APEX 3508
MAJOR INLAND SPILL
September 2, 2015
Lower Mississippi River MM 937

RRT V Brief

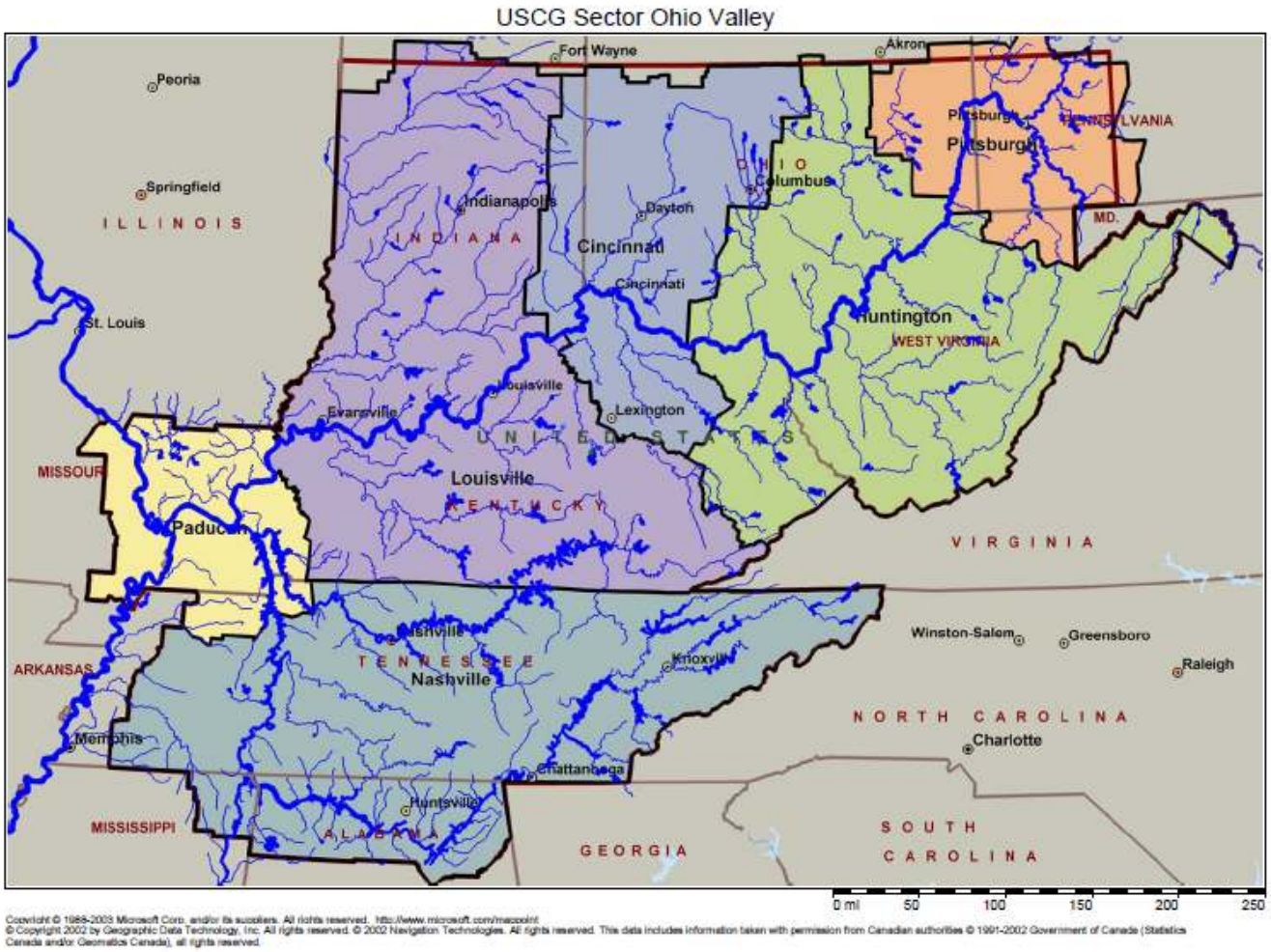
5 NOV 2015

U.S. Coast Guard Marine Safety Unit Paducah, KY

Homeland Security

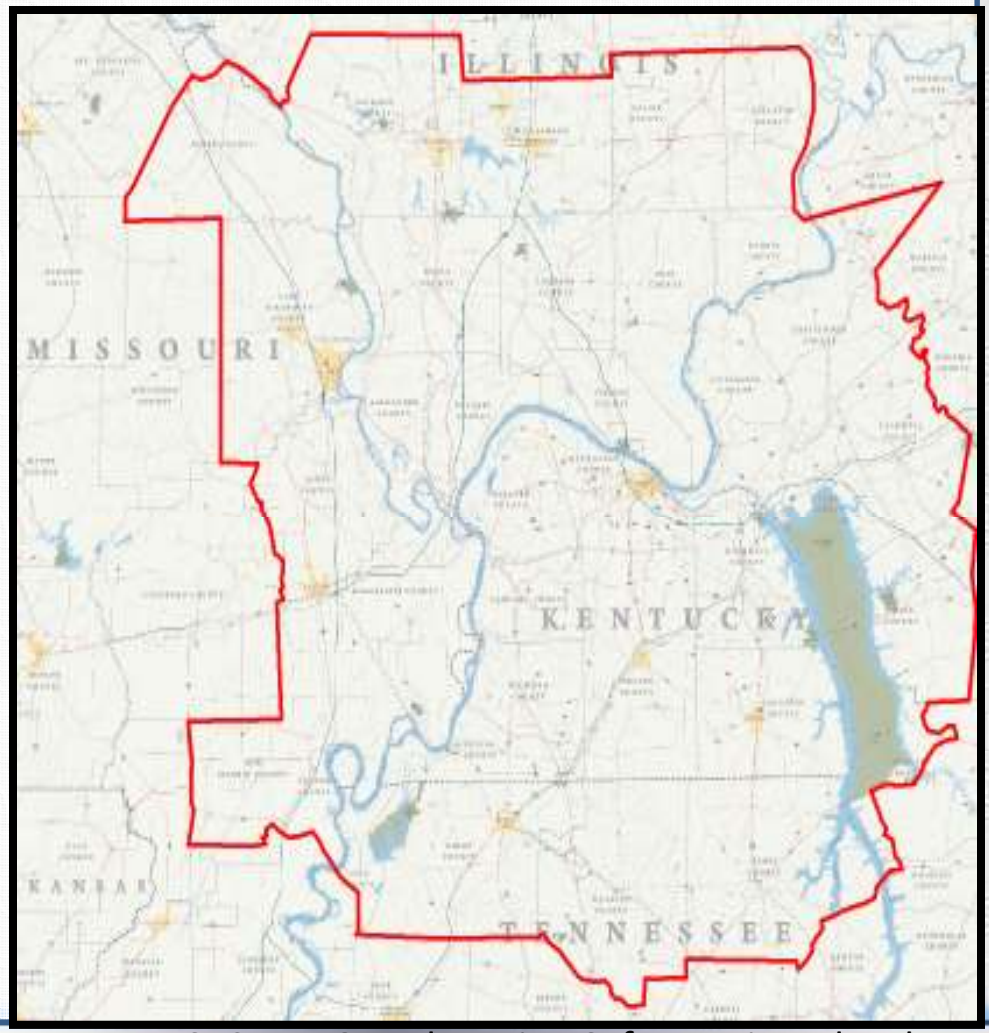
CDR Mark Sawyer / CDR Chris Williammee

Sector Ohio Valley



MSU Paducah Overview

- 469 river miles on the Ohio, Cumberland, Tennessee, and Mississippi Rivers
- 3 EPA Regions
- 4 USACE Districts
- 4 States
- 8 of the 11 CG missions
- Two major lakes, Kentucky Lake & Lake Barkley , 218K Acres of water surface, 318 miles
- 5 Locks & Dams, 8 bridges
- 200+ Reportable Marine Casualties/Year
- 24 Active; 4 Civilians



