Source



191

217

biomarkers

191

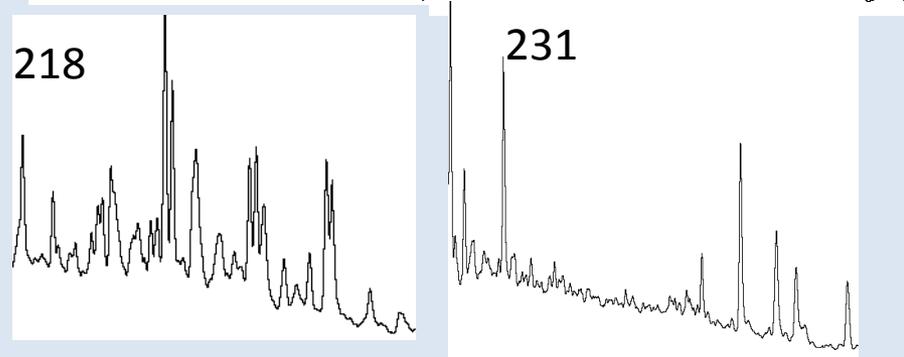
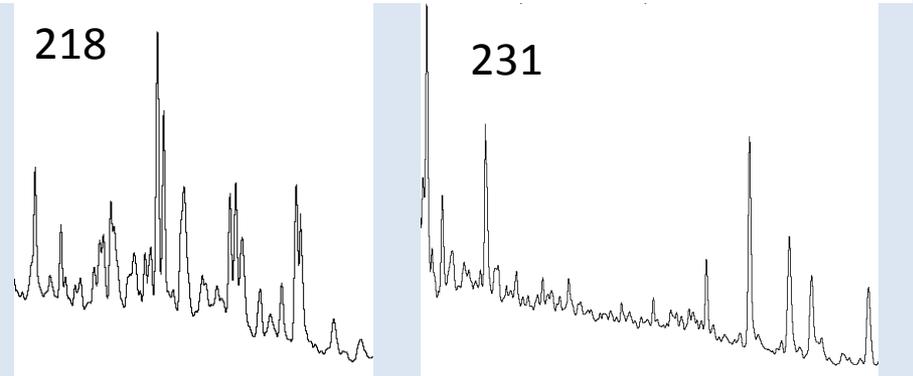
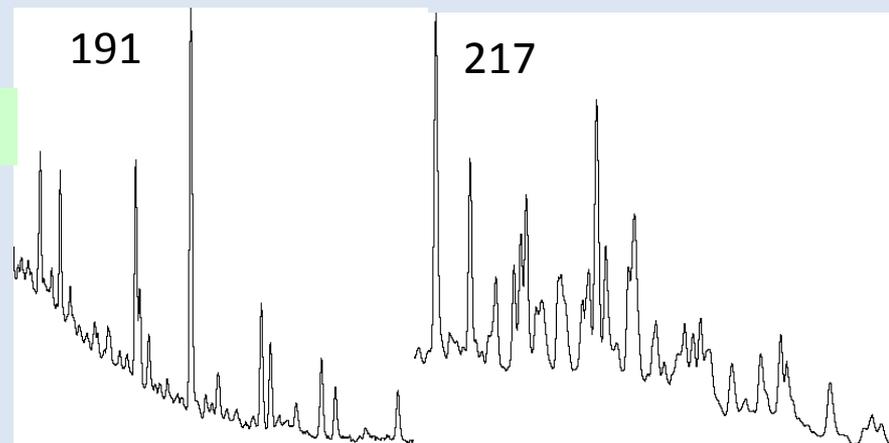
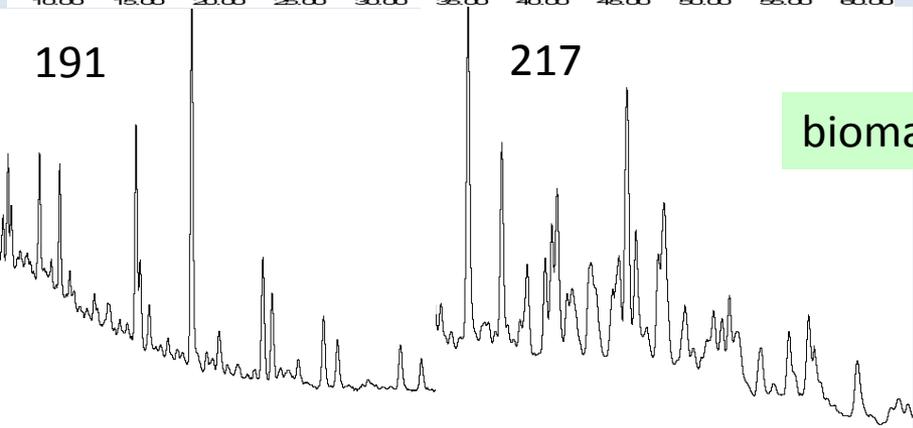
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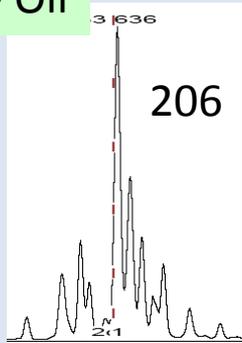
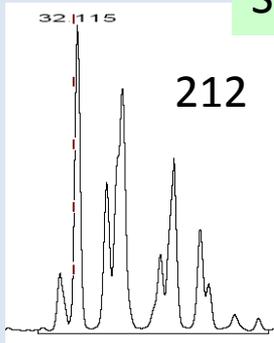
231

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231



Source Oil

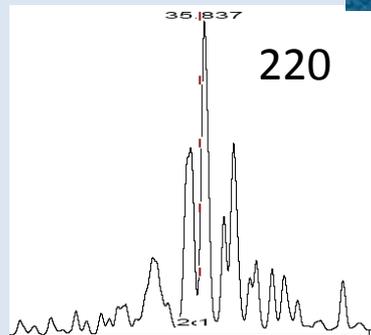
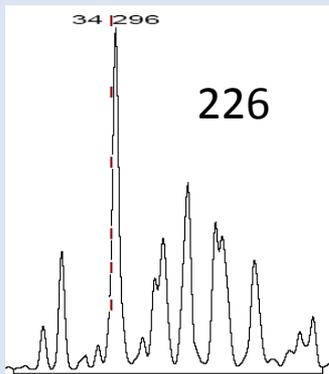
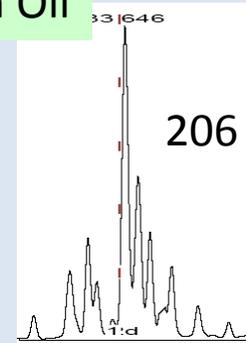
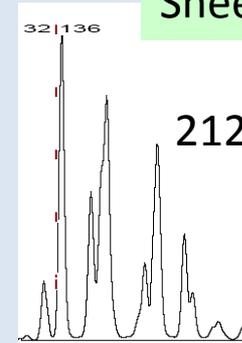


Alkyl Aromatic Homologs

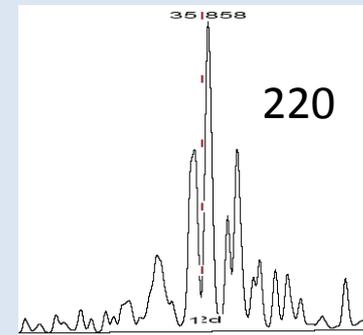
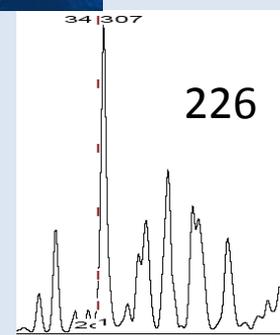
C2-DBT/C2-Phen



Sheen Oil



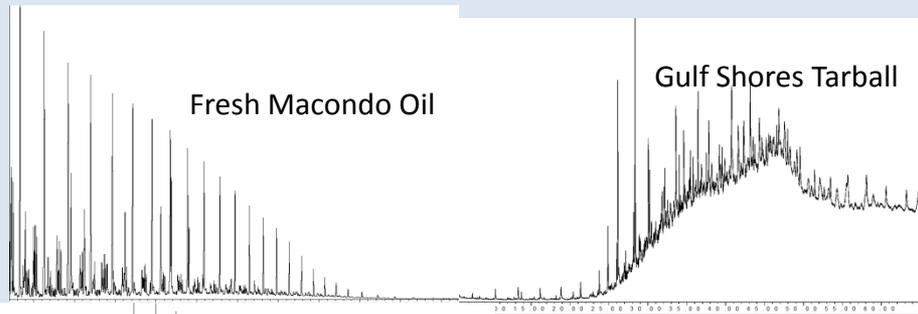
C3-DBT/C3-Phen



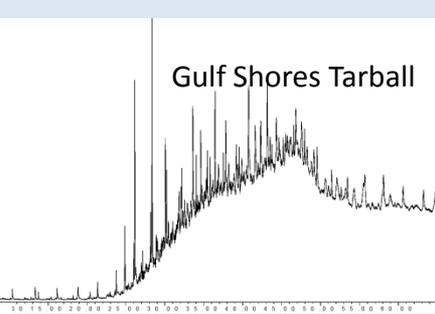
	Paper Towels	Waters	Source
C2 DBT	406617	114080	403847
C3 DBT	257627	70807	261776
C2 Phen	1335559	371415	1335587
C3 Phen	735050	205047	753209
	Ratios		
	Paper Towels	Waters	Source
C2 DBT/C2 Phen	0.30	0.31	0.30
C3 DBT/C3 Phen	0.35	0.35	0.35

How Chemists See Oil: Deepwater Horizon Oil's Various Looks Over Time

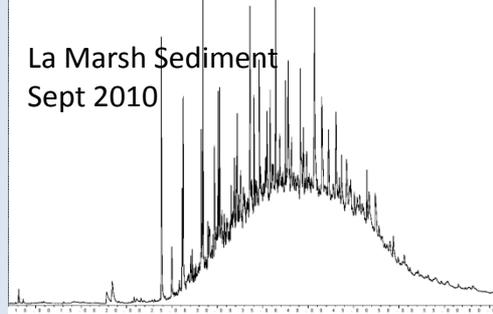
Fresh Macondo Oil



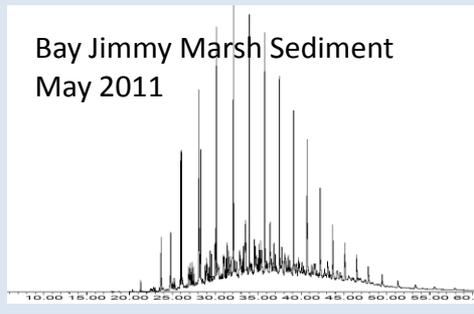
Gulf Shores Tarball



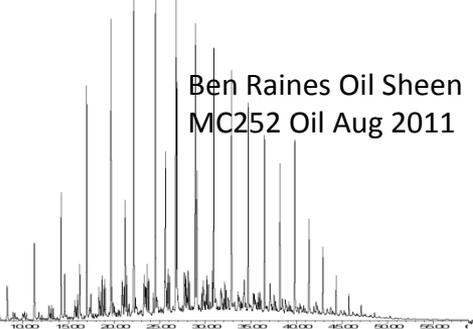
La Marsh Sediment
Sept 2010



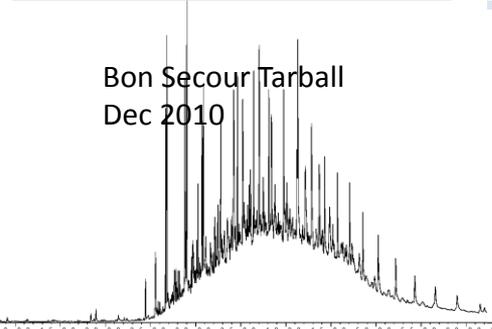
Bay Jimmy Marsh Sediment
May 2011



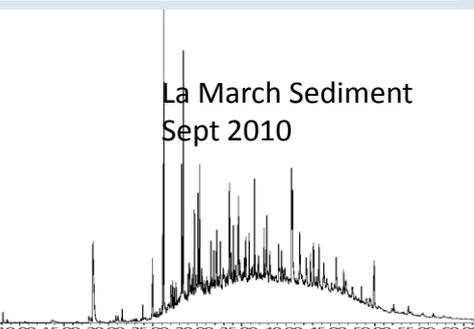
Ben Raines Oil Sheen
MC252 Oil Aug 2011



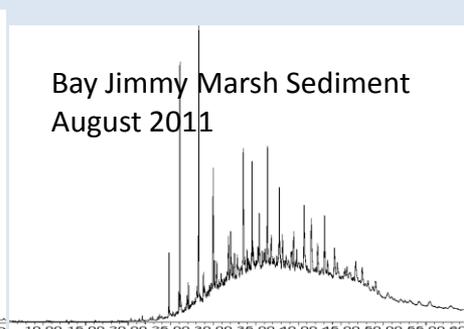
Bon Secour Tarball
Dec 2010



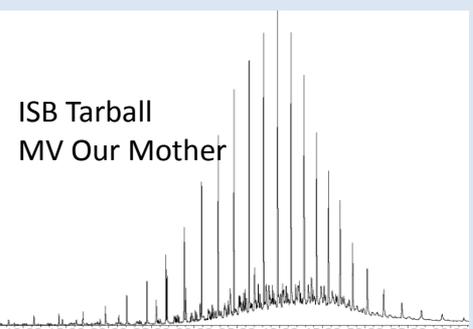
La March Sediment
Sept 2010



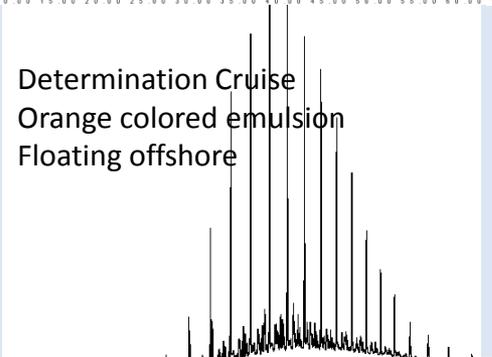
Bay Jimmy Marsh Sediment
August 2011



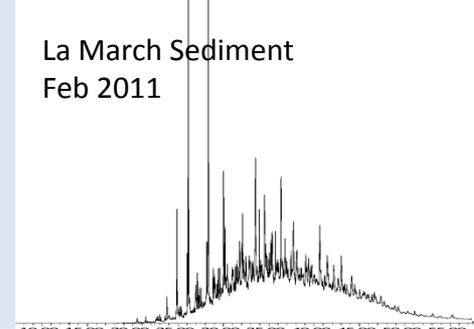
ISB Tarball
MV Our Mother



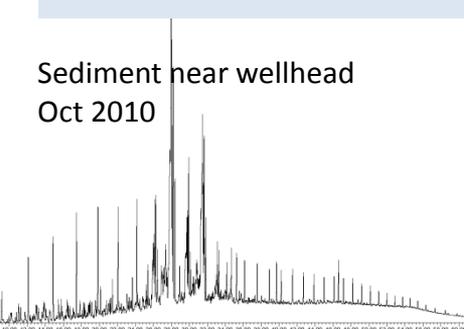
Determination Cruise
Orange colored emulsion
Floating offshore



