

2012 Flood Season Preparedness

Preparation and Case Study Saint Paul District

Terry R. Zien, P.E.

Project Manager

And

Teri Alberico

Emergency Management Specialist

23 February, 2012

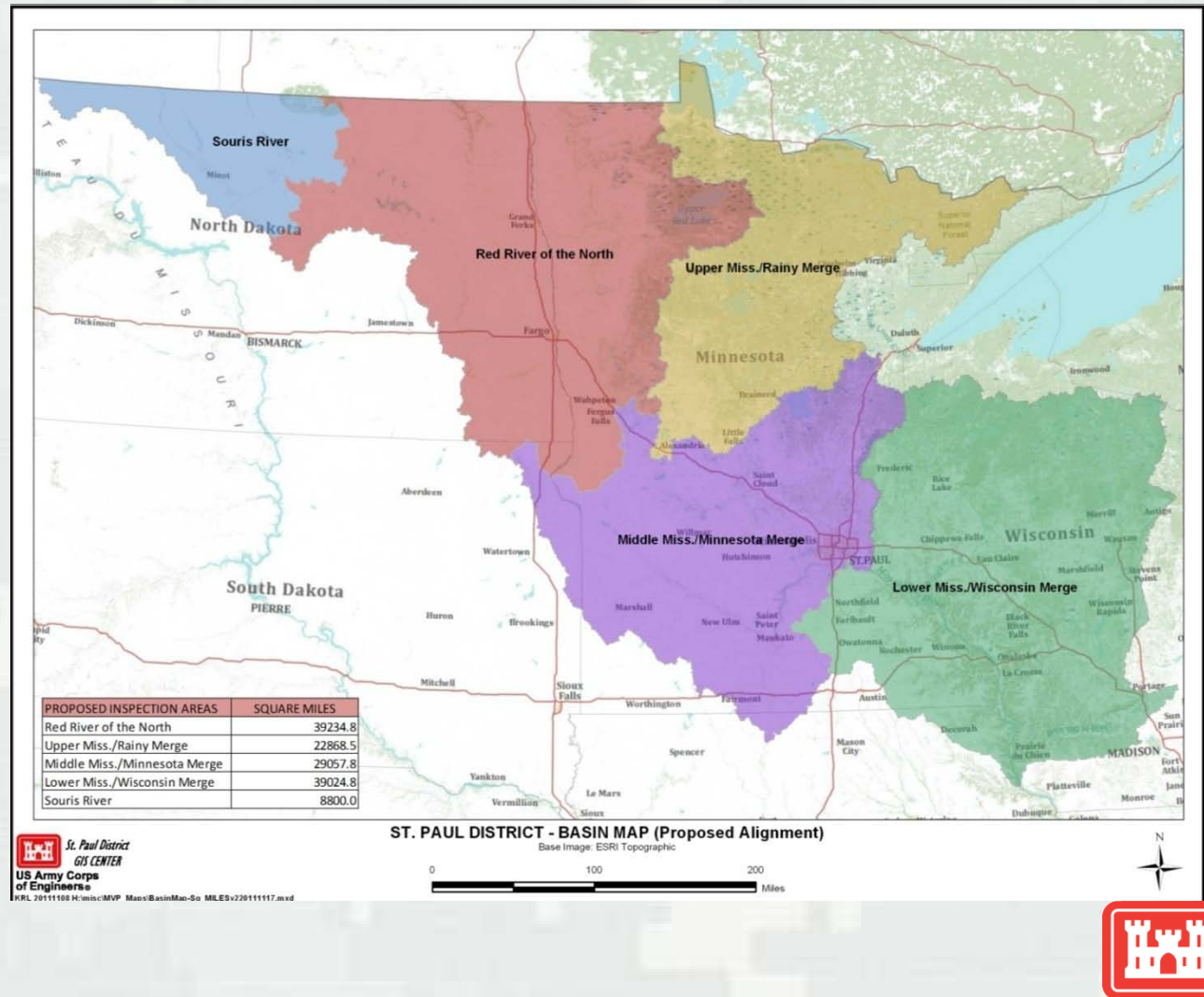


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St. Paul District Fight Organization