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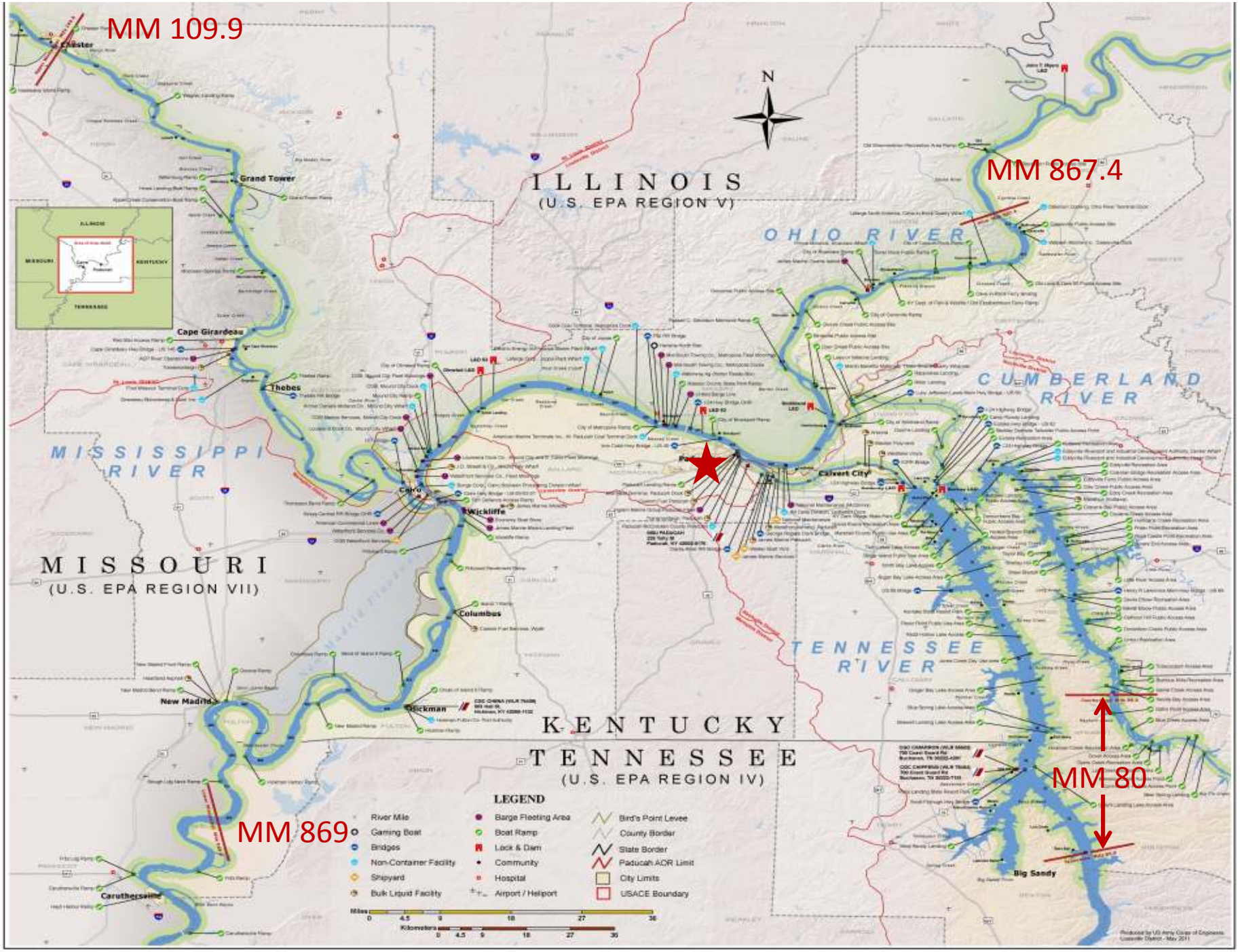
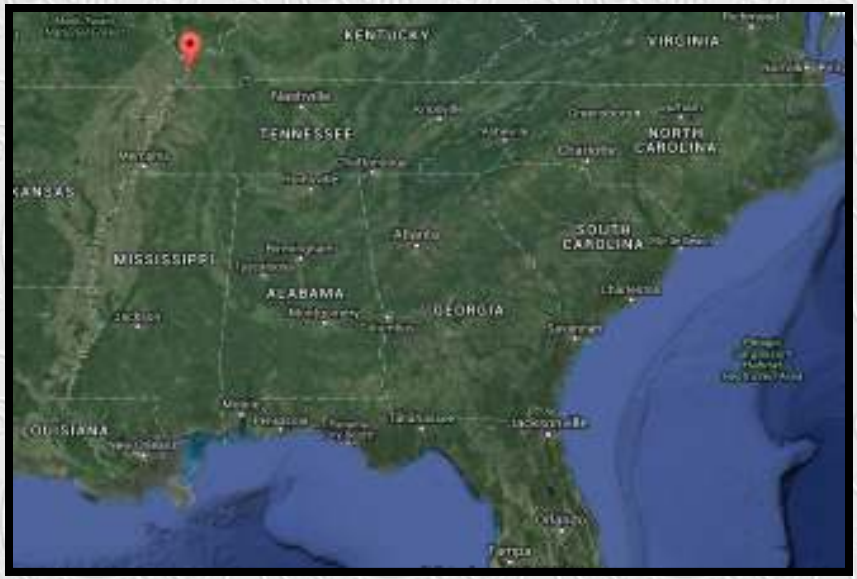
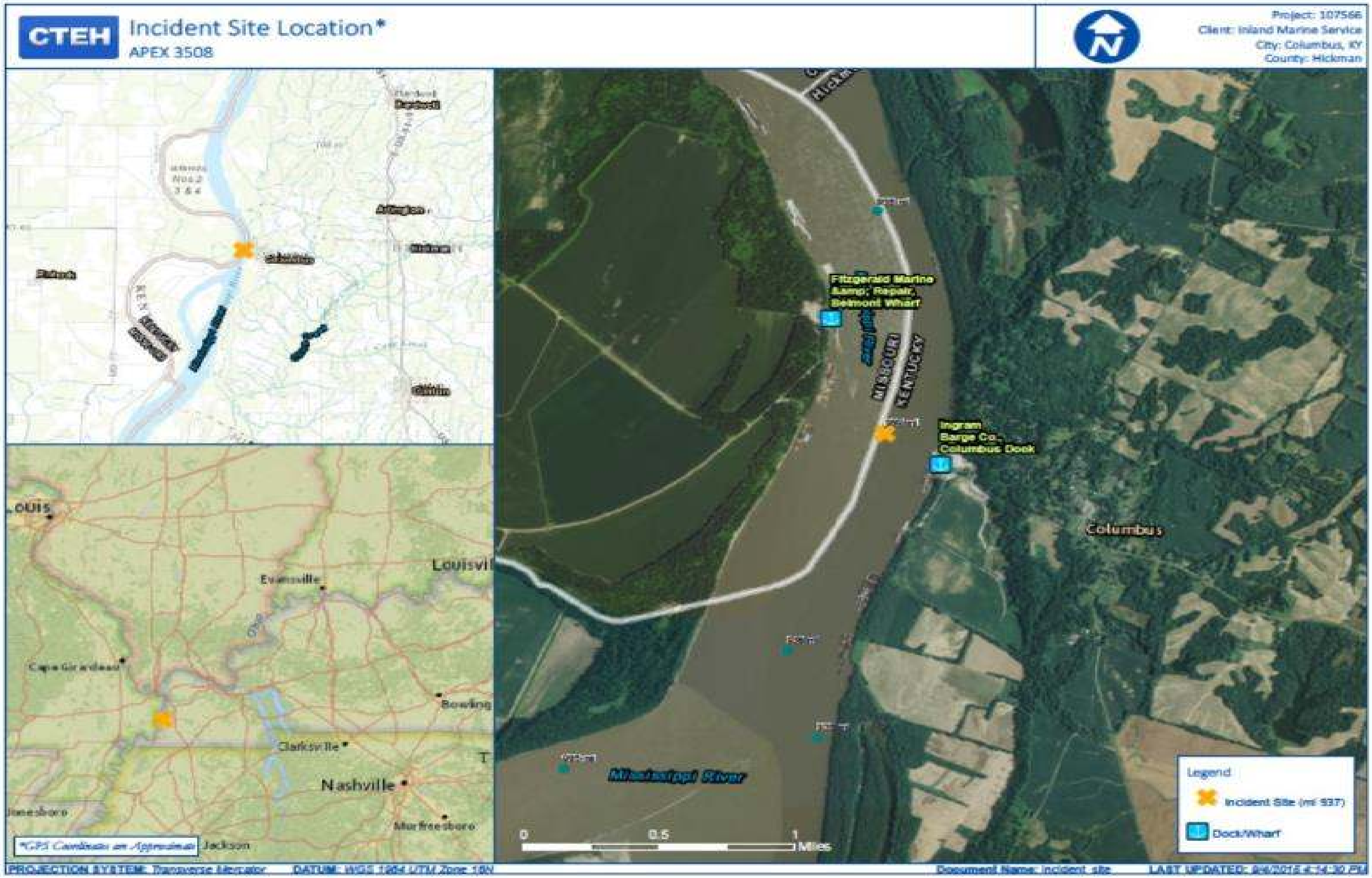