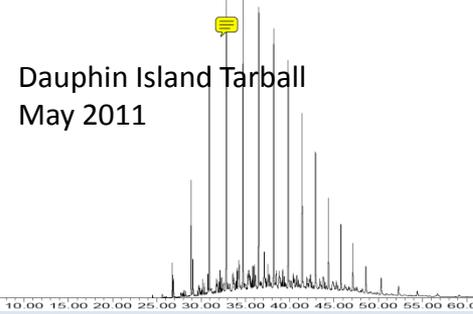
La March Sediment
Feb 2011



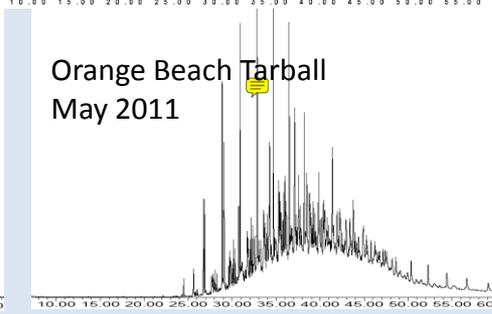
Sediment near wellhead
Oct 2010



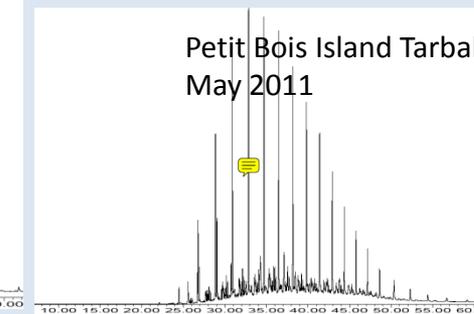
Dauphin Island Tarball
May 2011



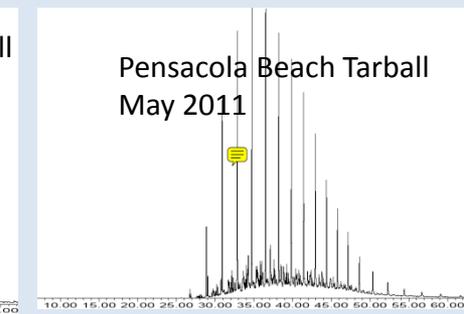
Orange Beach Tarball
May 2011



Petit Bois Island Tarball
May 2011

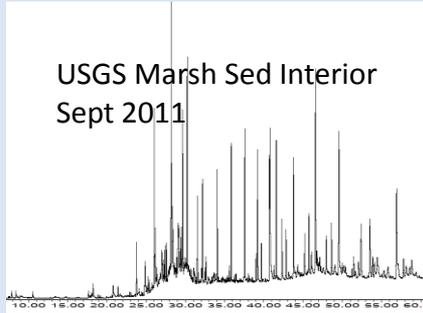


Pensacola Beach Tarball
May 2011

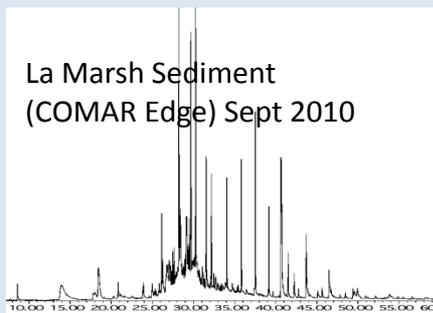


Background Hydrocarbons along the Northern Gulf Coast

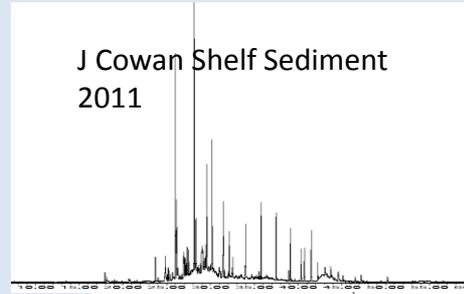
USGS Marsh Sed Interior
Sept 2011



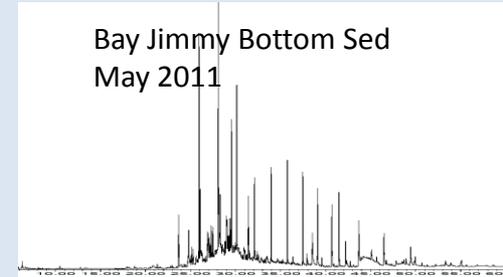
La Marsh Sediment
(COMAR Edge) Sept 2010



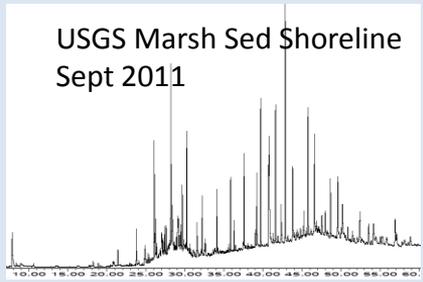
J Cowan Shelf Sediment
2011



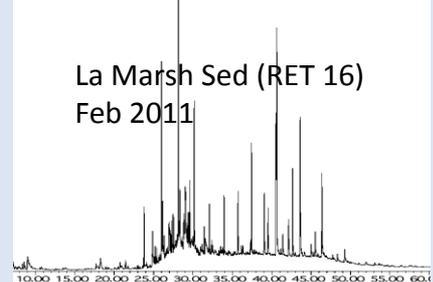
Bay Jimmy Bottom Sed
May 2011



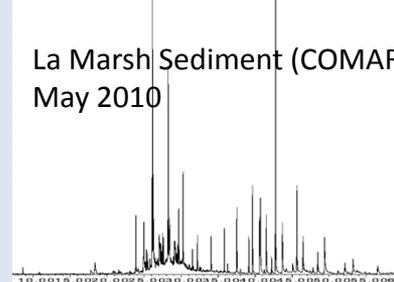
USGS Marsh Sed Shoreline
Sept 2011



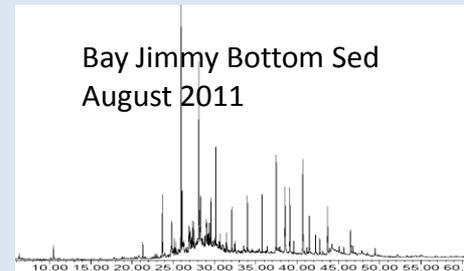
La Marsh Sed (RET 16)
Feb 2011



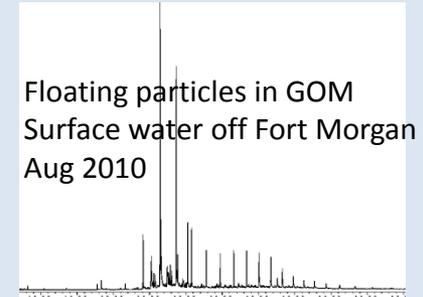
La Marsh Sediment (COMAR 4)
May 2010



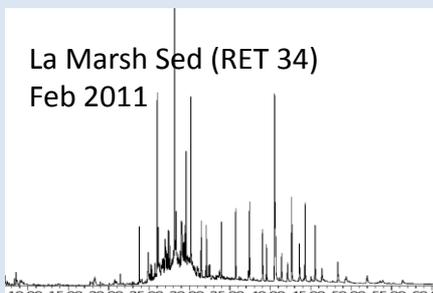
Bay Jimmy Bottom Sed
August 2011



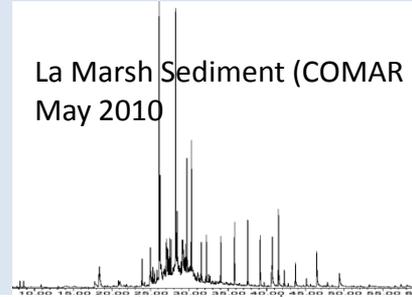
Floating particles in GOM
Surface water off Fort Morgan
Aug 2010



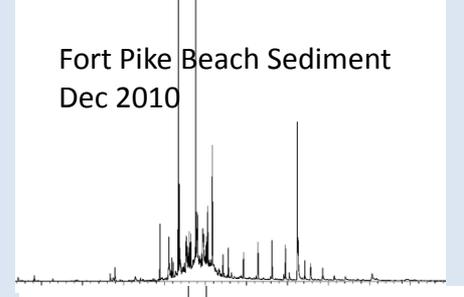
La Marsh Sed (RET 34)
Feb 2011



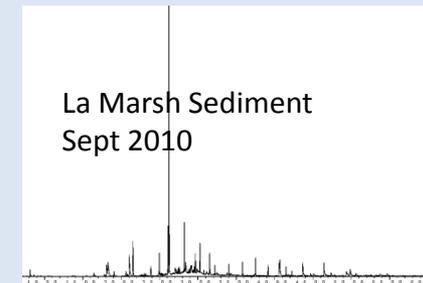
La Marsh Sediment (COMAR 14)
May 2010



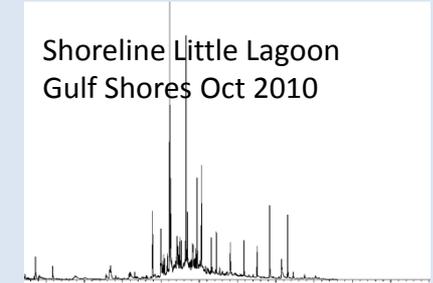
Fort Pike Beach Sediment
Dec 2010



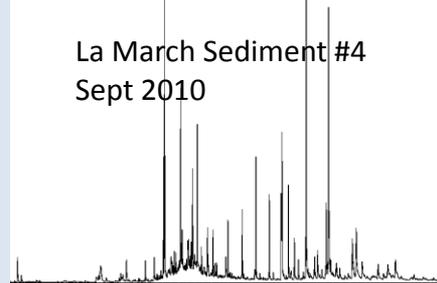
La Marsh Sediment
Sept 2010



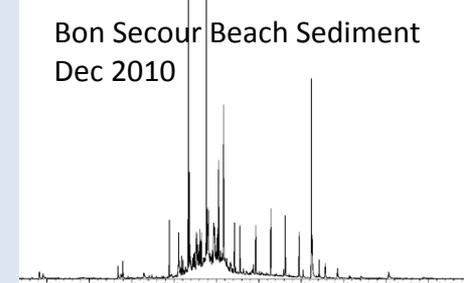
Shoreline Little Lagoon
Gulf Shores Oct 2010



La Marsh Sediment #4
Sept 2010



Bon Secour Beach Sediment
Dec 2010





Oil Spill Response Plans

Where are we and where are we going?



Background

- **Memoranda of Agreement (MOA) btwn Bureau of Safety & Environmental Enforcement (BSEE) and USCG signed Apr 3, 2012**
- **2012 MOA replaced MOA effective May 23, 2007 and updated portions of MOA effective Sep 30, 2004**



Where are we?

- ~ 150 OSRPs within CGD 8 waters
- No review / comment process in place



What are we doing?

- **Met with BSEE officials on Jul 11, 2012**
- **Developing review & approval process**
- **CGD 8 DRAT staff considering review/comment on all OSRPs**
 - **Staffing at field units**
 - **Consistency**
 - **Establish SharePoint site**
 - **Preparedness (Area Committees)**



Timeline

- **Fall 2012: Workshop btwn BSEE & CGD 8**



Mr. Michael Sams
Eighth Coast Guard District
Incident Management & Preparedness Advisor
504-671-2234 (office)
Michael.K.Sams@uscg.mil

What Was I Thinking ???



**What was happening
in January, 1995 ?**

1 Song



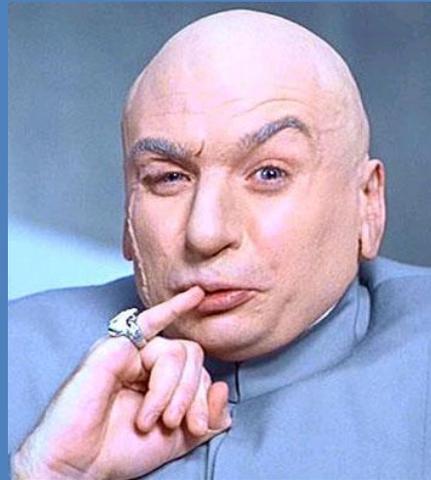
- The average income in the U.S. was

\$ 42,300.00

**Many of the younger USCG personnel
were just entering grade school**



... and Captain Cubanski was just dreaming about building his empire in District 8 and Region 6



In Region 6....



**To communicate with our RRT
federal and State partners, we
had to resort to either:**



Or the more effective means:



If all else failed:



After approximately 5 years of a gut-wrenching experience:

RRT-6

**FOSC
DISPERSANT
PRE-APPROVAL
GUIDELINES
and
CHECKLIST**

RRT-6 APPROVED JANUARY 10, 1995
VERSION 2.0 MAY 1, 1996
VERSION 3.0 January 19, 2000
VERSION 4.0, January 24, 2001

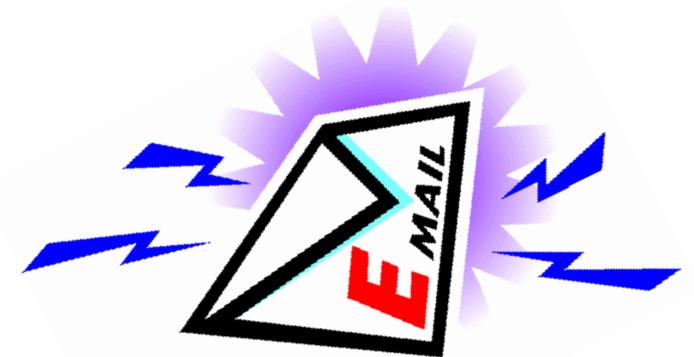
**Sadly, there are still some RRT
members who have not recovered
from that experience:**



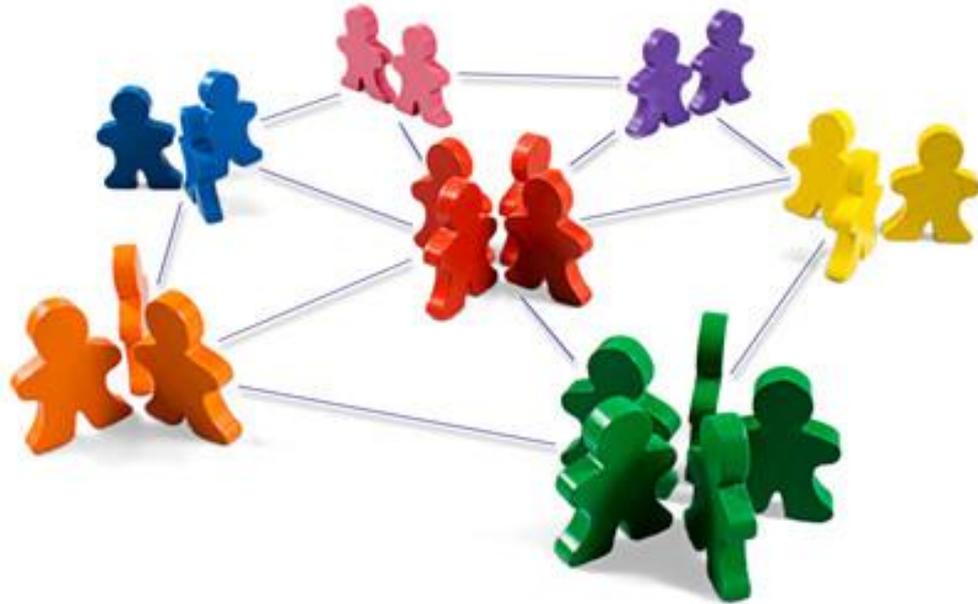
Let's now fast forward to today's world...



Our means of communication are a little better:



- **We can talk to all the RRT members within just a few minutes, either through a text message blasted out, a conference call, or simple emails...**



**Where Am I
Going With
This ??**



**Are there alternatives to the
pre-authorizations the RRT
either has or looking at ?**

Pro's for an alternative:

- Can now have quick discussion / approval with RRT members
- Costs / time for formal consultations (Regions 9 & 10)
- Informal (emergency consultations)
- Usage of Pre-Authorizations in the Regions
- Total costs / time for developing / revising pre-authorizations
- Potential future lawsuits (Regions 9 & 10)

Pro's for Pre-Authorizations:

- Already in place (don't break...)
- Comfort level for response organizations
- Perception of OSCs on removing tool from toolbox

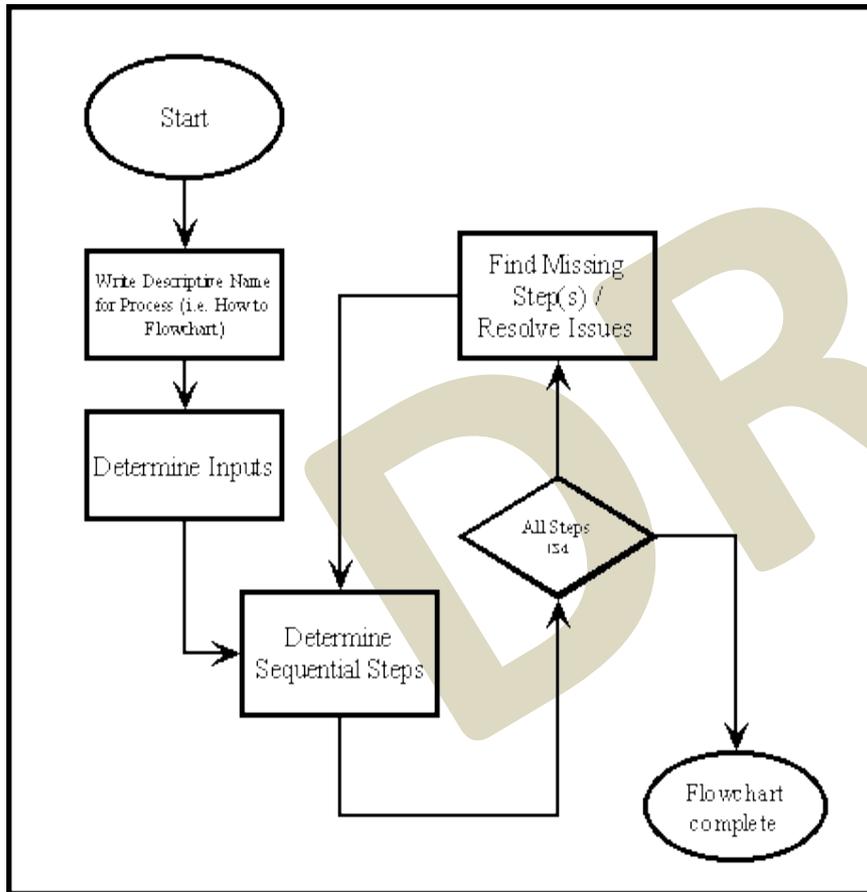
So what could be an alternative ??