- Five Basins
 - Souris and Red River of the North flow into Canada
 - The remaining three are part of the Mississippi
- Organization
 - Area Flood Manager and Assistant
 - Sector Managers working with communities.
 - Technical disciplines and QA as needed



What We Do

- Supplement the resources of communities, counties and states during flood events
 - ▶ Technical Assistance and Engineering Expertise
 - Flood Fight Planning Assistance
 - Flood fight technique assistance – e.g. sandbag placement, levee construction, infrastructure protection techniques
 - Provide Information on Flood Forecasts and Water Levels in conjunction with NWS.
 - Provide support to NWS – Basin reconnaissance of snowpack, melt, river levels and ice conditions.
 - ▶ Advance Measures can be requested by communities
 - Similar to a planning effort, review, economic analysis required
 - Build base to 50% probable crest, raise as needed as emergency levee
 - ▶ Direct Assistance
 - Emergency Construction
 - Pump loan (from our fleet)
 - Sandbags, innovative flood fight products



Why We Do It

- Public Law 84-99
 - ▶ Flood emergency preparation
 - ▶ Flood fighting and rescue operation
 - ▶ Emergency protection of Federal flood control works
 - ▶ Repair and Restoration of Federal flood control works
- Public Safety
 - ▶ Protect Life
 - ▶ Protect Public Property



How We Do It

- Technical Assistance

- ▶ Flood Fight Planning

- Work with communities to develop or review flood fight plans
 - County, Local EM, USACE turnover impacts reduced

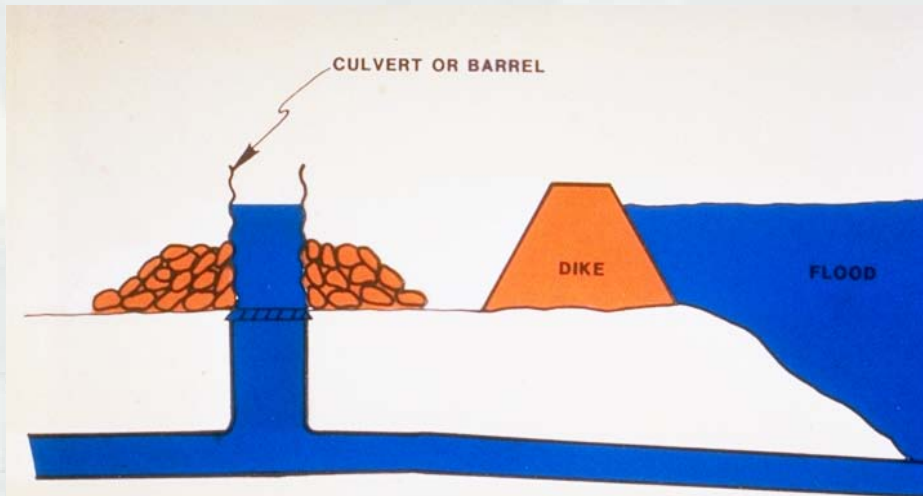
- ▶ Engineering Expertise

- Assist with specific problems occurring during flood fight
 - ▷ Unique soil conditions in glacial lakebed
 - ▷ Interpret changes identified by levee monitors (locals)
 - ▷ Help identify solutions to resolve problems
 - Provide information on projected flows and stages in conjunction with the NWS