MM 109.9
MM 867.4
MM 869
MM 80
ILLINOIS
(U.S. EPA REGION V)
MISSOURI
(U.S. EPA REGION VII)
KENTUCKY
TENNESSEE
(U.S. EPA REGION IV)
OHIO RIVER
CUMBERLAND RIVER
MISSISSIPPI RIVER
TENNESSEE RIVER
N
Chester
Grand Tower
Cape Girardeau
Thebes
Cairo
Wickliffe
Columbus
New Madrid
Hickman
Caruthersville
Paducah
Calvert City
Big Sandy
LEGEND
River Mile
Gaming Boat
Bridges
Non-Container Facility
Shipyard
Bulk Liquid Facility
Barge Fleeting Area
Boat Ramp
Lock & Dam
Community
Hospital
Airport / Heliport
Bird's Point Levee
County Border
State Border
Paducah AOR Limit
City Limits
USACE Boundary
Miles
Kilometers

Incident Overview

Incident Location- LMR, MM 937





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Incident Objectives

OBJECTIVES:

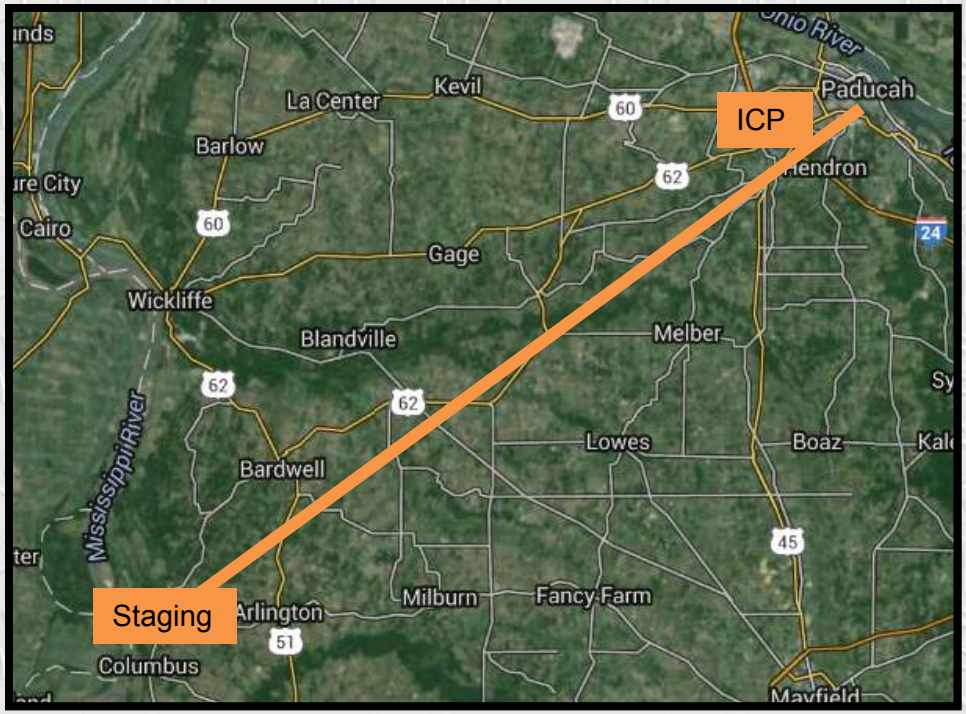
- PROVIDE FOR THE SAFETY AND WELFARE OF CITIZENS AND RESPONSE PERSONNEL
- INITIATE ACTIONS TO STOP OR CONTROL THE SOURCE, AND MINIMIZE THE TOTAL VOLUME RELEASED
- CONTAIN, TREAT AND RECOVER SPILLED MATERIALS FROM THE WATER.
- CONDUCT AN ASSESSMENT AND INITIATE SHORELINE CLEANUP EFFORTS
- CONDUCT A SURVEY OF THE DAMAGE TO BARGE APEX 3508
- MINIMIZE IMPACTS TO MARINE TRANSPORTATION SYSTEM
- MINIMIZE ECONOMIC IMPACT
- IDENTIFY AND PROTECT RESOURCES AT RISK DURING THE ASSESSMENT AND RECOVERY OPERATIONS OF ANY IDENTIFIED SUBMERGED OIL.
- CONTINUE ENVIRONMENTAL MONITORING.