Scope of the Plan:

- Dispersants (surface / subsea)
- Surface washing agents
- Surface collecting agents
- Bioremediation agents
- Miscellaneous oil spill control agents

Plan would emphasize:



Plan would contain policy statement from RRT

- If the elements of the operation plan are met (RP workplan approved by OSC and informal (emergency consultation) conducted, then RRT will expeditiously approve use of countermeasure by conference call or email vote, unless voting member raises incident-specific issue which would need to be resolved as quickly as possible

**Of course, it could be a hybrid
with many different options**

What Was I Thinking ??



**MEMORANDUM OF AGREEMENT
BETWEEN
U. S. ENVIRONMENTAL PROTECTION AGENCY, REGION 4
AND
U. S. COAST GUARD
FIFTH, SEVENTH AND EIGHTH -DISTRICTS
REGARDING
RESPONSE BOUNDARIES FOR OIL AND HAZARDOUS SUBSTANCES POLLUTION
INCIDENTS AND
FEDERAL ON SCENE COORDINATOR RESPONSIBILITIES**

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I Purpose

The purpose of this document is to delineate the Region 4 Inland and Coastal Zone geographical boundaries and to establishing responsibility for the pre-designation of On-Scene Coordinators (OSCs) for pollution response pursuant to the National Oil and Hazardous Substances Contingency Plan (NCP), Title 40, Code of Federal Regulations, Part 300.120 (40 CFR § 300.120).

II Definitions

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The following definitions will apply to this Memorandum of Agreement (MOA).

Commercial Vessels. Commercial vessels are vessels in commercial service that conduct any type of trade or business involving the transportation of goods or individuals, except combatant vessels. This includes tank vessels (ships and barges); freight vessels and barges; commercial fishing vessels; passenger vessels; and towing vessels. This definition excludes recreational vessels and permanently moored structures which, while they may appear to be vessels are not inspected by the Coast Guard, i.e. barges moored at facilities effectively used as part of a non-transportation-related facility complex.

Marine Transportation-Related Facility (MTR Facility). Any onshore facility or portion of a facility complex, as defined in 40 CFR 112.2, including piping and any structure used or intended to be used to transfer oil to or from a vessel. The marine transportation-related portion of the complex extends from the facility oil transfer system's connection with the vessel to the first valve inside the secondary containment surrounding tanks in the non-transportation-related portion of the facility or, in the absence of secondary containment, to the valve or manifold adjacent to the tanks comprising the non-transportation-related portion of the facility, unless another location has been agreed to by the U.S. Coast Guard (USCG) Captain of the Port (COTP) and the appropriate Federal official. (33 C.F.R. § 154.1020)

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III Boundary Descriptions

A) Inland Zone Boundary Designation

The U.S. Environmental Protection Agency (EPA) Region 4 provides the pre-designated OSC for pollution response in the Inland Zone. All discharges or releases, or a substantial threat of such discharges or releases of oil or hazardous substances, pollutants or contaminants originating within the Inland Zone are the responsibility of the EPA. Included are discharges and releases from unknown sources or those classified as “mystery spills.” ~~EPA Region 4 responsibilities for the Mississippi and Pearl Rivers are shared with EPA Region 6 as described in a Memorandum of Understanding between the two regions.~~

EPA Region 4 includes the eight Southern States/Commonwealths: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. Responsibilities regarding inland waterways between EPA Regions (i.e. Ohio River, Mississippi River, Pearl River, Big Sandy River and Tug Fork) are delineated in separate Memorandums of Understanding between EPA Regions. These MOUs are provided in Appendix [redacted] of this document.

~~The EPA OSC is the pre-designated OSC for all areas or pollution incidents within Region 4 that are not specifically addressed by the following Coastal Zone boundary designation descriptions, the general response provisions delineated within this document, or the EPA Region 6 MOU.~~

B) Coastal Zone Boundary Designations

The cognizant USCG COTP is the pre-designated OSC for pollution response in the Coastal Zone. All discharges or releases, or a substantial threat of such discharges or releases of oil or hazardous substances originating within the Coastal Zone are the responsibility of the USCG OSC. Included are discharges and releases from unknown sources or those classified as “mystery spills.”

The Coastal Zone boundary description for the USCG OSCs located within EPA Federal Region 4 ~~includes everything coastal of a line. The boundary designations~~ can be found in Appendix 1.

IV General Response Provisions

These provisions apply to all EPA OSCs and USCG COTP/OSC serving within Federal EPA Region 4. The -designated boundary lines identified in Appendix I are intended to delineate the area of responsibility for federal response action to a discharge of oil or a release of a hazardous substance within Federal Region 4 and describe the transition point from the Coastal Zone (USCG jurisdiction) to the Inland Zone (EPA jurisdiction). For ease of denotation, the boundaries were drawn following prominent State and federal highways, State boundaries, other landmarks, and as a general rule, the location of the source of the discharge will be the determining factor of which agency provides the OSC.

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Comment [EPA1]: Recommend deleting this paragraph. Although the language is directly copied from the original 1999 MOU, the objective is achieved in the preceding paragraph and thus renders this language unnecessary.

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However, this MOA recognizes the USCG's primary mission and expertise for discharges and releases in or threatening navigable waters subject to the tide, and EPA's primary mission and expertise for discharges and releases that occur on or threaten land and non-tidal, navigable waters. Therefore, the boundaries do not preclude one agency from transferring to the other agency OSC responsibilities for releases and/or discharges which occur within its zone, as set forth below.

A.1. Mutual Assistance

The USCG, through the cognizant COTP and the inland zone pre-designated EPA OSC will assist each other consistent with agency expertise, resources, responsibilities and authorities.

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The proposed boundary lines identified in Appendix I do not preclude mutual assistance between the two agencies. In addition to 40 CFR 300.135(b), in this Federal region, the EPA and the USCG will carry out agency and specific pollution response responsibilities under the NCP, the RCP, and the applicable Area Contingency Plan, and will assist each other to the fullest extent possible to prevent or minimize the impacts of an actual discharge or release, or a substantial threat of such a discharge or release, of an oil or hazardous substance into or on the waters of the United States or adjacent shorelines where each respective agency has jurisdiction.

— Such mutual assistance will be provided based on formal notification and mutual consent that the assistance is desirable and necessary to respond to a release or threat of a release of oil or hazardous substances that poses imminent and substantial endangerment to public health or the environment. Notification will be provided by the COTP to the EPA OSC, or by the EPA OSC to the COTP, whenever a spill is discovered that appears to warrant the provision of mutual assistance. When it is mutually agreed that the provision of such assistance is beneficial, an OSC from either organization may serve as the OSC for that incident, serve as the Federal On-Scene Coordinator Representative (FOSCR) for the pre-designated OSC, or perform OSC duties only until such time as the pre-designated OSC may take over the response action.

The pre-designated OSC will be advised of the response actions taken by the assisting agency OSC or FOSCR via periodic verbal reports and pollution reports (POLREPS) as appropriate.

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A.2. First Federal Official

Under 40 CFR 300.135(b) of the NCP, an OSC from either EPA or USCG may respond as the first federal official (defined in 40CFR 300.5) to either an inland or a coastal event. The First Federal Official is authorized to initiate, in consultation with the pre-designated OSC, any necessary actions to respond until the arrival of the pre-designated OSC.

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B. Inland Zone Commercial Vessels MTR facilities

USCG will provide the OSC for incidents that occur in the Inland Zone where the release, discharge, or threat of release or discharge, occur from commercial vessels or from marine transportation-related fixed facilities.

Comment [EPA2]: Fold this section into the yet-to-be-created "Mutual Assistance" heading in the USCG suggested document (which will merge the third and sixth paragraphs under the "General Response Provisions" heading in that document)

The EPA Region 4 pre-designates the COTP as USCG shall provide the OSC in response to an incident in the EPA Region 4 inland zone when it involves; a commercial vessel, or an oil or hazardous material transfer operation on the marine transportation-related

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portion of a MTR facility. The incident must result in an actual discharge or threatened discharge of oil or hazardous substances into or on navigable waters of the United States, its shoreline or the riverbank within the USCG Fifth, Seventh and Eighth Districts Area of Responsibility in EPA Region 4 as defined in 33 CFR 3.40-1. The COTP in each Zone shall provide annually a list of fixed MTR facilities located in the inland zone of their area of responsibility to the Co-Chairs of the RRT4. The EPA shall be advised of any response actions performed by the COTP within the inland zone via verbal notification and Pollution Reports (POLREPS). When the COTP is not notified via National Response Center, EPA shall notify the COTP for all commercial vessel and MTR spills or releases in the inland zone.

Comment [EPA3]: Include heading above this paragraph to designate it as pertaining primarily to "Commercial Vessels"

In addition, EPA Region 4 will notify the Fifth, Seventh and Eighth Coast Guard Districts of any Regional Contingency Plan (RCP) meetings for the participation of Coast Guard units in the regional contingency planning process.

Comment [EPA4]: Need clarification from the author on why this requirement was included. Also need to determine what the existing RCP process is. Requests for inclusion in the RCP process may not warrant inclusion in this MOA.

C - Coastal Zone Fixed Facilities, Railroads, Pipelines

~~EPA will provide the OSC for incidents that occur in the Coastal Zone where the release, discharge, or threat of release or discharge, occur from fixed facilities as defined by CERCLA other than marine transportation-related fixed facilities. EPA will also provide the OSC should the incident involve non-marine transportation related incidents including railroad, highway, or pipeline owners/operators/carriers. The proposed boundary lines do not preclude mutual assistance between the two agencies. In addition to 40 CFR 300.135(b), in this Federal region, the EPA and the USCG will carry out agency and specific pollution response responsibilities under the NCP, the RCP, and the applicable Area Contingency Plan, and will assist each other to the fullest extent possible to prevent or minimize the impacts of an actual discharge or release, or a substantial threat of such a discharge or release, of an oil or hazardous substance into or on the waters of the United States or adjacent shorelines where each respective agency has jurisdiction.~~

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Comment [EPA5]: "Fixed Facilities" in requires a definition in the document (Railroads and Pipelines do not require definition). Also, it will probably need to be delineated from "Marine-Transportation-Related Fixed Facilities" which could probably be defined by the list of MTRs annually reported by the USCG

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~~— **D.1 - Stafford Act Activations** During Stafford Act activations, EPA R4 will mobilize to the Regional Response Coordination Center to represent Region 4 for Federal ESF-10 activity including development of mission assignments. EPA and USCG will follow provisions of the Act and implementing documents to assign appropriate OSCs to respond to the incident. ESF-10 Mission Assignment language will control Agency OSC designation and shall be determined based upon agency expertise.~~

Comment [EPA6]: This paragraph can be included with or merged with the third paragraph under "General Response Provisions" (which begins with "Such assistance will be..."). These two paragraphs can be organized under a heading titled "Mutual Assistance"

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~~When spills originate in the inland or coastal zones that appear to threaten the adjoining zone, the OSCs responsible for both zones will coordinate to determine the most effective response strategy. Prime consideration shall be given to the area vulnerable to the greatest threat, in determining which agency should provide the OSC. Options available for OSC assignment are as stated previously in this section.~~

Comment [EPA7]: Add language that includes discussion of "ESF 10 mission assignment will control..."

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Comment [EPA8]: Find method to merge this language with the "Unified Command" section under EPA's suggested General Response Provisions

— This MOA will typically serve as the basis for response actions when the Environmental Protection Agency and/or the United States Coast Guard are activated as Emergency Support Function #10 (ESF #10) in support of the National Response

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Framework (NRF). However, when responding as ESF #10 under the NRF some procedures in the NCP may be streamlined or may not apply. Therefore, this MOA may be modified on an incident-specific basis by mutual agreement between the Environmental Protection Agency and United States Coast Guard during periods of activation as ESF #10.

Comment [EPA9]: Suggest removing this paragraph in deference to the language proposed by EPA under heading "Stafford Act Activation". Primary objections include complications caused by "...EPA and/or USCG are activated..." and "...NCP may be streamlined or may not apply" and "...MOA may be modified..."

D.2 - National Special Security Events (NSSEs)

For the purpose of this agreement, NSSEs are planned events such as the Superbowl, Olympics, other major sporting events, international gatherings such as the G-8 Summit, or Political Conventions. The planning required for response to a release or discharge of a hazardous substance, pollutant or contaminant, or oil must be considered from any number of potential local sources despite the location of the planned event.

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EPA shall provide FOSC for all 'land-borne' NRF activations. EPA will institute Incident Command System for such activations. USCG will participate in such activations by serving in Unified Command when event spans both Coastal and Inland Zones

USCG shall provide FOSC for all 'ocean-borne' NRF activations. USCG will institute Incident Command System for such activations. EPA will participate in such activations by serving in Unified Command when event spans both Coastal and Inland Zones.

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In accordance with provision A.1 of this document, it is anticipated that mutual assistance will be engaged for NSSEs.

E. Unified Command

When spills originate in either the inland or coastal zones that appear to threaten the adjoining zone, the OSCs responsible for both zones will coordinate to determine the most effective response strategy. When either Agency provides the FOSC in the AOR of the other Agency (EPA in Coastal Zone or USCG in Inland Zone) the host Agency shall be afforded the opportunity to participate in the Unified Command. Options available for OSC assignment are as stated previously in this section.

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Comment [EPA10]: Find method to merge this language with the "Unified Command" section under EPA's suggested General Response Provisions

F - Drinking Water/Waste Water Infrastructure Incidents:

As directed by Presidential Directive HSPD-7 regarding critical infrastructure, EPA will provide FOSC for all drinking water, waste water, and storm water attacks or upsets, regardless of the zone in which the utility is located.

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Other Provisions.

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— Nothing in this MOA is intended to conflict with current law or regulation or the directives of the USCG or the EPA. If a term of this agreement is inconsistent with such authority, then that term shall be invalid, but the remaining terms and conditions of this agreement shall remain in full force and effect.

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Amendments and Effective Date

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This agreement will be subject to review and amendment coincident with each periodic review of the Regional, Area, and other applicable contingency plans and any other time at the request of any of the parties. The agreement will become effective on the date both parties have signed the agreement. It will remain in effect until modified or terminated by mutual agreement of the parties.

Comment [EPA11]: Language is needed as part, or in addition to, this paragraph to allow for amendments to the MOA or its Appendices with a Letter of Agreement so that the amendment process can be streamlined

Points of contact for the coordination, support, and implementation of this agreement are as follows:

- EPA Region 4 – Chief, Emergency Response and Response Branch, Atlanta, GA at (404) 562-8718; 24 hour Duty Officer 404-562-8700.
- Fifth Coast Guard District – Chief, Response Division, Portsmouth, VA at (757) 398-6676
- Seventh Coast Guard District – Chief, Incident Management Branch, Miami, FL at (305) 415-6841
- Eighth Coast Guard District – Chief, Response Management Branch, New Orleans, LA at (504) 671-2231.

Regional and Area Contingency Plans of the signatory agencies will be amended to reflect the geographical boundaries established herein. This MOA supersedes other MOAs and/or MOUs previously enacted concerning the Federal pre-designated OSC boundaries for purposes of pollution response within Federal Region 4. This document is effective upon the date of each respective signatory official from EPA Region 4 ~~or~~ and the ~~respective Seventh~~ Coast Guard Districts.