How We Do It

- Technical Assistance – Planning and Techniques



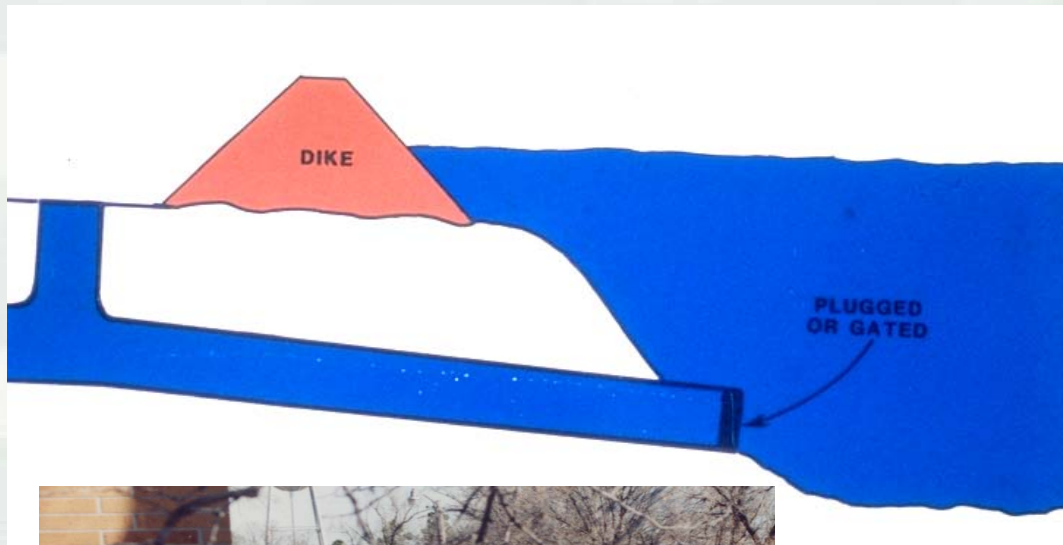
- Provide information on ring levee techniques
- Help identify appropriate pump sizes and types



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How We Do It

- Technical Assistance – Interior Drainage



- Problems with failing storm sewer systems as well as seepage through soils.



- Technical assistance to communities for sandbag placement using their materials