PRIORITIES:

- SAFETY OF PUBLIC/COMMUNITIES
- ENVIRONMENTAL CONCERNS
- REOPENING OF RIVER WITH SUBSEQUENT MOVEMENT OF MARITIME TRAFFIC

Incident Challenges

- Incident Location
- Environment
- Connectivity
- Product Fate
- Specialized Equipment
- Traffic Management
- Timing



Incident Summary (Type II)

Unified Command included:

FOSCR – CDR Mark Sawyer – MSU Paducah

RPIC – Jason Adams / Greg Brown – Inland Marine Services

SOSC- Robert Francis / Kevin Strohmeier – KY Dept. of Environmental Protection

Number of OPS period: 8 **Number of days** : 23 **2 SEP15 – 25 SEP 15** **River Closure: 18 miles (48 hours)**	**Total Personnel Responded :** 120+ Including USCG (IMAT/NSF), NOAA, EPA,OSRO-SWS, T&T	**Total Equipment Responded :**65 + Including Various barges and tug boats, 18ft-25ft response boats, dive boats, aircraft and cranes
Oil Released: 120,588 gallons Experts believe majority of product was confined in two anomalies near incident location	**Type of product**: Clarified Slurry Oil, Group V Residual Fuels Oils (GPVFRO) referred to by industry as LAPIO (Low API Oils)	**Resources at risk**: 2 (USFWS) ESA listed freshwater mussels
Detection: Combination of low resolution and high resolution side scan sonar, along with over flight and dive ops were used.	**Recovery**: Combination of Cable Arm Environmental Bucket with ClamVision dredge positioning system, Vessel Submerged Oil Recovery System (VSORS)and a Decanting–water polishing processes were used.	**Oily sediment/water recovered** : 3,111 Cubic Yards (~4,667 tons) **Oily Sediment recovered (after decanting):** 2,261 Cubic Yards (~3,392)
Number of water & sediment samples : 220 **Number of samples positive for oil** : 5	**Outcome After Recovery**: Both Anomalies were determined to have no more than 10% sporadic oil distribution within each 25 meter by 25 meter grid on 25 SEP 15.	**FPN 15050 – Ceiling: $300 K** Costs as of 30 SEP 15: Indirect $281,437 - Direct $193,308 Total $474,745 RP- Actual as of 25SEP15 : $2.9 million

RESOURCES AT RISK

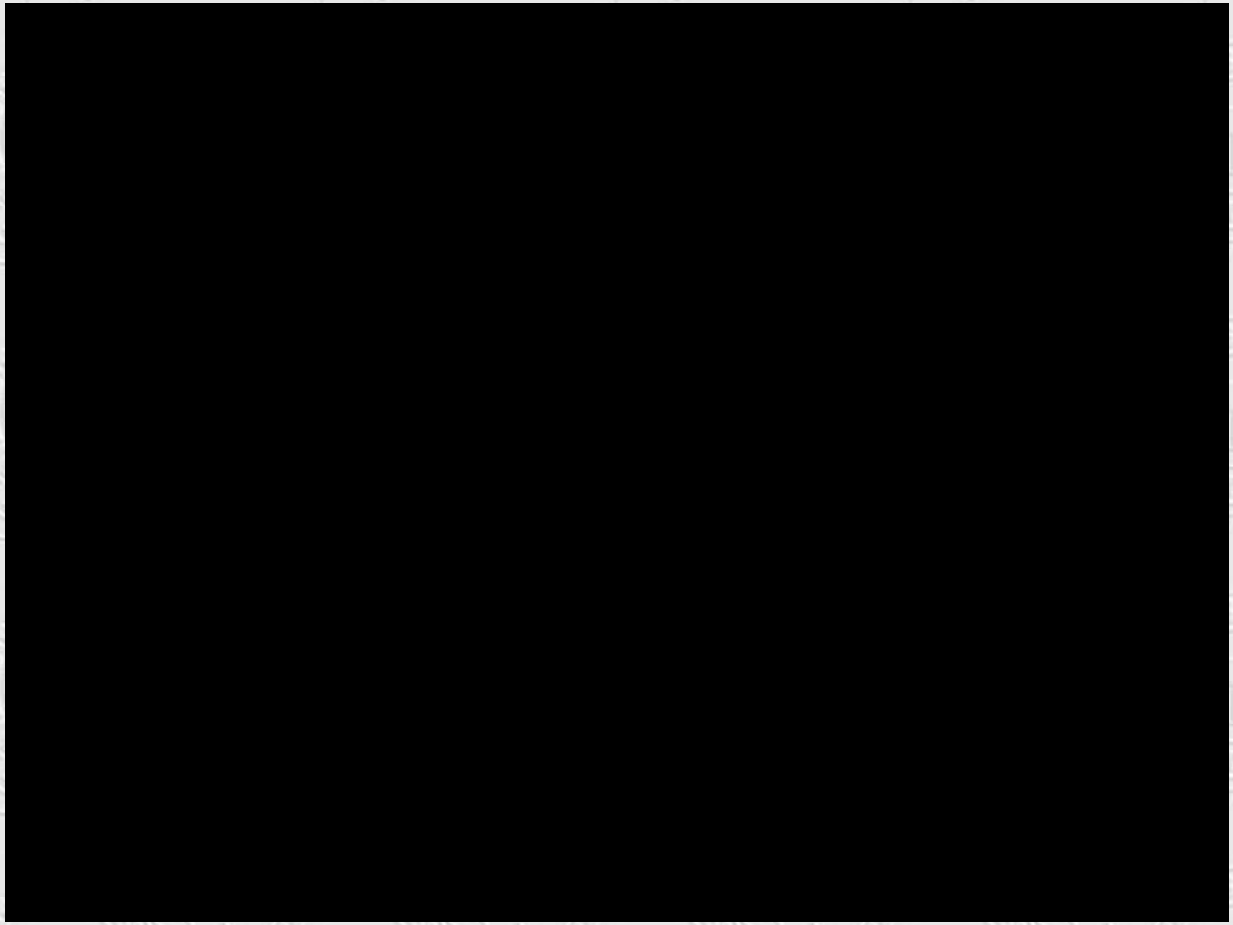
U.S. Fish and Wildlife Service (USFWS) identified two ESA listed freshwater mussels, commonly referred to as the Fat Pocketbook and Pink Mucket, at greatest potential risk within the action area. USFWS requested a species and habitat survey of the area prior to commencement of recovery operations. A mussel survey was completed on 7 Sep 15 and concluded that the action area did not contain any suitable habitat for these mussels. However, mussel observations were conducted during the recovery operations on behalf of USFWS and no mussels were observed.