Gwen Stan Meiburg <u>Dolyn Keyes Fleming</u>	_____	R.S. Branham
Acting Regional Administrator	_____	Rear Admiral, U. S. Coast Guard
U. S. Environmental Protection Agency	_____	Commander
Region 4 (4XA)	_____	Seventh Coast Guard District
61 Forsyth Street SW	_____	909 S.E. First Ave
Atlanta, GA 30303	_____	Miami, FL 33131-3050

Signature: _____ Signature: _____

Date: _____

Date: _____

R.S. Branham

Appendix 1

Delineation of Area Committees

USCG District VII Captain of the Port Areas

~~The following are the Coastal Zone COTP descriptions for each respective USCG OSC that is located within Federal Region 4:~~

~~Fifth Coast Guard District~~

~~Sector North Carolina~~

~~U.S. Coast Guard Captain of the Port (COTP) North Carolina will be the pre-designated OSC in the following areas within EPA Region IV. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~The Exclusive Economic Zone from west longitude 71 degrees 28 minutes along north latitude 36 degrees 33 minutes to the Virginia and North Carolina state border; then proceeding west along the state border to US 17; then south along US 17 (never on US 17 Alt or US 17 Bus) to State Hwy 45; then south along State Hwy 45 to US 64 near Plymouth, NC; then east along US 64 to State Hwy 94; then south along State Hwy 94 to US Route 264; then west along US 264 (never on US 264 Bus) to US 17; then south along US 17 to US 70 near New Bern, NC following along the ramp from US 17 S to US 70 E; then south along US 70 to State Hwy 24; then west along State Hwy 24 to US 17; then south along US 17 to the North Carolina and South Carolina state border (including all sections where US 17 follows I-140 near Wilmington, NC and never on US 17 Alt or US 17 Bus); then southeast along the state border to the sea.~~

~~Also included will be the Intracoastal Waterway, Tranters Creek and Tar River to US 264, Neuse River and its tributaries to State Road 1401, Northeast Cape Fear River to I-140, and Cape Fear River and Brunswick River to CSXT Railroad Bridge.~~

~~Seventh Coast Guard District~~

~~Sector Charleston~~

~~The overall Sector Charleston area of responsibility includes the Charleston marine inspection zone and COTP zone and the Savannah marine inspection sub-zone and Savannah COTP sub-zone, as written in 33 Code of Federal Regulations. The Sector Charleston COTP office is located in Charleston, South Carolina. The Savannah COTP office is located in Savannah, Georgia.~~

~~U.S. Coast Guard Captain of the Port (COTP) Charleston, South Carolina will be the pre-designated OSC in the following areas within EPA Region IV. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~From the intersection of the North Carolina–South Carolina state border at the sea; then inland (west) along the North Carolina and South Carolina state border to US 17; then south along US 17 (never following Business or Alternate US 17 routes) to I 95 near I 95 mile marker 33; then south along I 95 to the eastern bank of the Savannah River in Georgia; then east along the southeast bank of the Savannah River to the eastern tip of Oyster Bed Island.~~

~~Also included will be the Intracoastal Waterway, Winyah Bay to connecting tributaries, Sampit River to Whites Creek, Charleston Harbor to connecting tributaries, Ashley River to SC 7 Memorial Bridge, Wando River to SC 41, and Cooper River to US 17 Alternate/SC 52.~~

~~**Marine Safety Unit Savannah–**~~

~~U.S. Coast Guard Captain of the Port (COTP) Savannah, Georgia will be the pre-designated OSC in the following sub-zone of Sector Charleston’s AOR and within EPA Region IV. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~From the eastern tip of Oyster Bed Island west along south and east bank of the Savannah River to I 95; thence south along I 95 to the intersection of COTP Savannah–COTP Jacksonville at latitude 30 degrees 50 minutes North; then directly east to the sea.–~~

~~Also included will be the Savannah River to I 95.~~

Sector Jacksonville

~~U.S. Coast Guard Captain of the Port (COTP) Jacksonville, Florida will be the pre-designated OSC in the following areas within EPA Region IV. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~Coastal areas from latitude 30 degrees 50 minutes N on the east coast of Georgia southward to latitude 28 N on the east coast of Florida.~~

~~North latitude 30 degrees 50 minutes on the east coast of Georgia due west to I-95; then south on I-95 to US 17 Interchange near Becker, FL; then south along US 17 to Lawton Ave (Jacksonville, FL); then southwest on Lawton Ave to Buffalo Ave; then south on Buffalo Ave to Evergreen Ave; then south on Evergreen Ave to State Hwy 115 / Alt US 1; then east along State Hwy 115, turning south onto State Hwy 115 / Alt US 90, and continuing east on State Hwy 115 to University Blvd; then north on University Blvd to Fort Caroline Rd; then east on Fort Caroline Rd (continuing on Fort Caroline Rd at the McCormick Rd intersection) to Mount Pleasant Rd (Jacksonville, FL); then east along Mount Pleasant Rd to Girvin Rd; then south on Girvin Rd to Atlantic Blvd / State Hwy 10; then east on Atlantic Blvd to County Rd 101A / San Pablo Rd; then south on County Rd 101A to the St. Johns County line and continuing south along the St. Johns County line to Palm Valley Rd; then southwest on Palm Valley Rd to US 1; then south along US 1 to I-95 near I-95 mile marker 298; then south along I-95 to US 1 near I-95 mile marker 273; then south along US 1 to the intersection of COTP Jacksonville-COTP Miami boundary at latitude 28 N (south of Melbourne, FL).~~

~~Also included will be the Intracoastal Waterway, St. Johns River to Lake George, Trout River to I-295 bridge, Ribault River to US 23 / Kings Rd (Jacksonville, FL), Monroe River to Tallulah Ave, Ortega and Cedar Rivers to Blanding Blvd, Doctors Lake to the lake's west shoreline, Julington Creek to US 1, and Black River to US 17. Not included will be tributaries leading to and including Crescent Lake and Lake Oklawaha.~~

Sector Miami

~~U.S. Coast Guard Captain of the Port (COTP), Miami, Florida will be the pre-designated OSC in the following areas within EPA Region IV: Coastal areas from latitude 28 N on the east coast of Florida southward to mile marker 114 1/2 on US 1. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~From latitude 28 N on the east coast of Florida (south of Melbourne, near Malabar), due west to US 1; then south along US 1 to State Road 997 (south of Miami); then north along State Road 997 to US 41; then west along US 41 to the COTP St. Petersburg boundary at longitude 81 degrees, 33 minutes W.~~

~~Also included will be the Intracoastal Waterway, St. Lucie River North Fork to State Road 716, St. Lucie River South Fork to the St. Lucie Canal, Lake Okeechobee, Okeechobee Waterway,~~

~~Loxahatchee River to the Martin County line, and the Miami River to the NW 36th Street Bridge.~~

~~Sector Key West~~

~~U.S. Coast Guard Captain of the Port (COTP), Key West, Florida will be the pre-designated OSC for all territories of USCG Sector Key West within EPA Region IV.~~

~~Sector Key West runs from the Atlantic Ocean to the Miami Dade County and Monroe County line; then west along the southern boundary of Miami Dade County to the county's western boundary; then north along the western boundary of Miami Dade County to the southern boundary of Collier County at US 41; then west along the southern boundary of Collier County to the Florida coastline and into the Gulf of Mexico.~~

~~Sector St. Petersburg~~

~~U.S. Coast Guard Captain of the Port (COTP) St. Petersburg, Florida will be the pre-designated OSC in the following areas within EPA Region IV. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~Coastal areas from the southern tip of Cape Romano, Florida, north to the intersection of the west coast of Florida at longitude 83 degrees 50 minutes west (near the mouth of the Fenholloway River).--~~

~~From the intersection of COTP St. Petersburg COTP Miami boundary at west longitude 81 degrees, 33 minutes following US 41 north to I 4 (Tampa), then west on I 4 to I 275 and west on I 275 exiting north to FL 60 and then following FL 589 (Veterans Expy), then continuing west on FL 580 to US 19, turning south on US 19 to FL 686 (Roosevelt Blvd, St. Petersburg) and continuing east and south to 4th St S (US 92/FL 687); continue south on 4th St S to 22nd Avenue South (Lakeview Av S, St. Petersburg, FL); then west on 22nd Avenue South to US 19, then north on US 19 turning west on Alt US 19; continue west and north on Alt US 19 rejoining US 19 north of Tarpon Springs; keep on US 19 and then US 19/US 98. In Perry, FL, take US 98 west to the intersection of COTP St. Petersburg COTP Mobile boundary at latitude 30 degrees 8 minutes 34 seconds north, longitude 83 degrees 50 minutes west, where the COTP boundary proceeds due south to the Florida coast (near the mouth of the Fenholloway River).--~~

~~**Also included will be the Intracoastal Waterway (Okeechobee Waterway) from longitude 81 degrees, 30 minutes west (near FL State Highway 29 Bridge, La Belle, FL) west to the Gulf of Mexico.**~~

~~Eighth Coast Guard District~~

~~Sector Mobile~~

~~U.S. Coast Guard Captain of the Port (COTP) Mobile, Alabama will be the pre-designated OSC in the following areas within EPA Region IV. When a roadway is used to delineate a boundary, that boundary shall be to, but shall not include, the roadway.~~

~~From the intersection of the west coast of Florida with longitude 83 degrees 50 minutes west (near the mouth of the Fenholloway River) due north to US 98 (intersection of COTP St. Petersburg COTP Mobile boundary at latitude 30 degrees 8 minutes 34 seconds north, longitude 83 degrees 50 minutes west); then west on US 98 to US 98A/State Hwy 30 (Panama City, FL); then northwest on US 98A/State Hwy 30 to US 98; then west on US 98 (not on US 98A near Panama City Beach, FL) to US 98 Bus (Pensacola, FL); then south and west on US 98 Bus to US 98; then west on US 98 to State Hwy 59 (Foley, AL); then north on State Hwy 59 (also called State Hwy 59S near Summerdale, AL) to I-65; then west and south on I-65 S to US 90; then south and west on US 90 to the Mississippi and Louisiana State border, intersection with COTP New Orleans; then south along the state border to the Gulf of Mexico.~~

~~Also included will be the Gulf Intracoastal Waterway (GICW); the Ochloekonee Bay; the East Bay near Apalachicola, FL; the East, North and West Bays near Panama City, FL; the St. Andrews Bay; the Choctawhatchee Bay; the East Bay near Pensacola, FL; the Pensacola Bay; the Blackwater Bay; the Escambia Bay; the Perdido Bay; the Back Bay of Biloxi, MS; and the St. Louis Bay. Not included will be any tributaries leading to a bay named in this section.~~

~~Huntington, WV / Louisville, KY / Paducah, KY / Memphis, TN~~

~~These Eighth Coast Guard District COTP offices are exclusively located within the Inland Zone. Portions of their COTP Zones are located within Region IV. To align agency pollution response responsibilities along functional lines that are consistent with traditional agency authorities, these COTPs shall respond to pollution incidents as the federal OSC in accordance with the criteria indicated in the "General Response Provisions" section below. Although this section is also applicable to the cognizant coastal zone U.S. Coast Guard OSCs, it serves as the primary doctrine for Inland U.S. Coast Guard pollution response actions.~~

~~8-Sep-2009.~~



Regional & Agency Boundaries

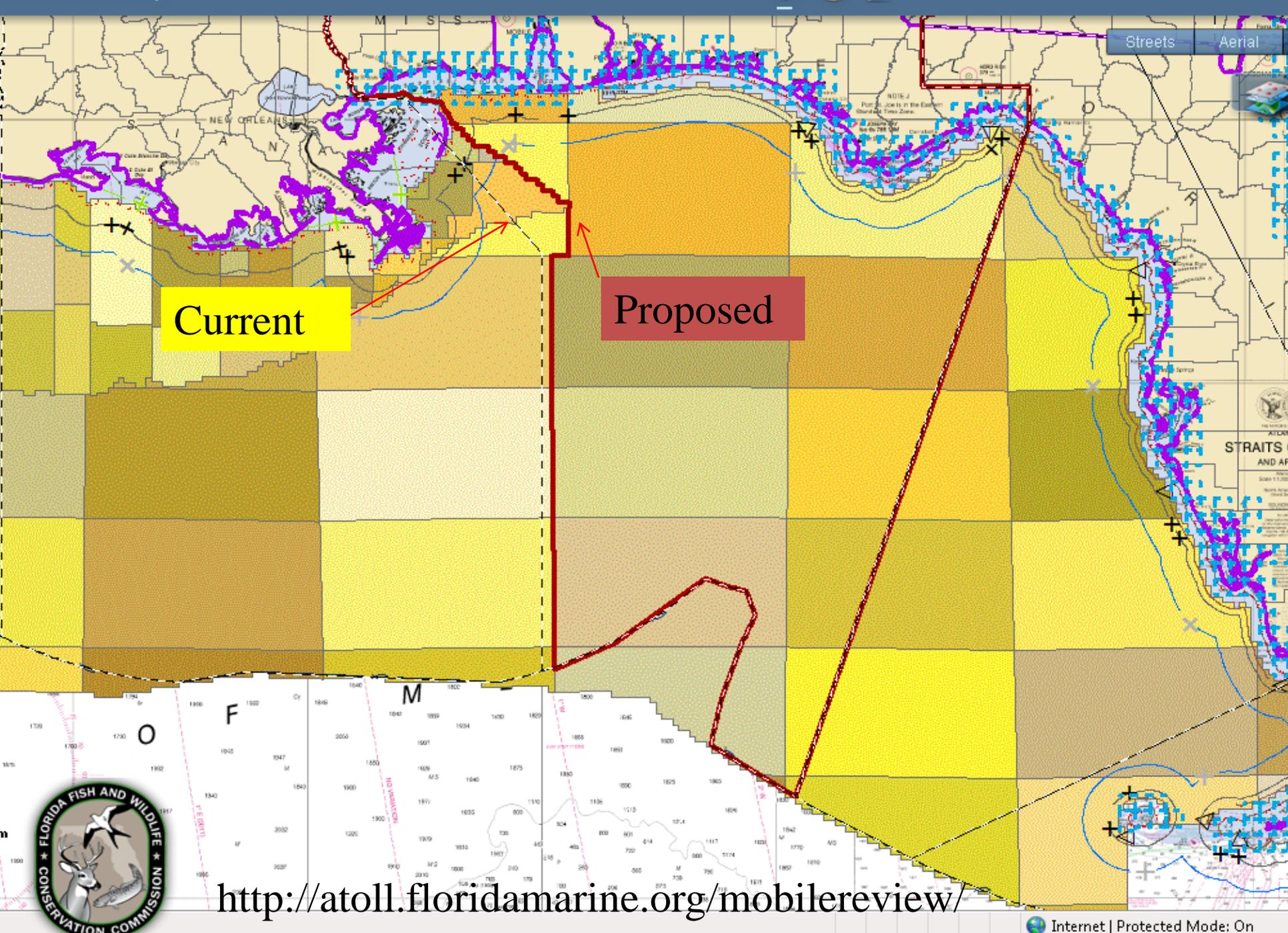
Captain Ed Cubanski

USCG District 8

RRT VI Co-Chair

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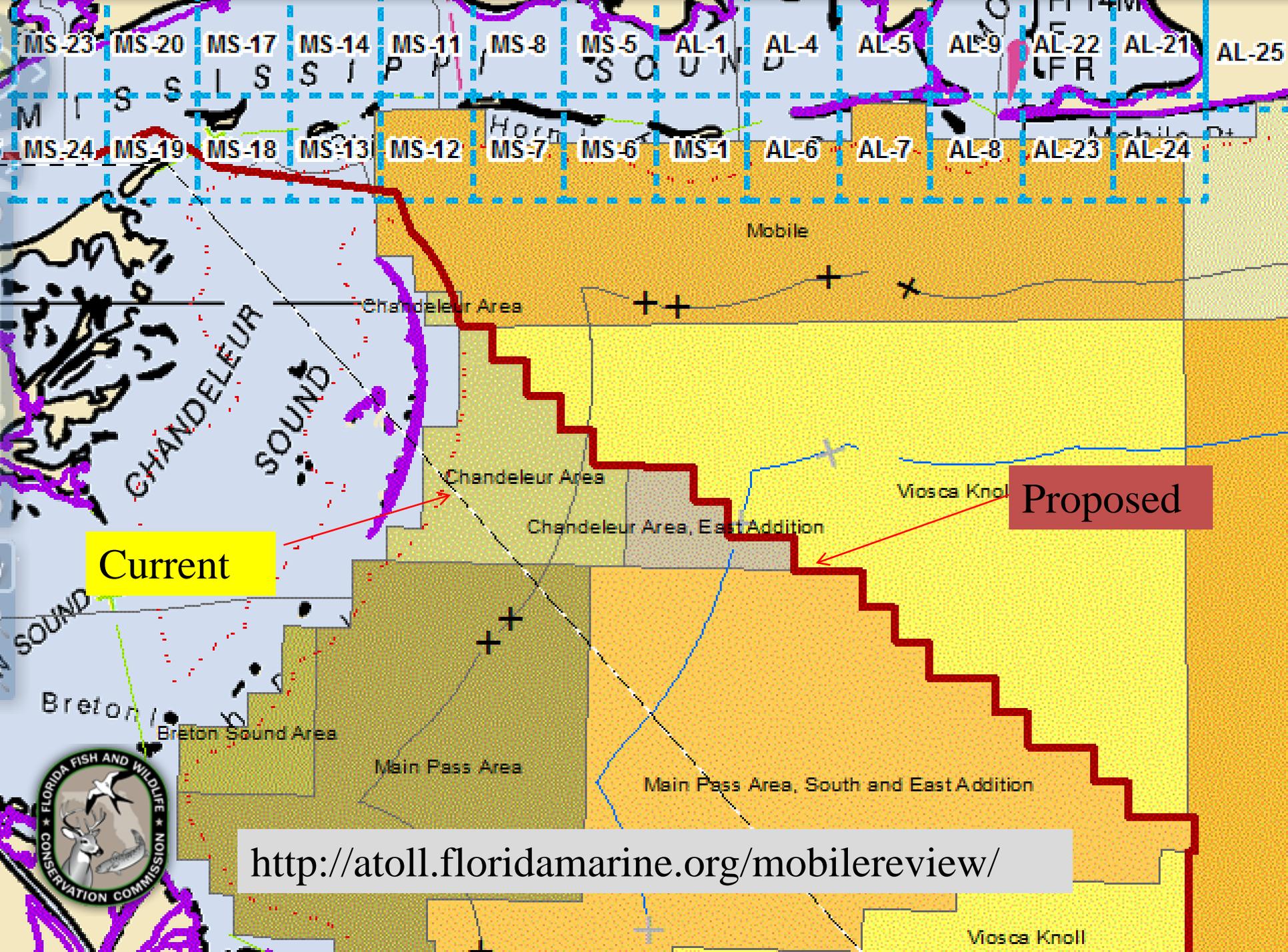


Current

Proposed



<http://atoll.floridamarine.org/mobilereview/>



Chemical Countermeasures for Oil Spills: EPA Actions

Craig Matthiessen
US EPA - Office of
Emergency Management
August 1, 2012





Agenda



- What's OEM?
- Use of Dispersants and Other Chemicals – Authority and Subpart J
- What's the 'Product Schedule'?
- Subpart J Proposed Rule Approach
- NRT Guidance
- What's Next?