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How We Do It

- Direct Assistance – Emergency Levee Construction

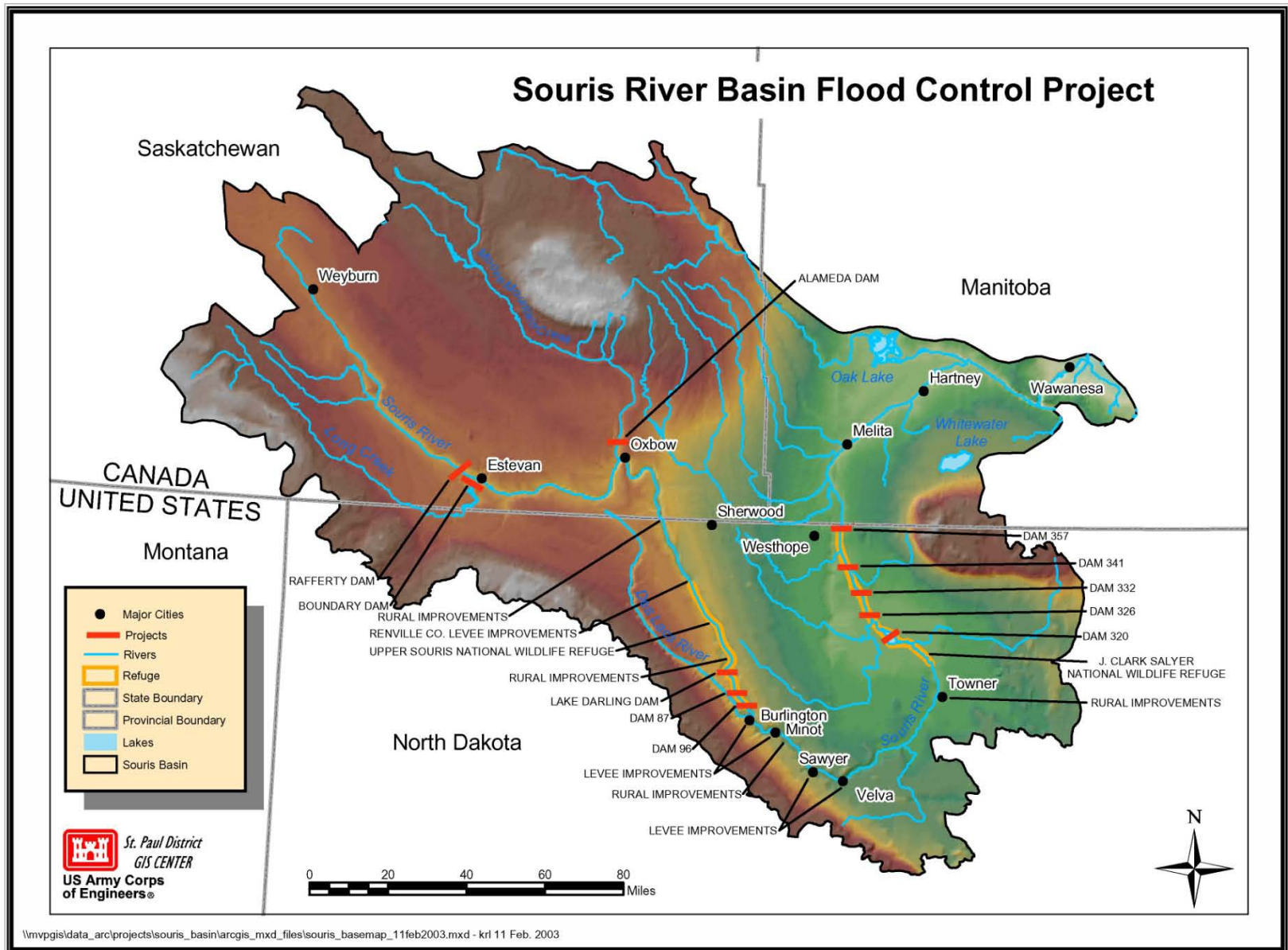


Build to forecast
crest plus 3 feet



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Souris River Case Study



Souris River Case Study

- Unprecedented flooding in 2011
 - ▶ Multiple heavy rain events after spring melt
 - 100–yr design experienced 500-yr flood
 - Channel and levee projects in Minot overtopped
 - 17 pump stations damaged
 - Significant scour occurred at Velva, ND
 - ▶ Effects
 - Residential Damages \$125M / 4,000 + homes
 - Commercial Damages \$31M
 - 10,000+ evacuated (twice)
 - 849 temporary housing lots
 - Debris removed : Football field 10 stories high