The Bureau of Indian Affairs concluded no impact to the trust resources within the action area. As per Section 106 of the NHPA, the State of Kentucky Heritage Council and State Historic Preservation Office (SHPO) initially indicated potential for impacts to trust resources, however once the action area was refined to on-water activities to remove sunken oil, they concluded that recovery actions were not likely to impact historic and archeological resources.

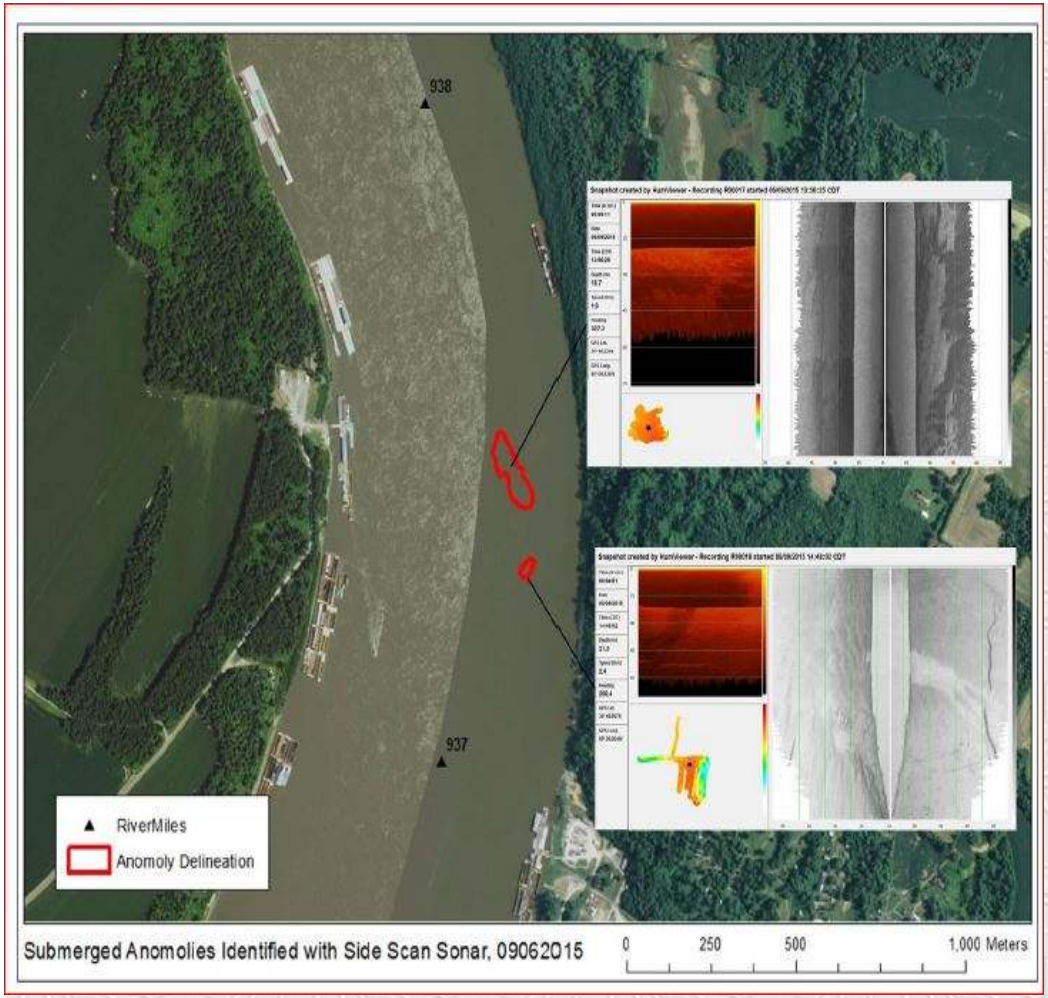
PRODUCT-Clarified Slurry Oil

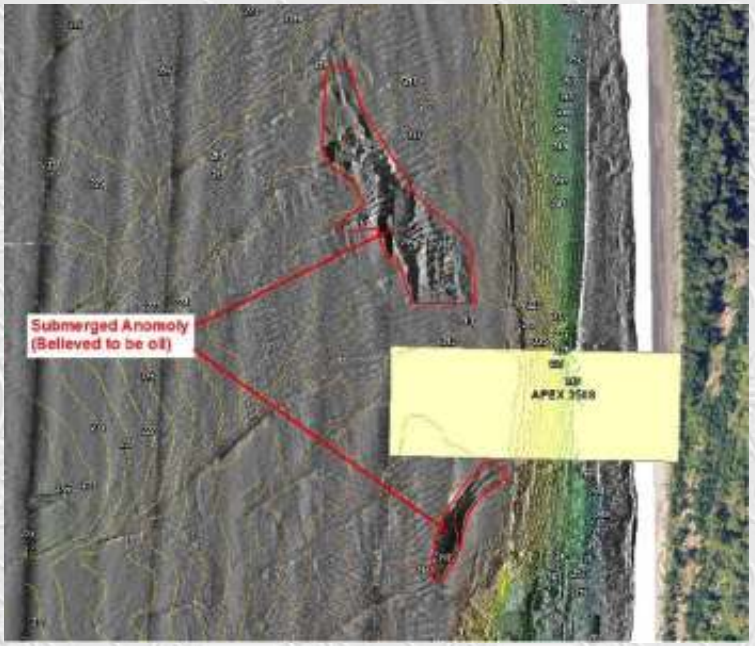
- Information on the oil provided in the safety data sheet indicated that the spilled slurry oil had a specific gravity of 1.1. Oils of this type are typically classified as Group V Oils which are known to sink in freshwater. Group V Residual fuels Oils (GPVRFO) referred to by industry as LAPIO (Low API Oils)
- RCRA Information: unused product is not specifically listed by the EPA as a hazardous waste. It does not exhibit the hazardous characteristics of ignitability, corrosivity, or reactivity (ExxonMobil MSDS)
- DOT Haz Class: Combustible Liquids
- ID Number: NA1270
- ERG Number: 1287
- Boiling Point: 400 F
- Needs to be heated to ~120 F to pump from barge

Product Demo



Low Resolution SSS from 4-7SEP15





High Resolution SSS 07SEP15

ENVIRONMENTAL CLAMSHELL DREDGING

ACHIEVING CUSTOMER SATISFACTION BY REDUCING PROJECT OWNER COSTS AND INCREASING DREDGER PROFIT THROUGH INCREASED SEDIMENT REMOVAL EFFICIENCY.

RESUSPENSION ⇨ RELEASE ⇨ RESIDUAL = RISK

Sloping Profile

Allows for angled, lateral movement along an inclined bottom. Previously, over dredging in "steps" were required. These steps are then often filled in with capping material.

Lightweight

Eliminates the processing of hard, uncontaminated sediment.