What's OEM?



Chemical and Oil Spill:

- Prevention:
 - Clean Air Act (CAA) for Risk Management Program (RMP)
 - Clean Water Act (CWA) / Oil Pollution Act (OPA) for Oil Spill Prevention, Control and Countermeasure (SPCC)
- Preparedness:
 - Oil Pollution Act (OPA): Facility Response Plans (FRP)
 - Emergency Planning & Community Right-to-Know Act (EPCRA)
- Response:
 - Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
 - National Oil and Hazardous Substances Pollution Contingency Plan (NCP)



Use of Dispersants and Other Chemicals



- Authority for Chemical Countermeasures:
 - Clean Water Act & Oil Pollution Act
 - EPA must prepare a “Product Schedule” and:
 - Identify agents
 - The waters where such agents may be used
 - “Safe” quantities
- National Oil and Hazardous Substances Pollution Contingency Plan (NCP)
 - “Subpart J” of NCP contains the regulatory requirements for the Product Schedule (40 CFR Part 300)



What is the Product Schedule?



- Currently a list of 110 products:
 - Dispersants (18)
 - Surface Washing Agents (51)
 - Surface Collecting Agents (2)
 - Bioremediation Agents (25)
 - Cultures and Enzymes (18)
 - Nutrient Additives (7)
 - Miscellaneous Oil Spill Control Agents (MOSCA - 14)
 - Solidifiers (9)
- Substances “authorized for use” by a Federal On-Scene Coordinator (OSC)
 - Not an “Approval”



Product Schedule (*cont'd*)



- Getting on the Schedule now:
 - Product Manufacturer determines “category” and conducts toxicity and efficacy tests
 - Product information and data submitted to EPA for review
 - If submitted package is complete, product is “listed.”
- OSC authorizes use of a listed product on an oil spill



Subpart J Proposed Rule

- Three Pronged Approach:
 - Getting on the Product Schedule
 - Authorization for Use
 - Monitoring Use



Subpart J Revisions Under Consideration – Getting on the Product Schedule



- Product categories:
 - Are the definitions clear? - Do we need “MOSCA”?
 - Dispersants, bioremediation, sorbents, solidifiers, surface washing, herders/collectors;
- Efficacy:
 - e.g. Baffled Flask Test vs. Swirling Flask Test for dispersant efficacy;
 - Test a range of oils (light, medium, heavy) at cold/warm temps?
 - New threshold criteria?
- Toxicity – all products:
 - Additional species, effects? - LC₅₀ thresholds?

Test product alone, mixed with oil?



Subpart J Revisions Under Consideration – Getting on the Product Schedule (*cont'd*)



- Other considerations: biodegradation, bioaccumulation; production capabilities;
- Revise Appendix “C”
 - New and clarified test protocols
- Submit package to EPA for review:
 - Product information and test data:
 - Chemical components, contaminants, p-chem properties
 - Use conditions, performance, mechanism of action
- Transition “old” Schedule to “new”



Subpart J Revisions Under Consideration – Authorization for Use



- Only an OSC can authorize use of chemical or biological agents
- Use of Agents on the Schedule under a Pre-Authorization Plan:
 - If use is appropriate, in Plan: specify quantities, durations, water depths, conditions, distance from shoreline; address likely types, sources of oil, sensitive resources;
 - Availability of agents, equipment needed, trained operators, means to monitor
 - Consider new information – e.g. local species toxicity tests, efficacy with the actual oil involved;
 - Approval of pre-authorization plan same as before;
 - Should there be a regular plan review/update cycle, e.g. every 5 years?



Subpart J Revisions Under Consideration – Authorization for Use (*cont'd*)



- Use of Agents on the Schedule Not Addressed by a Pre-Authorization Plan:
 - OSC may authorize as before; consider:
 - Quantity, duration, water depth, distance to shoreline, sensitive resources, agent availability, equipment, operators, monitoring
 - Consider development of information/checklists for expedited or case-by-case authorizations
- Agent Stockpiles – is product still viable?
- OSC authorization to protect human life – as before
- Prohibitions – e.g. sinking agents, certain toxic components
- Notification of agent use



Subpart J Revisions Under Consideration – Monitoring Agent Use



- Considering requirements for monitoring product use (dispersants):
 - For certain discharges (e.g. a major spill, subsea use, certain surface use), RP collects water column data:
 - Chemistry (e.g. TPH, DO, dispersant chemical components)
 - Impact: toxicity, exposure (concentrations)
 - Use information for operational decisions
- Complement *SMART*



Issues:

- The right testing protocols and criteria?
- The right amount of data?
- Are the hurdles too high?
- RRT/AC concerns?
- Monitoring capabilities?
- When do we stop?



Rulemaking Schedule



- Final Agency review of proposed rule – Done
- Office of Management and Budget (OMB) and Interagency Review – starts August 2012
- Proposal in Federal Register for Public Comment – December 2012



NRT Subsea Dispersant Monitoring Guidance



- Comments received
- Combining with “Surface” Guidance
- Complement SMART
- Identify recommended monitoring parameters for certain dispersant uses
 - All subsea; certain surface
- Issue Interim Guidance by end of year?



What's Next

- Continue dialog
 - Pre-authorization
 - Expedited review
- Concerns for the Arctic
 - Unique environmental issues
- Research

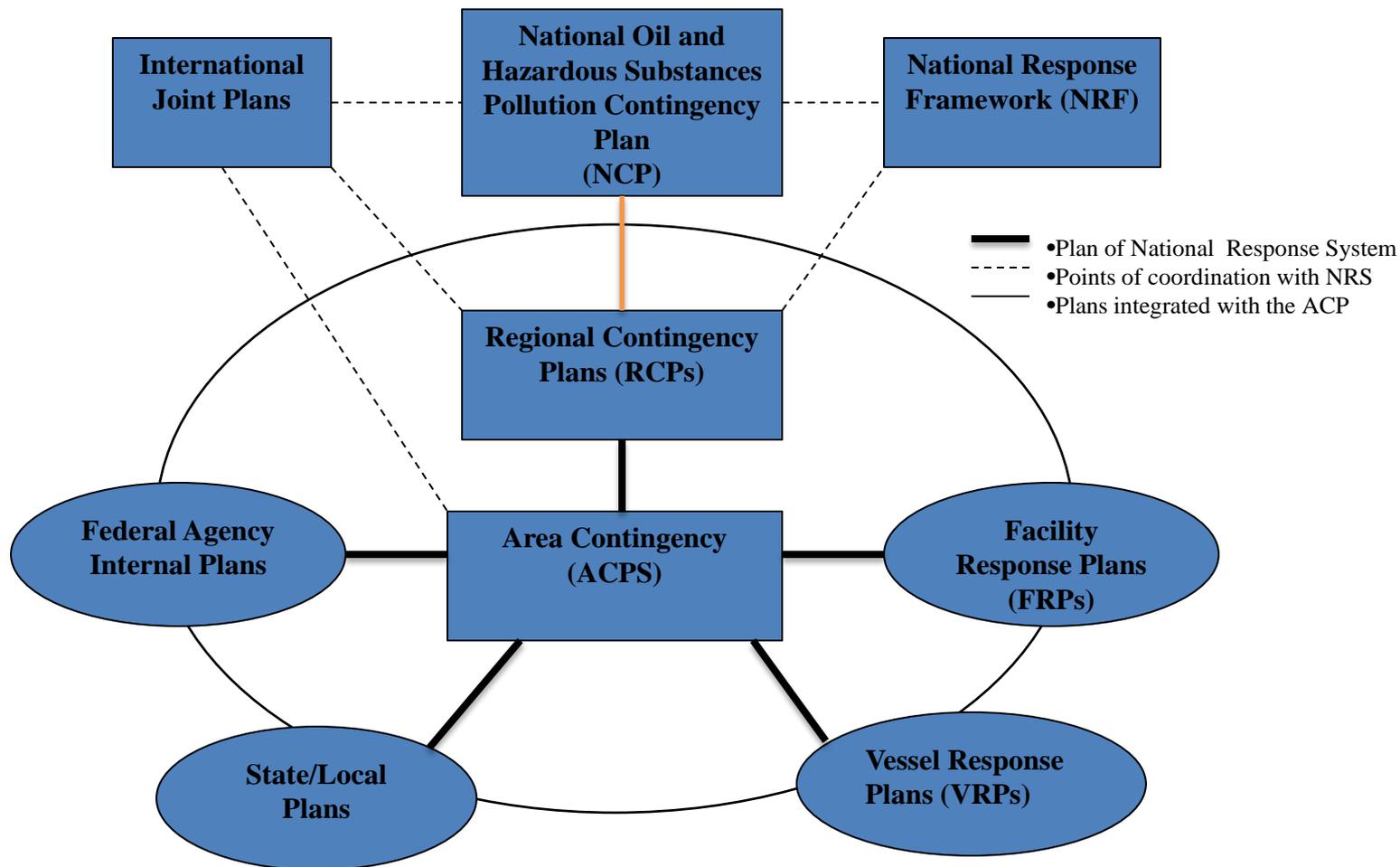


Area Contingency Plans

Where are we and where are we going?



Area and Regional Contingency Plans





Where are we?

- **2 yrs after Deepwater Horizon**
- **Incident Specific Preparedness Review identified 224 items**
- **Increased emphasis on preparedness**
- **Worst case discharge planning 'completed'**
- **No review/approval policy in place**



What are we doing?

- **CG Headquarters: Final stage of development of new job aids**
- **CGD 8: Developing review & approval process**
- **Will look to develop and/or share 'consistent' general language**
- **Continue support of development of Geographic Response Plans**



Timeline for getting there

- **Aug 31, 2012: Publication of D8 ACP Instruction**
- **Feb 1, 2013: Sector/MSU submits updated draft ACP**
 - **D8 will complete QA review by Mar 15, 2013**
- **Mar 15, 2013: Unit receives ACP feedback & routes to Area Committee for approval**
- **May 1, 2013: Unit submits Area Committee approved ACP to D8**
- **Jun 1, 2013: D8 reviews and approves all ACPs**



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USCG District 7 & 8 Digital Area Contingency Plan (DACP) Overview

Ryan Druyor

Digital ACP Coordinator

Florida Fish and Wildlife Conservation Commission
– Fish and Wildlife Research Institute

100 8th Ave SE

St. Petersburg, FL



Area Contingency Plan

- Area Committee's plan for oil spill protection in the USCG Sector

Captain of Port Area of Responsibility

- USCG typically writes and leads updates
- Living document updated 3-5 years
- Follow a common format and structure
- Outlines details of response for area
- Federal, State, Local and Industry stakeholders
- Relationship building*
- Civilian Planners can help with consistency



VOLUME III	FLORIDA KEYS AREA CONTINGENCY PLAN		
	SHORELINE PROTECTION		
	1110	RESPONSE AUTHORITIES.....	1000-1
		1110.1 U.S. COAST GUARD.....	1000-2
		1110.2 U.S. ENVIRONMENTAL PROTECTION AGENCY.....	1000-2
		1110.3 DEPARTMENT OF DEFENSE AND DEPARTMENT OF ENERGY.....	1000-3
		1110.4 FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION.....	1000-3
	1200	GEOGRAPHIC BOUNDARIES.....	1000-4
	1210	CAPTAIN OF THE PORT ZONE.....	1000-4
	1220	FEDERAL ON SCENE COORDINATOR (FOSC) AREA.....	1000-5
	1230	OFFSHORE RESPONSE AREA.....	1000-5
	1300	AREA COMMITTEE.....	1000-6
	1310	AREA COMMITTEE ORGANIZATION.....	1000-7
	1400	NATIONAL RESPONSE SYSTEM.....	1000-8
	1400.1	SPILL OF NATIONAL SIGNIFICANCE (SONS).....	1000-9
	1410	NATIONAL RESPONSE TEAM STRUCTURE.....	1000-10
	1420	REGIONAL RESPONSE TEAM STRUCTURE.....	1000-11
	1430	AREA RESPONSE MANAGEMENT SYSTEM.....	1000-13
	1430.1	FEDERAL AND STATE ROLE IN INCIDENT RESPONSE.....	1000-14
	1440	NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS).....	1000-15
	1440.1	INCIDENT COMMAND SYSTEM (ICS).....	1000-15
	1440.2	MULTIAGENCY COORDINATION SYSTEM (MACS).....	1000-16
	1440.3	PUBLIC INFORMATION.....	1000-16
	1450	AREA EXERCISE MECHANISM.....	1000-16
	1460	NATIONAL RESPONSE FRAMEWORK (NRF).....	1000-17
	1460.1	STAFFING ACT.....	1000-17
	1460.2	NRF VERSUS NCP.....	1000-18
	1500	STATE/LOCAL RESPONSE SYSTEM.....	1000-19
	1510	STATE RESPONSE SYSTEM.....	1000-19
	1520	LOCAL RESPONSE SYSTEM.....	1000-19
	1520.1	FLOATING DRILUMS.....	1000-20
	1520.2	LOCAL HAZMAT TEAMS.....	1000-20
	1520.3	LOCAL EMERGENCY PLANNING COMMITTEE (LEPC).....	1000-21
	1520.4	LOCAL GOVERNMENT INVOLVEMENT.....	1000-21



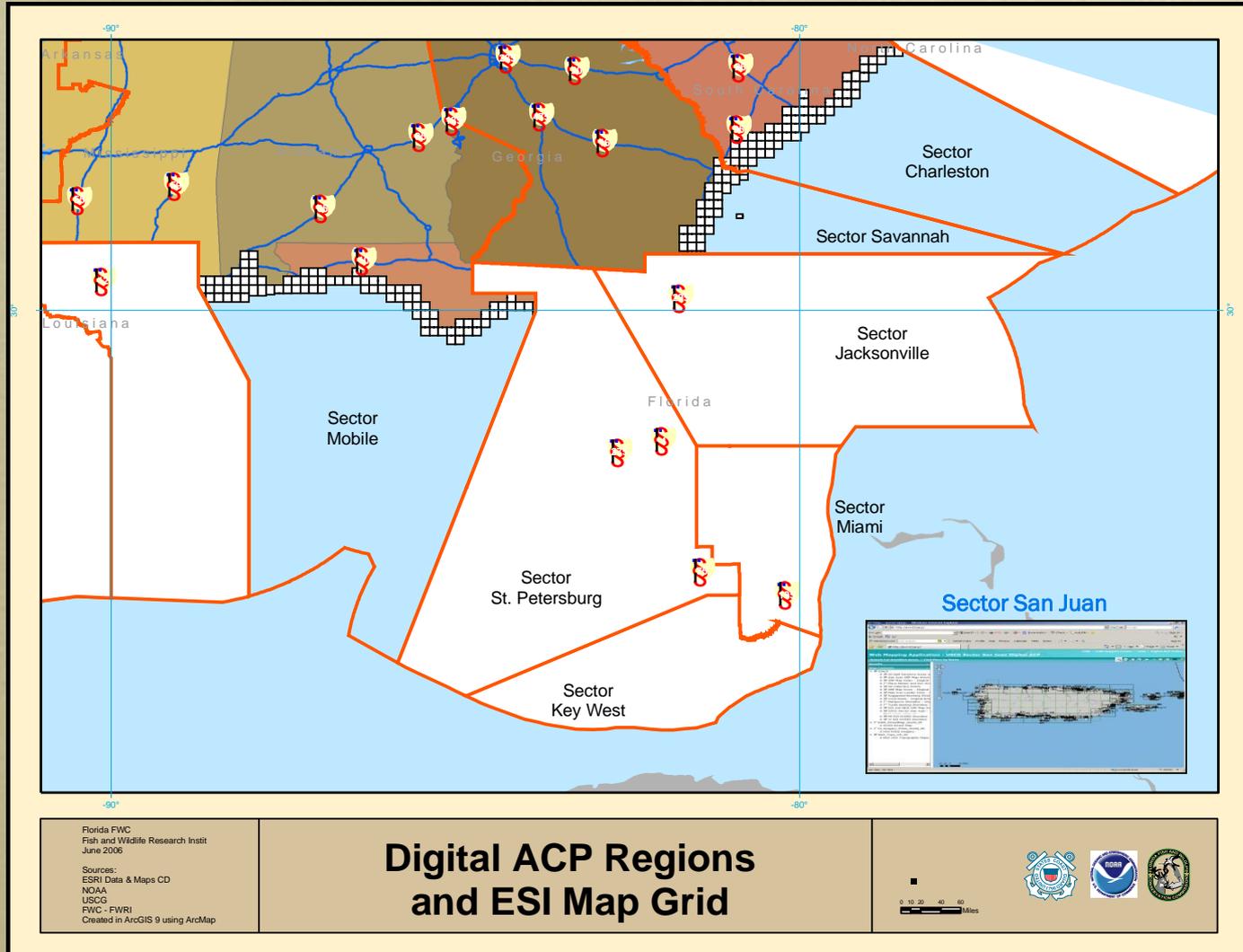
Digital Area Contingency Plan

- Digitize any geographic information in ACP
- HTML based frontend (Website and DVD)
- Documents (USCG, RRT, NOAA, USFWS, EPA, FWC)
- Spill planning & response applications (Adios2, Aloha, Spill Tools, Cameo, Marplot, Gnome, ICS Forms)
- Geodata (GIS, Google Earth, Metadata)
- Maps (GRP, ESI, TIPS)
- Contact Information
- Links
(Weather, Agencies, Reference, Webcams)
- Help
(User guides, Videos, Read Me instructions)