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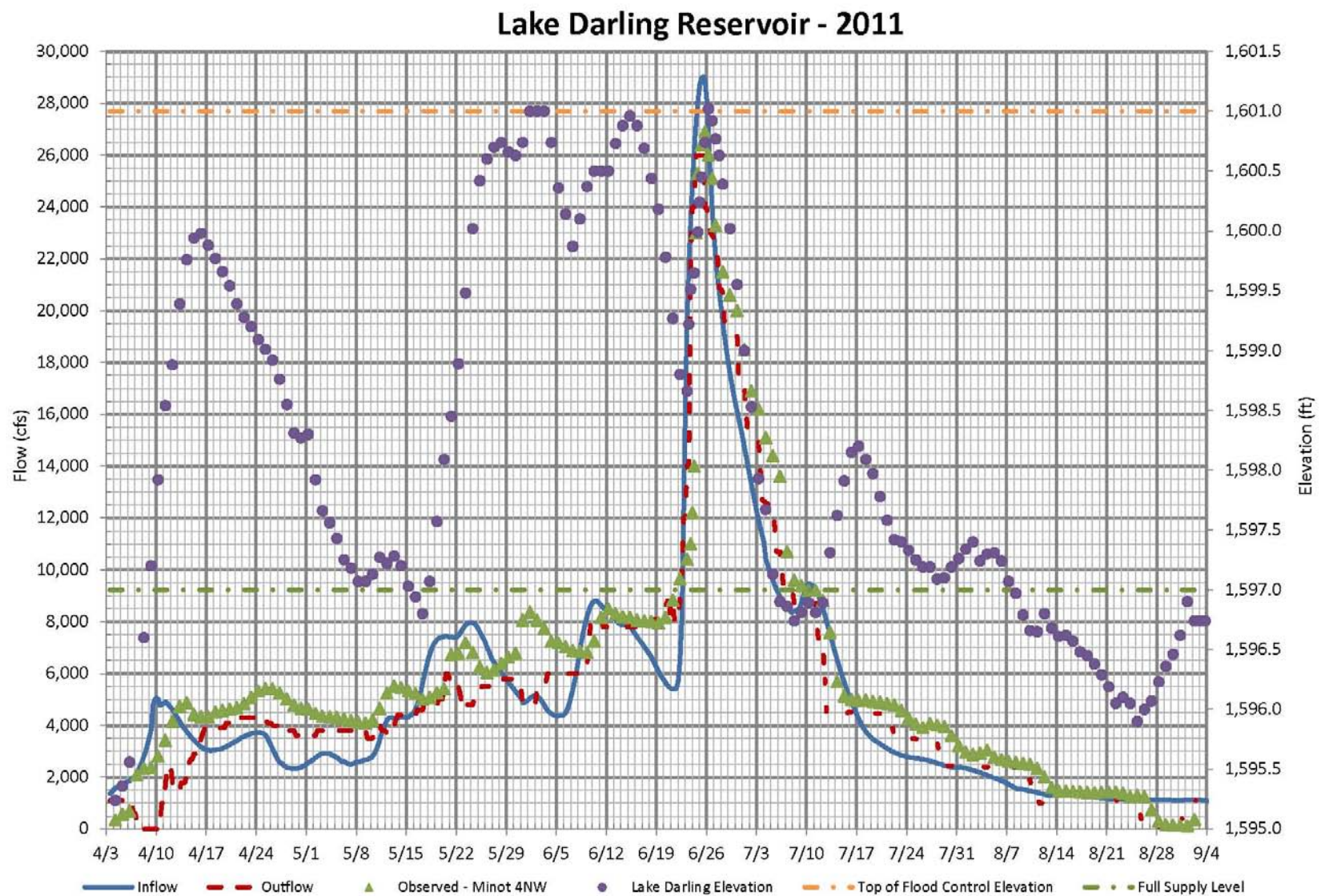


Figure 6-4: 2011 Lake Darling Reservoir Operations

Souris River Case Study

Inundation Map removed






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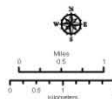
Souris River Case Study

- Funding for PL 84-99 Repairs
 - ▶ Requested \$4.455 Mil
 - ▶ Available \$2.030 Mil
- Flood Preparation for 2012
 - ▶ Minot embankments restored (minor work remains, completion in June 2012)
 - ▶ Minot pump station repairs to begin soon
 - Portable temporary pumps can be used if needed
 - ▶ Velva scour repairs will begin after spring thaw





 Channel improvement Site
 MRL Identified Site
 District Boundary



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Minot, ND Post Flood Critical Locations