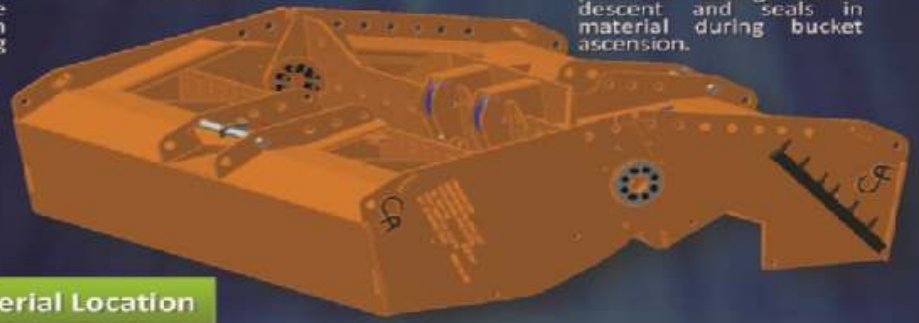
Venting System with Open Center

Decreases downward pressure during bucket descent and seals in material during bucket ascension.

Over-Square Footprint

Width greater than opened length minimizes outward flow of material during bucket closure.

(up to 100 m³)



Overlapping Side Plates

Minimize outward flow (windrowing) of material during bucket closure and seals in material during bucket ascension.

Material Location

Center of Mass of material is located below the center of the bucket's containment area minimizing material washout during bucket closing and ascension.

Level-Cut

Produces a near flat surface opposed to the pothole effect which can create a pool of contamination.

Low Water Content

Squeezes and drains water to minimize transportation/disposal costs.

150° Cutting Edge

Allows the bucket to "scoop" material which lowers the materials center of mass within the containment area.