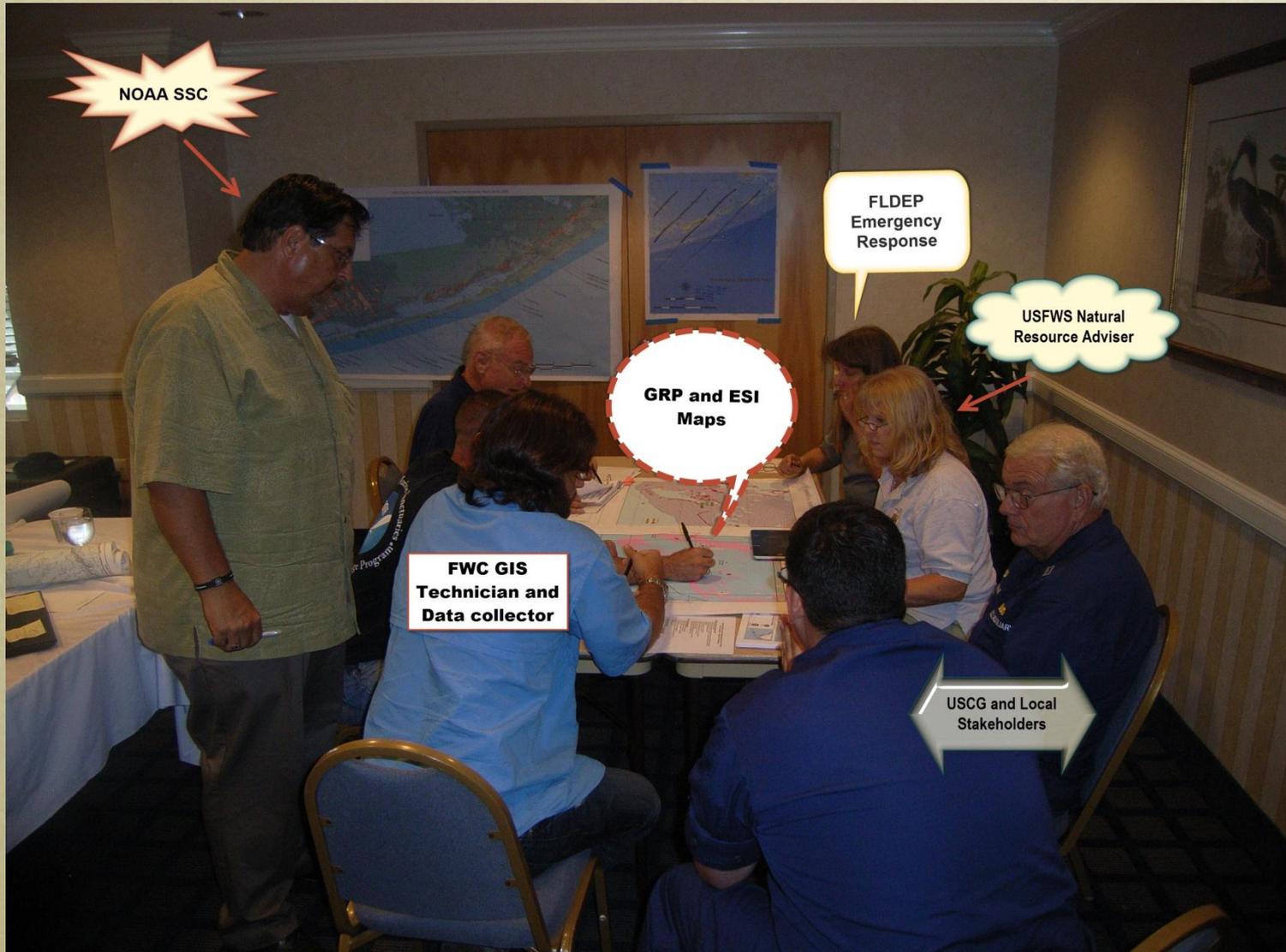
The screenshot shows the website interface for the USC Sector San Juan Digital Area Contingency Plan. At the top, there is a header with logos for the USCG, NOAA, and other agencies, along with the text "Area Contingency Plan For Puerto Rico and U.S. Virgin Islands (USCG Sector San Juan ACP)". Below the header is a navigation menu with links: Home, FWRI ACP Homepage, Documents, Maps, Contacts, GIS, Geodata, Applications, Links, and Help. The main content area features a large map of the San Juan area, outlined in red, with a red dot indicating a specific location. The text "Welcome to the USC Sector San Juan Digital Area Contingency Plan" is displayed above the map. At the bottom, there is a footer with contact information: "If you have any questions, problems, or concerns email us by clicking here." and "If you have an oil spill emergency please call the National Response Center Hotline at: 1-800-424-9802".

Digital ACPs Created for USCG District 7 & 8



Geographic Response Plan Workshop

- Brings stakeholders together
- Consistent format
- Priority & Protection developed by consensus
- Transparency
- Accountability



ESI Maps

- Environmental Sensitivity Index
- Created by RPI
- Biological resource guide
- Large format maps – 11” X 17”
- Same USGS Quad Index as GRP maps
- Shoreline classification and ranking based on sensitivity to oil
- Depicts the biological information for the known species and important times of life cycle
- RAR # links map to resource table
- Includes the state and federally threatened or endangered species
- Map atlases are older (late 90’s, FL) but the data is currently being updated (Panhandle almost complete, South Florida in progress)



GRP

vs.

ESI

USCG Sector Mobile
Geographic Response Plan Map Series

Map #: W.FL-7
TOPO NAME: PENSACOLA, FLA.(1987)

Notes:
Map Numbers Match ESI Map Numbers.
MAP NOT INTENDED FOR NAVIGATION.

Kilometers 0 0.5 1 2
Miles

Map Produced July 2009 by FWC-FWRJ

OIL SPILL S

SITE NAME:
LATITUDE (OM)
LATITUDE (OD)
PRIORITY (SEA)
GEN LOCATION

GRP MAP: 0 F
ESI MAP: 0 F
NOAA CHART:
USGS QUAD:

CONTACTS/STA
FL State Watch
ct. Miami FL, FL
(305) 755-3465

SHORELINE TYF
WILDLIFE REBO
Manatee, Seag

HABITAT TO BE
Marina seashal, s

THREATENED 3

STAGING AREA

COLLECTION PC

AREA ACCESS:
POTENTIAL SPIL
TIDAL RANGE:

MIN BOOM LEN
PROTECTION 81
Protected by 81

OTHER RESPON

OTHER RESOUR
Biscayne Bay A4

NEAREST AVAILA
PERSONNEL AVAI
POINT OF CONTACT
POINT OF CONTACT

NEAR
PERS
POINT
POINT
BOOM



Site report produced by Florida FWC - Fish and Wildlife Research Institute on: Wednesday, December 30, 2009 @ 12:35 pm
For additional information, please contact the FWC - FWRJ - Center for Spatial Analysis (727) 896-8526

Site report produced by Florida FWC - Fish and Wildlife Research Institute on: Wednesday, December 30, 2009 @ 12:35 pm
For additional information, please contact the FWC - FWRJ - Center for Spatial Analysis (727) 896-8526

ENVIRONMENTAL SENSITIVITY INDEX MAP

EAST P

BIOLOGIC

BIRD:

RARE

Species

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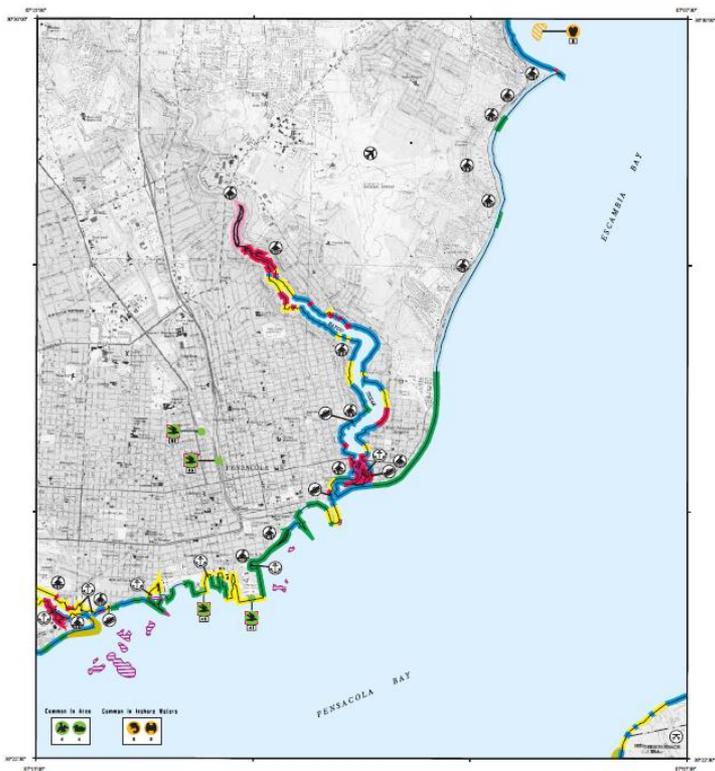
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Prepared by:
Research Planning, Inc.

Prepared for:
Florida Department of
Environmental Protection

SCALE: 1:50000

Not For Navigation
Published December 1995

PENSACOLA, FLA.(1987) W.FL-7



Geographic Response Plan (GRP) Maps

- 1 to 72 hr response tool
- Standard page size 8.5" x 11"
- Same USGS quad index as ESI, with additions
- Responder's essential tool for quickly identifying sensitive areas
- Combines strategy for protection with biological and socio-economic resources
- Details the most important features of environment and strategic access points
- Hyperlinked and pre-ordered so you can print all that you need
- All associated reports linked to main map
- Tidal Inlet Protection Strategies (PDF embedded)
- Not just maps, built from databases of information
- What is the GRP standard? Cartography and data



GRP Sensitive Site Prioritizations

NOTE; “You can’t protect it all”

Priority for Protection in Spill Response



A – Protect First - In all cases, Human Health and Safety is Highest Priority

- Inlets, tidal creeks, passes which would convey oil to high priority habitats/areas
- Species of special concern, threatened, or endangered species and their critical habitats/facilities (breeding, nesting, spawning, areas, some seasonal)
 - Large Areas of Mangroves (fish/bird/reptile habitat concerns)
- Salt-, Brackish-, & Fresh-Water Marsh/Wetlands (Tidal & Non-Tidal)
 - Hard ‘live’ bottom, shallow (<3 meters deep)
 - Seagrass, shallow (<1 meter deep) (less buffering by depth)
 - Public utilities water intakes
- Aquaria, and aquaculture facilities (inclusive of intakes) Cultural (historical, archeological) resources



B – Protect After A Areas

- Hard "live" bottom, deeper (>3 meters deep)
- Seagrass, deeper (>1 meter deep) (more buffering by depth)
 - Hard "live" bottom, deeper (>1 meter deep)
- Breeding, nesting, spawning areas, (some seasonal) for more common species not identified in “A”
 - “Fringe” mangroves and fresh-, brackish-, salt-water marshes
 - Rocky shores
 - Tidal flats (sand/mud; no vegetation)
- All other natural shores (including sand beaches) within conservation area
 - Riprap shoreline



C – Protect After B Areas

- Man-made canal systems (w/o riprap shoreline)
- Stormwater outfalls (due to tidal influx)



GRP Data Reports and Forms

- Environmentally Sensitive Area Report
- Response Equipment Staging Area Report
- Oil Spill Risk Site Report
- Response Equipment Storage Site Report
- Forms generated from GIS database
- Fill in PDF & hand written forms
- Email submission

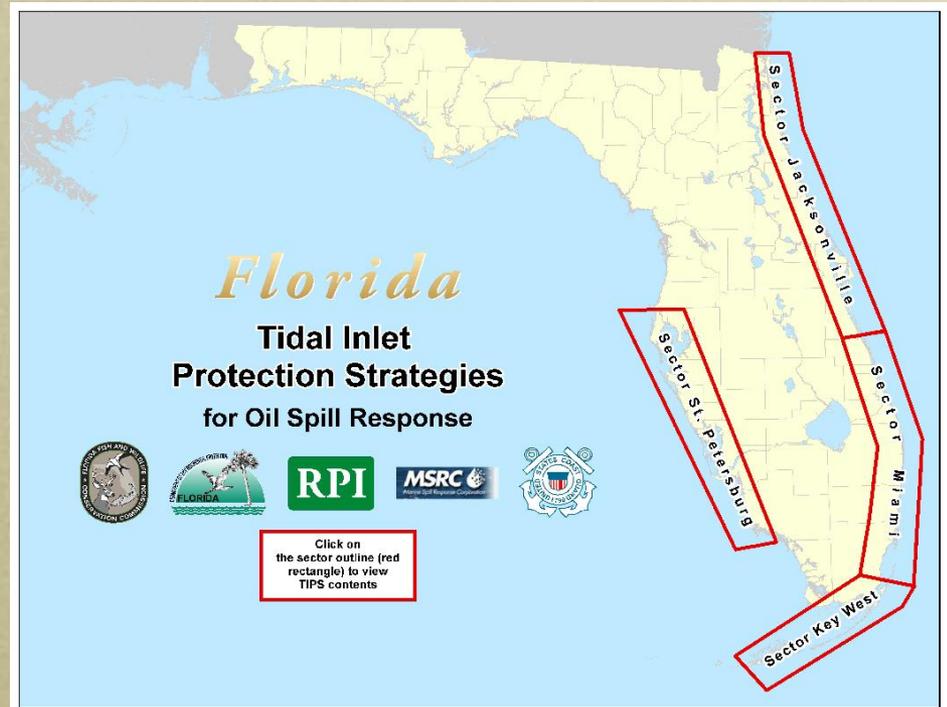
GRP - Oil Spill Sensitive Site Report for Sector: <input type="text"/>		GRP Map #: <input type="text"/>
Name: <input type="text"/>		Site ID: <input type="text"/>
Protection Priority (Season): Spring: <input type="checkbox"/> Summer: <input type="checkbox"/> Fall: <input type="checkbox"/> Winter: <input type="checkbox"/>		
Site Description: <input type="text"/>		
GEOSPATIAL INFORMATION		
Latitude (DMS): <input type="text"/>	Longitude (DMS): <input type="text"/>	County: <input type="text"/>
Latitude (DD): <input type="text"/>	Longitude (DD): <input type="text"/>	SCAT Division: <input type="text"/>
ESI Map: <input type="text"/>	ESI Name: <input type="text"/>	
NOAA Chart: <input type="text"/>	CHART Name: <input type="text"/>	
USGS Quad: <input type="text"/>	QUAD Name: <input type="text"/>	
Managed Area (if applicable): <input type="text"/>		
General Location: <input type="text"/>		
CONTACT INFORMATION		
Contacts: <input type="text"/>		
RESOURCES AT RISK INFORMATION		
Shoreline Type: <input type="text"/>		
Habitat: <input type="text"/>		
Wildlife: <input type="text"/>		
Threaten/Endangered Species: <input type="text"/>		
Socio-Economic Resources: <input type="text"/>		
RESPONSE CONSIDERATIONS		
Staging Area: <input type="text"/>		
Collection Points: <input type="text"/>		
Area Access: <input type="text"/>		
Spill Risk: <input type="text"/>		
Response Resources: <input type="text"/>		
PROTECTION STRATEGY INFORMATION		
Tidal Range (FT): <input type="text"/>	Average Current (KTS): <input type="text"/>	Ease of Protection: <input type="text"/>
Min. Boom Length (FT): <input type="text"/>	Boom Type: <input type="text"/>	Booming Method: <input type="text"/>
Protection Strategy: <input type="text"/>		

Report produced by Florida FWC - Fish and Wildlife Research Institute on:
For additional information, please contact FWC-FWRI Center for Spatial Analysis (727) 895-8626



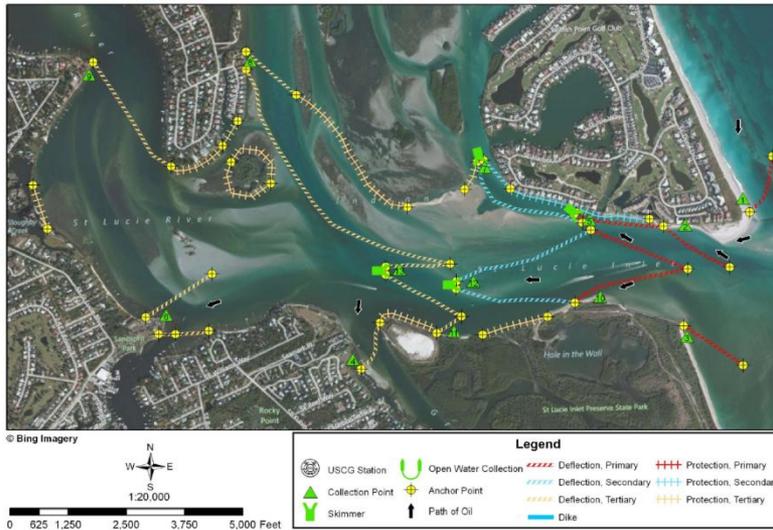
Tidal Inlet Protection Strategies (TIPS)

- Created by RPI, first released around 1994/95, updated in 2011
- Guidance from USCG, FDEP, FWC, MSRC
- Potential protection strategies for Tidal Inlets along Florida coast
- Based on at hand waves and tidal currents or inferences from geomorphology
- Inlet protection summary
- Collection point information
- Complete for four Florida USCG Sectors
- Panhandle TIPS coming soon
- <http://ocean.floridamarine.org/acp/tips>



Tidal Inlet Protection Strategy Maps

St. Lucie Inlet



Inlet	Class	Primary	Secondary	Tertiary	Grand Total
Sebastian Inlet	B	2,252	2,244		4,496
Fort Pierce Inlet	B	2,825	2,192	7,822	12,839
St. Lucie Inlet	A	3,945	4,192	10,676	18,813
Jupiter Inlet	B	1,547	2,652	1,339	5,539
Lake Worth Inlet	B	2,095	3,578	3,264	8,937
Boynton Inlet	B	479	443	1,493	2,414
Boca Raton Inlet	B	563	566	1,926	3,055
Hillsboro Inlet	B	1,302	1,392		2,694
Port Everglades	A	2,023	3,779	2,427	8,229
Bakers Haulover	A	1,068	529	2,951	4,548
Government Cut	B	2,722	2,937	1,478	7,137
Norris Cut	B	4,070	1,264		5,334
Bear Cut	A	4,747	2,090		6,837
Sands Cut	C	1,011	265		1,276
Caesar Creek Channel	C	4,092	901	654	5,647
Grand Total		34,741	29,024	34,030	97,794

Collection Point Description

Inlet: St. Lucie Inlet, Martin County, Florida

Site Name: Collection Point #1

Relative Location: Beach north of the north jetty.

Latitude: 27° 10' 11.827" N **Longitude:** 80° 9' 11.597" W

Currents: Flood currents along shore to the south up to 1-3 knots during rising tide.

Shoreline Description: Fine-grained sand beach.

Access: Shore developed with private property. May be able to get across undeveloped lot at the south end of the island. Otherwise, by watercraft in the main inlet channel. And still it would be about 300 yards to the CP.

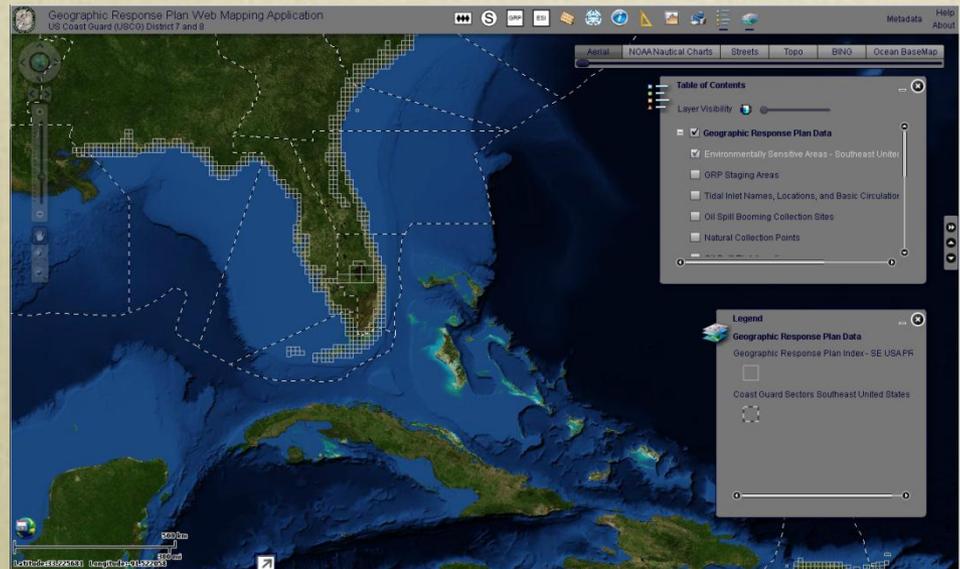


Inlet	Class	Length in Yards		
		Deflection	Protection	Grand Total
Sebastian Inlet	B	2,924	1,572	4,496
Fort Pierce Inlet	B	8,643	4,195	12,839
St. Lucie Inlet	A	13,332	5,481	18,813
Jupiter Inlet	B	3,871	1,668	5,539
Lake Worth Inlet	B	7,522	1,414	8,937
Boynton Inlet	B	1,904	510	2,414
Boca Raton Inlet	B	2,433	623	3,055
Hillsboro Inlet	B	2,487	206	2,694
Port Everglades	A	6,518	1,711	8,229
Bakers Haulover	A	4,116	432	4,548
Government Cut	B	5,652	1,485	7,137
Norris Cut	B	3,953	1,381	5,334
Bear Cut	A	5,511	1,326	6,837
Sands Cut	C		1,276	1,276
Caesar Creek Channel	C	4,092	1,555	5,647
Grand Total		72,958	24,836	97,794

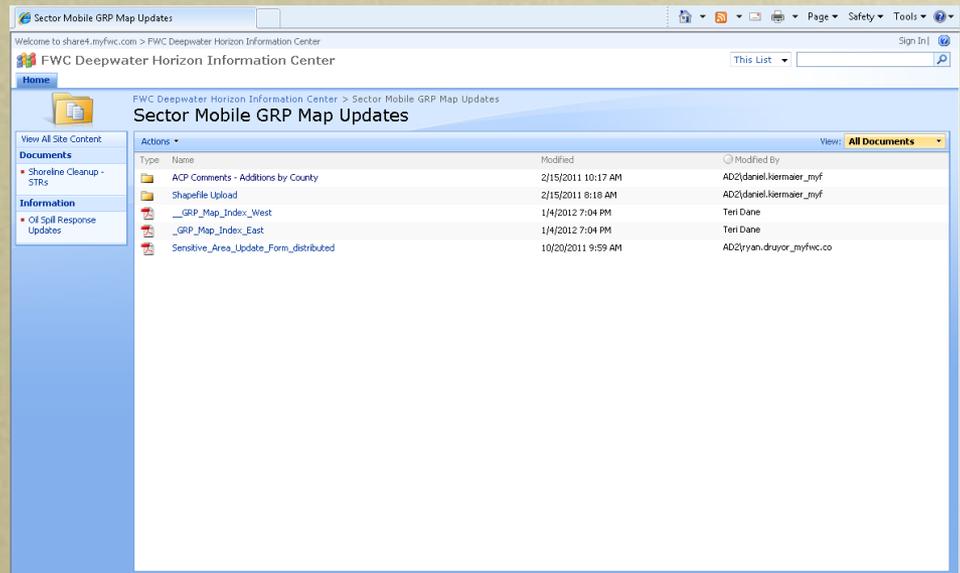


Updates and Uploads

- Web Mapping Application (Flex)
- <http://ocean.floridamarine.org/acpgrp/GRPviewer/>
- GIS edits are pushed to viewer on monthly basis



- Deepwater Horizon SharePoint Site
- <http://share4.myfwc.com/seoilspill/default.aspx>
- Sensitive Area Update Form



Thank You

Oil Spill Response Team

- Ryan Druyor – Digital ACP Coordinator/GIS Analyst – Ryan.Druyor@myfwc.com
- Richard Knudsen – State Scientific Coordinator – Richard.Knudsen@myfwc.com
- Bryan Schoonard – GIS Analyst/Flex Viewer Administrator – Bryan.Schoonard@myfwc.com
- Renee Duffey – GIS Analyst – Renee.Duffey@myfwc.com



The Value of Dispersants for Oil Spill Response

Tim Nedwed (URC)

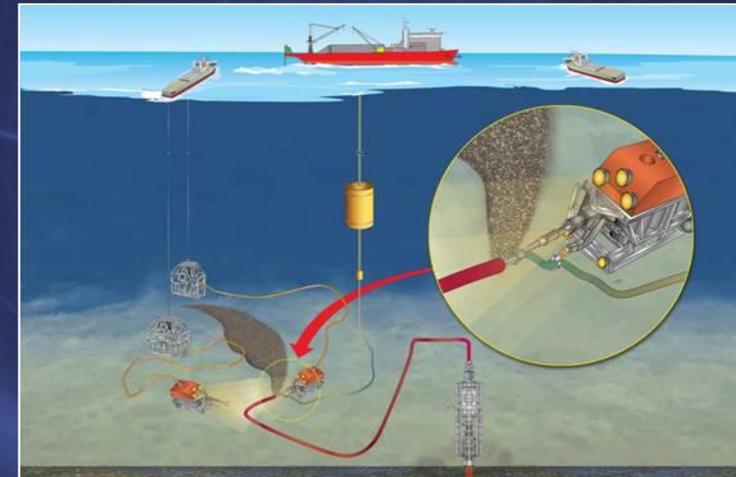
**RRT IV / VI Executive Committee Meeting
San Antonio, TX, November 28, 2011**

ExxonMobil

Introduction

Topics of Discussion

- Oil spill response options
- Background on dispersants
- Deepwater Horizon Incident
- Summary



Spill Response Options: *The Toolbox*



Mechanical Recovery: Booms & Skimmers



Monitor & Evaluate

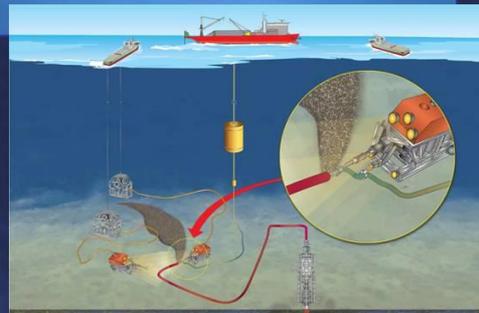


In-Situ Burning



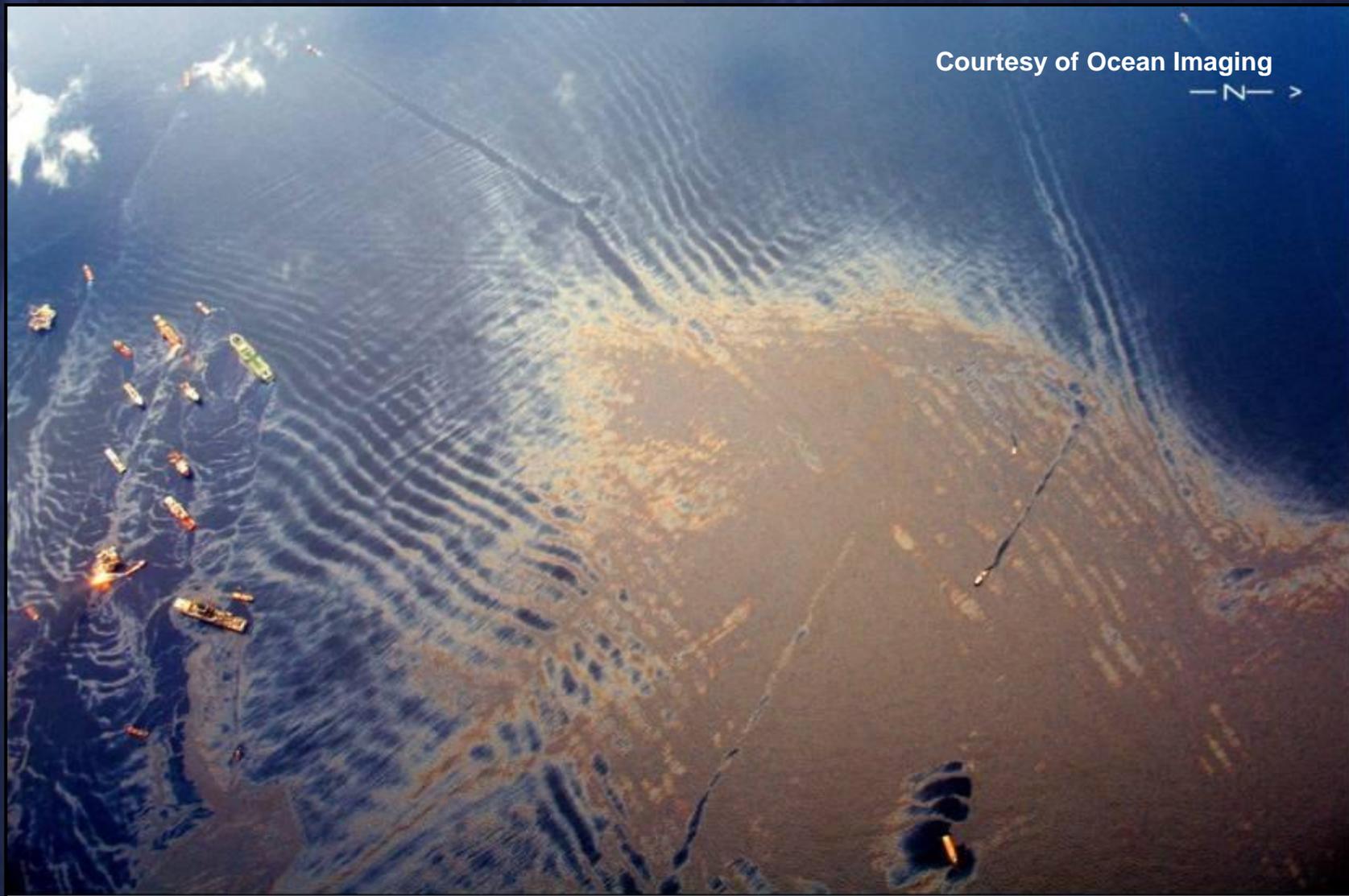
Aerial Dispersants

The goal is to design a response strategy based on *Net Environmental Benefit Analysis*