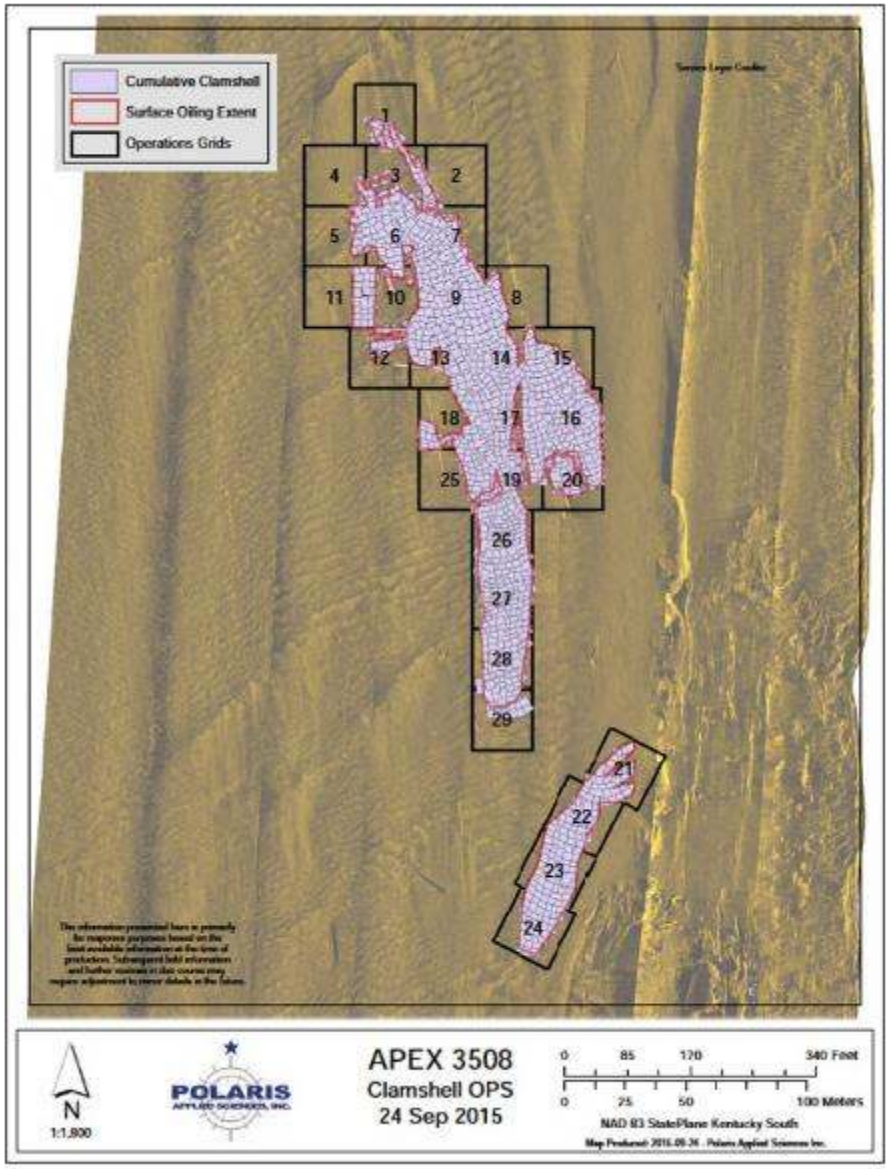
CLAMVISION®
PRECISE XYZ DREDGE POSTIONING SOFTWARE

Cable Arm
info@cablearm.com

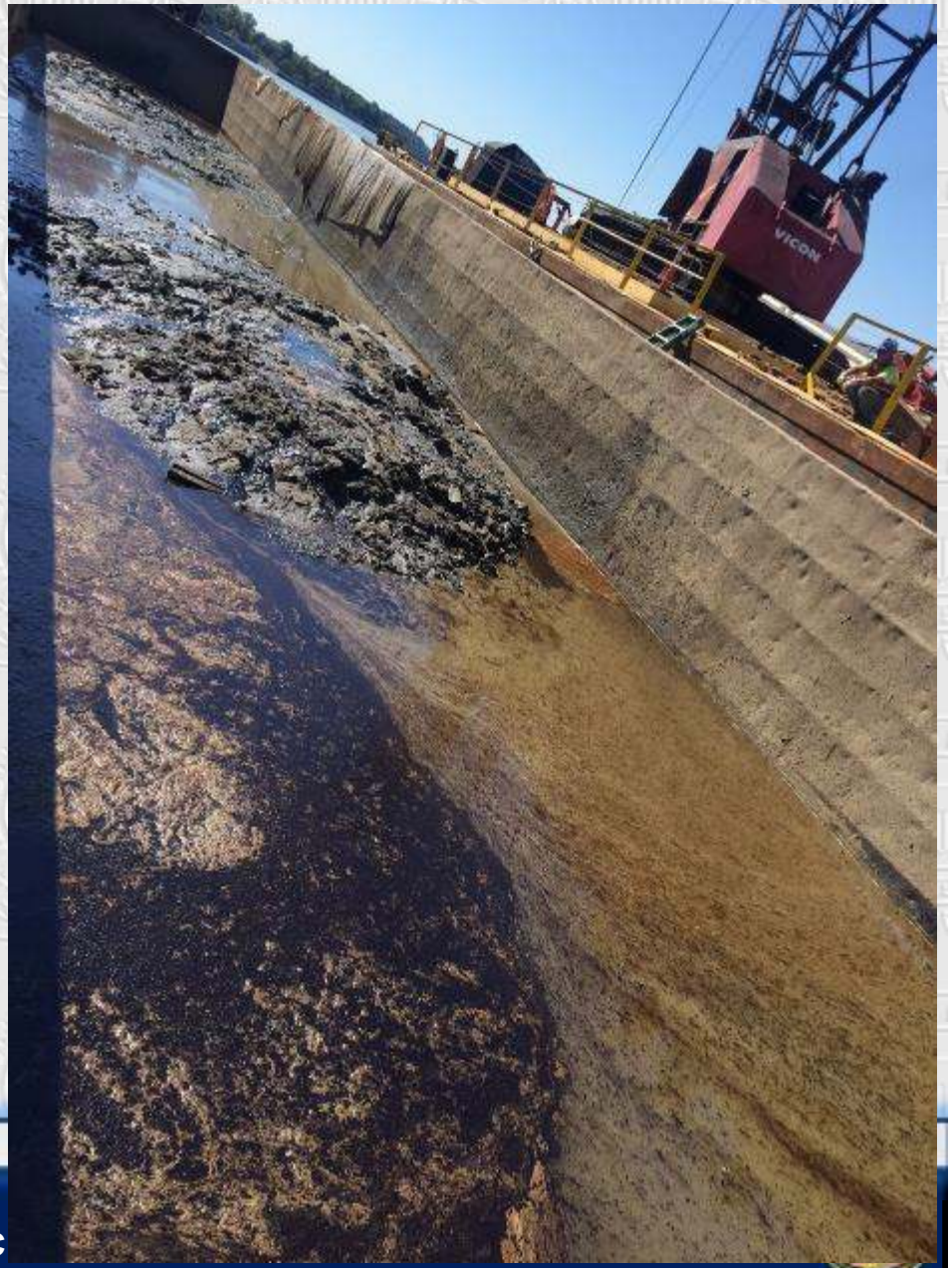
Clamshell & Clam vision

U.S. Coast Guard Marine Safety Unit Paducah, KY

Clam Vision Data Results

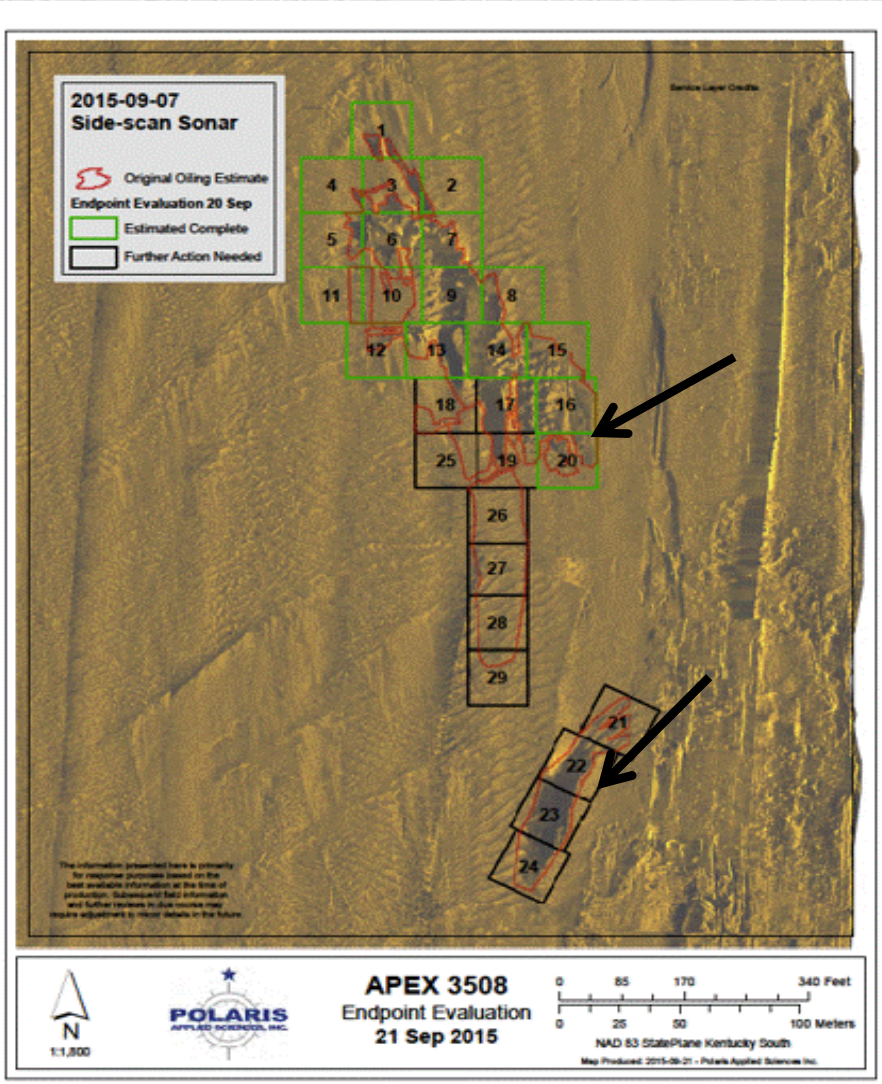


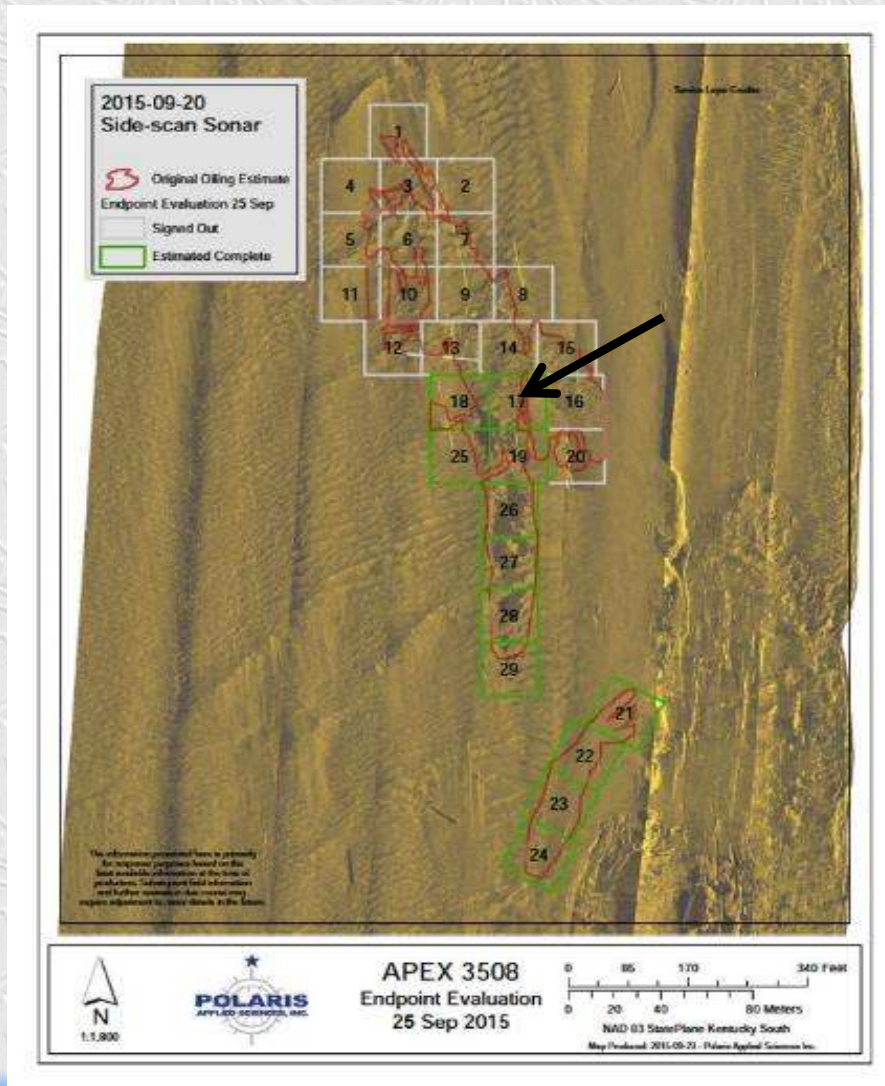
Recovered Oily Sediment



Decanting / Water Polishing

High Resolution SSS Before





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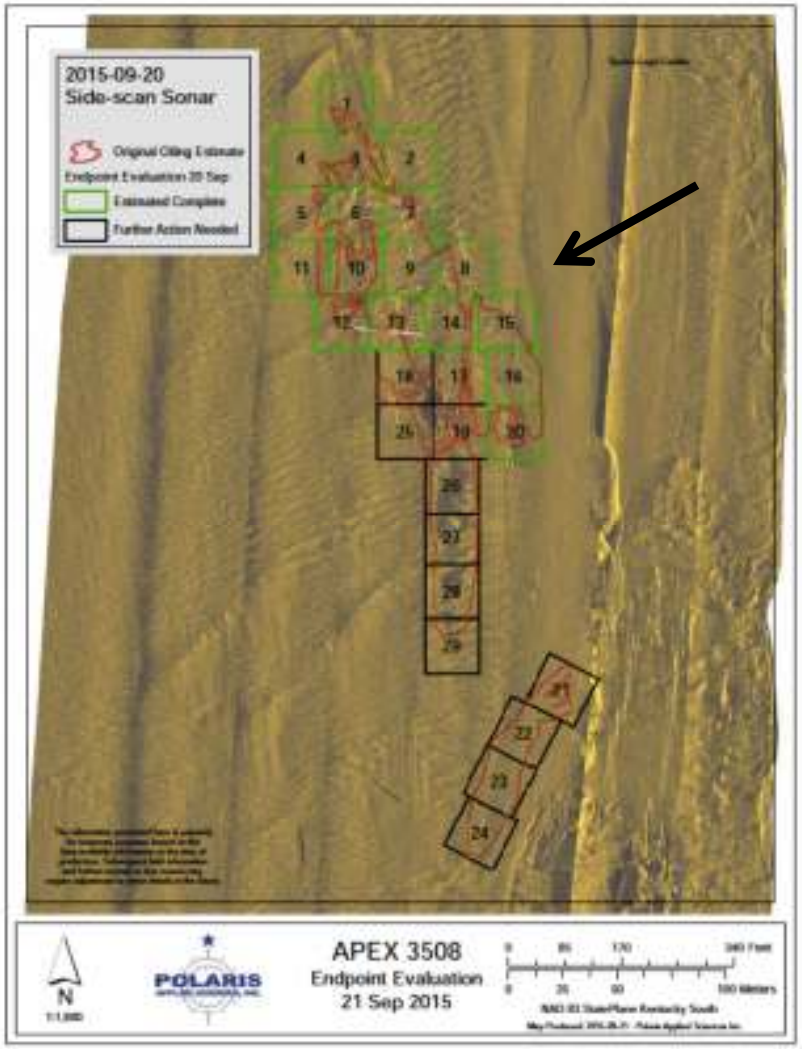
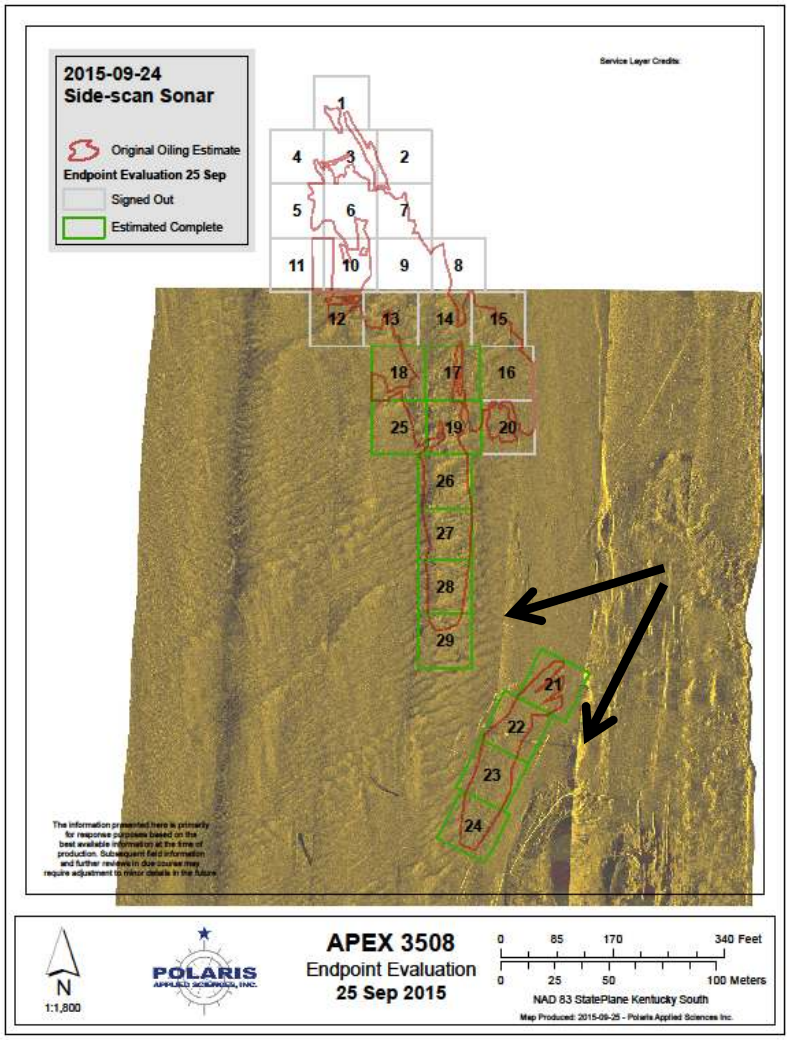
High Resolution SSS After





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Lesson Learned

- Benefit of Salvage and Marine Firefighting Regs: unique position for submerged oils
- State/local asset awareness
- Robust Environmental Specialist Unit and SSC Support
- MTSRU establishment & make-up
- External resourcing/consultation (IMAT, EPA, State, RRT, Strike Team, USFWS)
- ERMA & CG need for standard COP system
- Develop local FOSC Guide & ICS software proficiency
- Unified, Unified Command
- HSIN/JIC establishment & Info Management