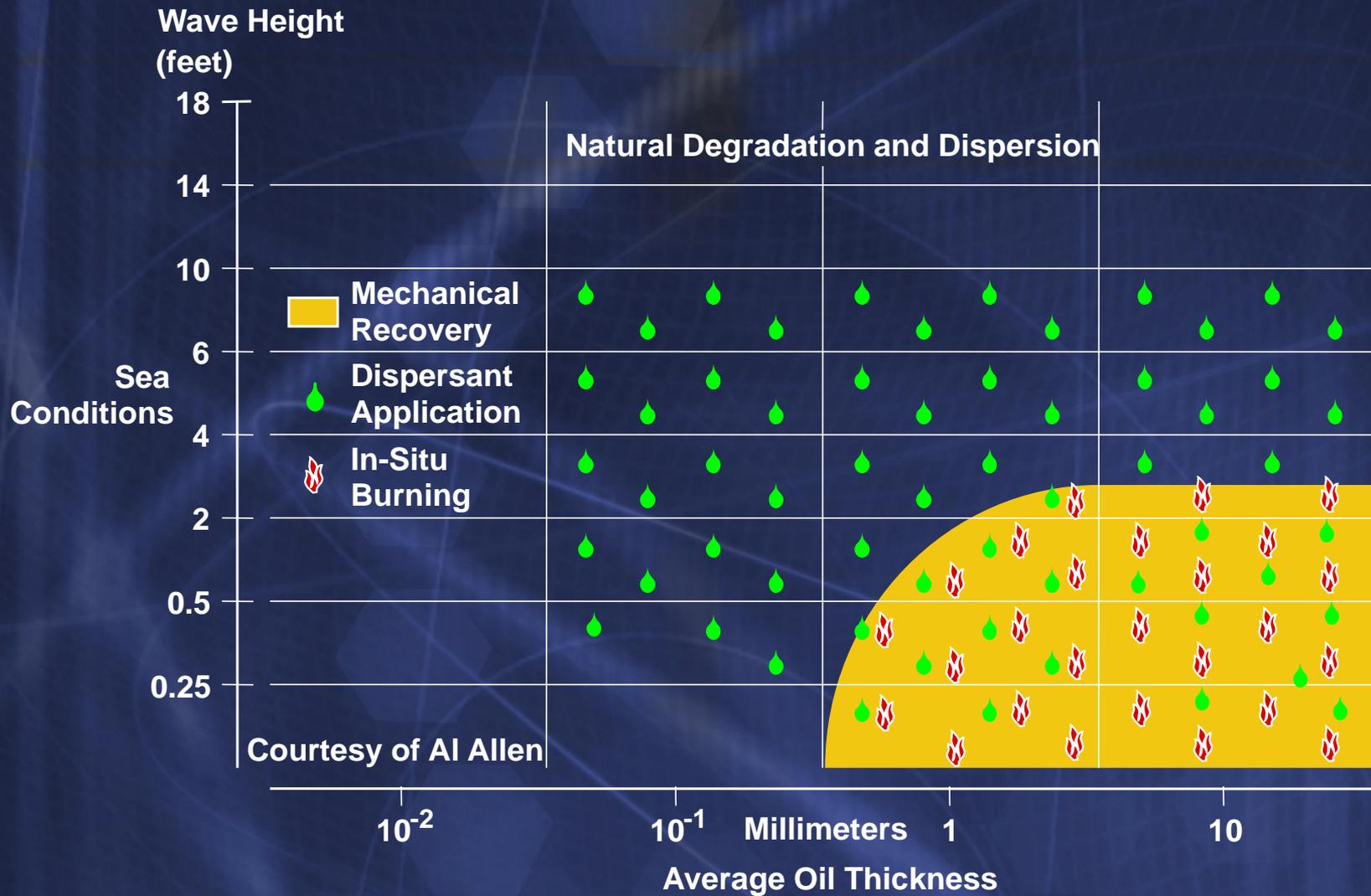


Subsea Dispersants

Encounter Rate is Key to Offshore Response

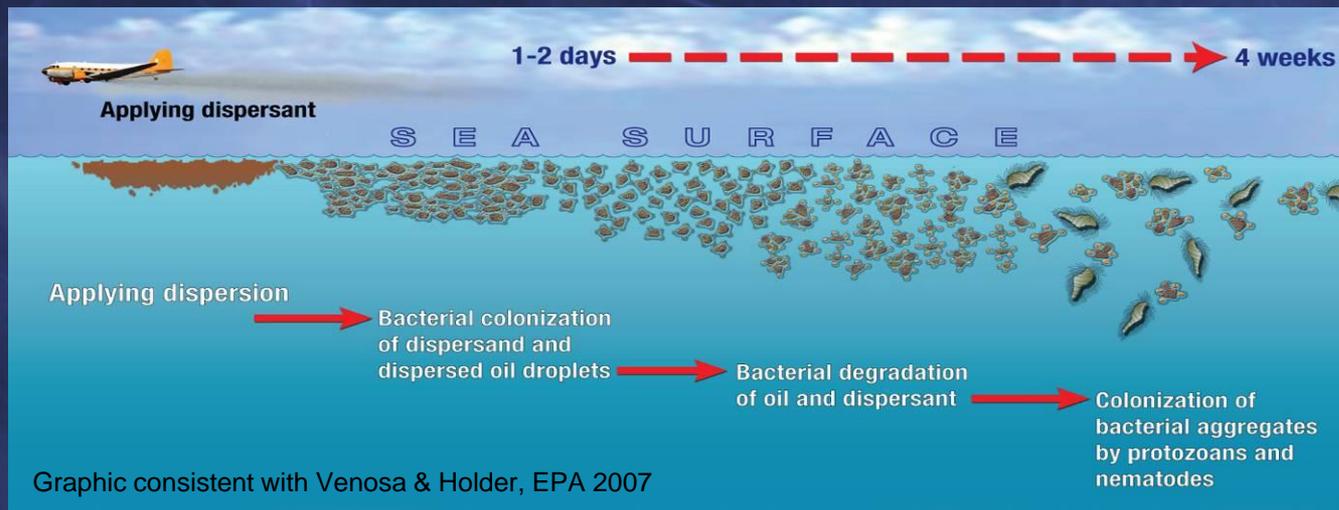


Spill Conditions Limit Response Options



Dispersants – What are they?

- Dispersants are solutions of surfactants dissolved in a solvent
- Surfactants reduce oil-water interfacial tension – allows slicks to disperse into very small droplets with minimal wave energy
- Dispersed oil rapidly dilutes to concentrations <10 ppm within minutes, <1 ppm within hours, ppb range within a day
- Each dispersed oil droplet is a concentrated food source that is rapidly colonized and degraded by marine bacteria
- Dilution allows biodegradation to occur without nutrient or oxygen limits



Environmental Impacts

- Toxicity of oil > toxicity of the dispersant
- Modern dispersants use ingredients found in household products

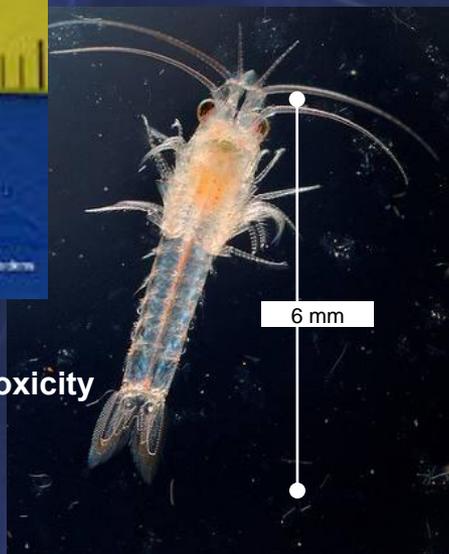
Other Uses of Corexit 9500 Ingredients (from Nalco website)

Corexit 9500 Ingredients	Common Day-to-Day Use Examples
Span 80 (surfactant)	Skin cream, body shampoo, emulsifier in juice
Tween 80 (surfactant)	Baby bath, mouth wash, face lotion, emulsifier in food
Tween 85 (surfactant)	Body/Face lotion, tanning lotions
Aerosol OT (surfactant)	Wetting agent in cosmetic products, gelatin, beverages
Glycol butyl ether (solvent)	Household cleaning products
Isopar M (solvent)	Air freshener, cleaner



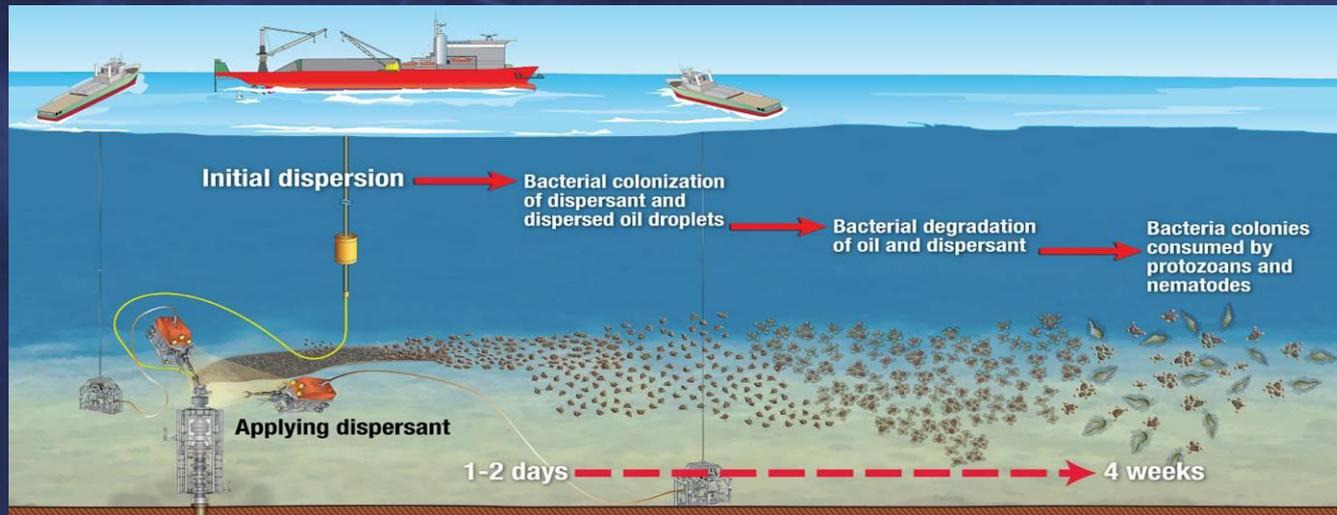
Harrell L. Chirler, Aquarium of Moody Gardens

Organisms used in EPA's toxicity tests



Subsea Injection of Dispersants

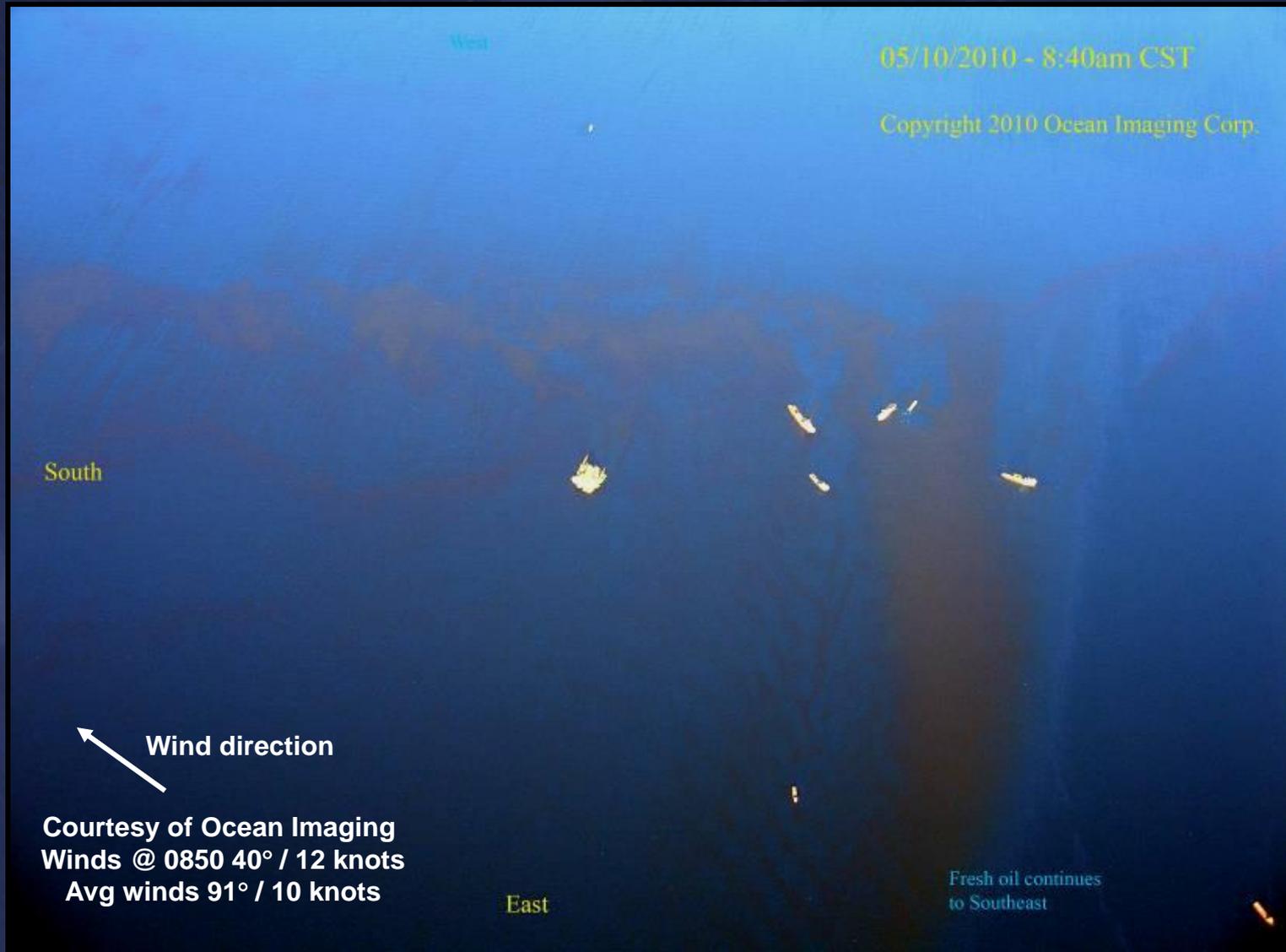
- Preliminary observations of DWH experience
- Benefits of subsea injection
- Long-term fate and effects



Release Site May 9 Prior to Injection



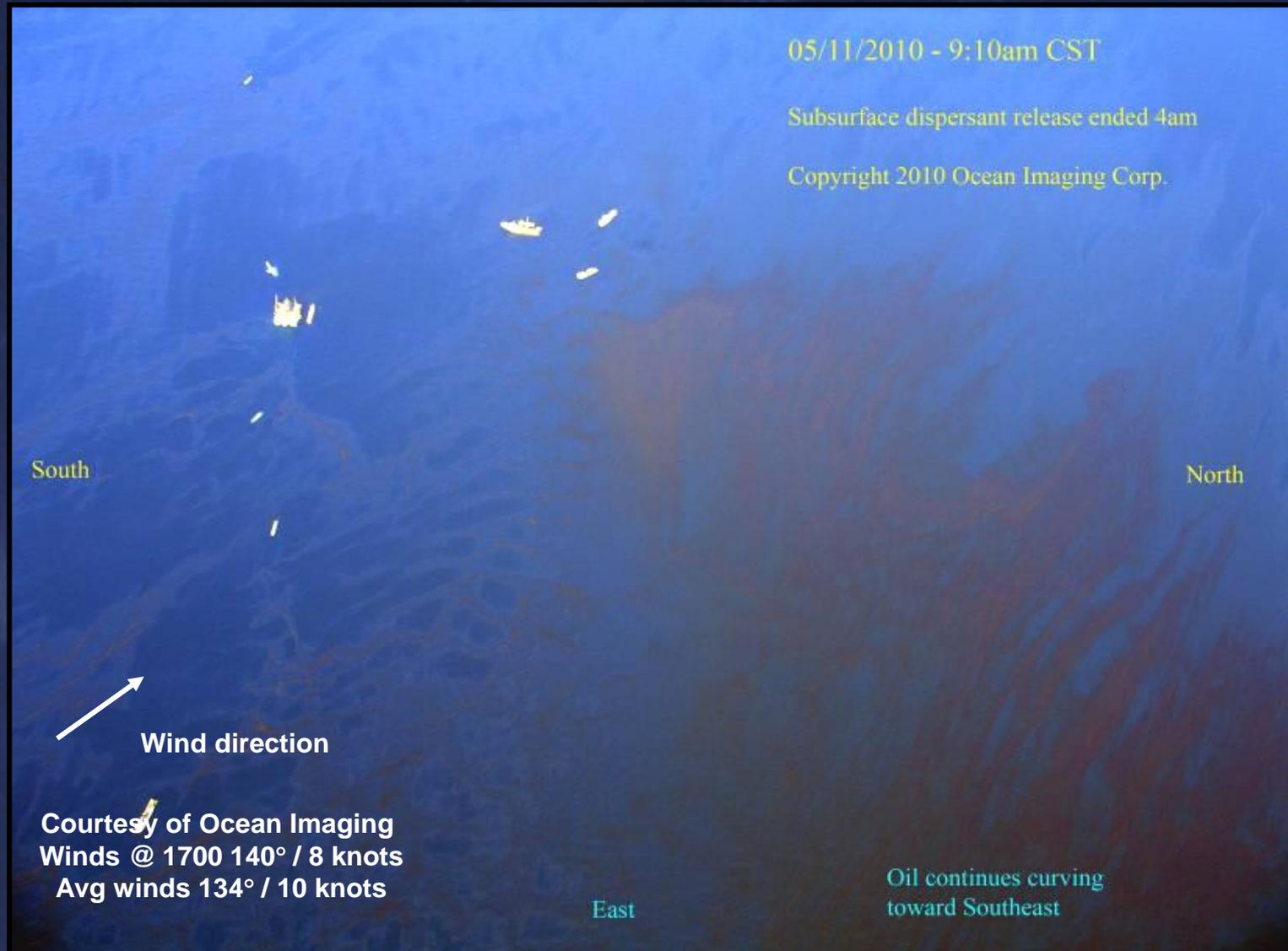
Release Site May 10: 3 hrs of Injection



Release Site May 10: 11 hrs of Injection



Release Site May 11 5 hrs after Injection Ended



Release Site May 12 28 hrs After Injection Ended



Summary

- **Along with prevention, robust oil spill response (OSR) is critical**
- **Highest priority in emergency response is human health and safety**
- **Basic strategy for addressing oil spilled from an offshore well**
 - **Respond as close to the source as possible**
 - **Utilize all appropriate tools to keep oil from reaching shorelines**
- **Dispersant use presents a necessary tradeoff given the limitations of mechanical recovery and should be a primary response option**
- **Subsea injection is a step-change advance that may reduce spill impacts by an order of magnitude**
- **More research is needed to optimize subsea injection and better understand the long term effects of dispersed oil in deep waters**

The End