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Souris River Case Study



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Souris River Case Study



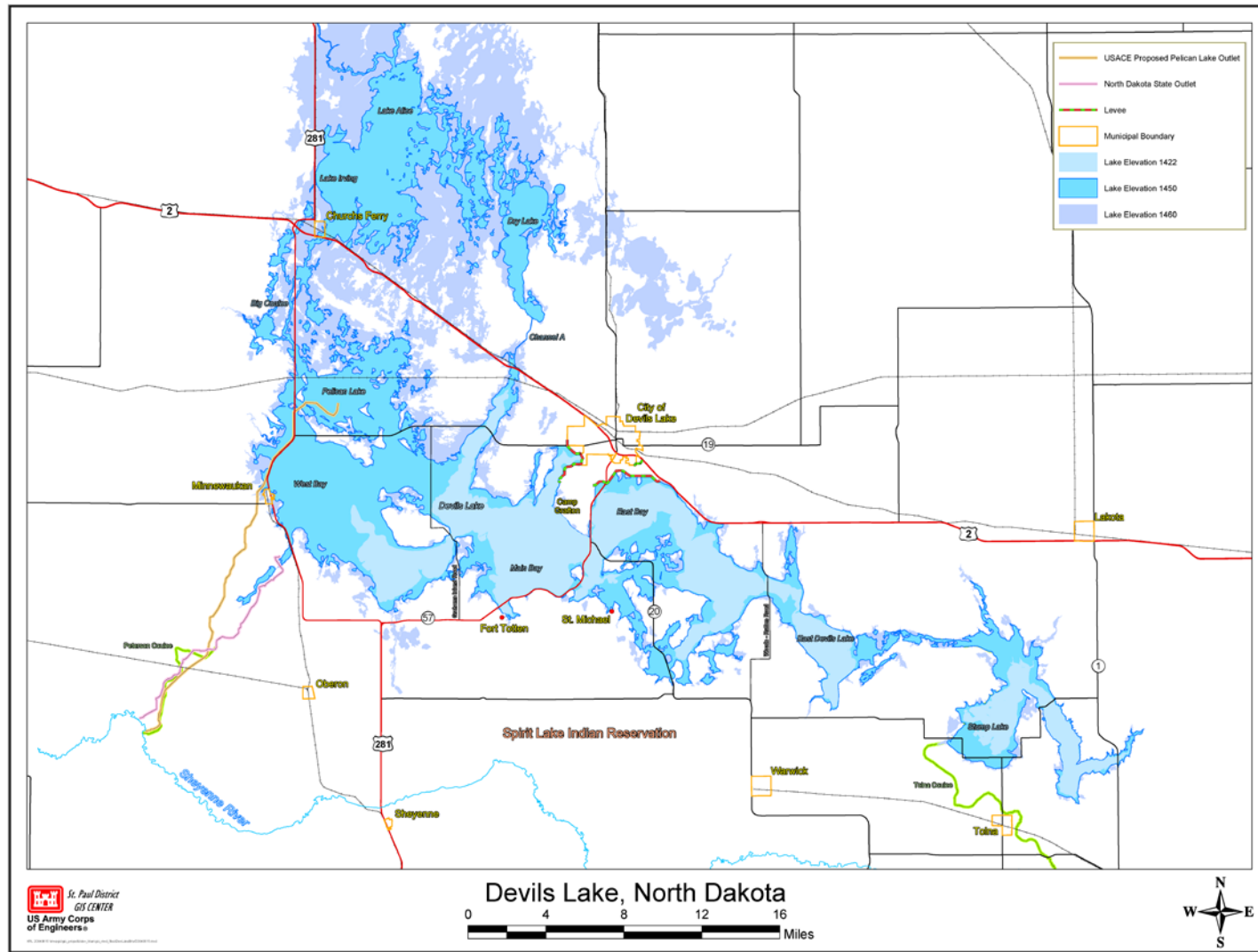
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Souris River Case Study



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Devils Lake Basin – Tolna Coulee



Devils Lake Basin

Tolna Coulee Case Study

- Advance Measures Project (FCCE)
 - Concrete control structure with steel sheetpile sill
 - \$6.5 Mil
 - Begun 10/2011, finish by 1 April 2012
 - Without project to stabilize natural outlet:
 - Could get embankment erosion as lake rises to natural outlet elevation (1458)
 - Uncontrolled flows to Sheyenne River pose a threat to downstream communities
- Devil Lake is a Closed Basin
 - ▶ 1940 – 10 sq miles
 - ▶ 1993 – Approx elevation 1422
 - ▶ 2012 – almost 227 sq miles (1453.45 ft on 2/12)

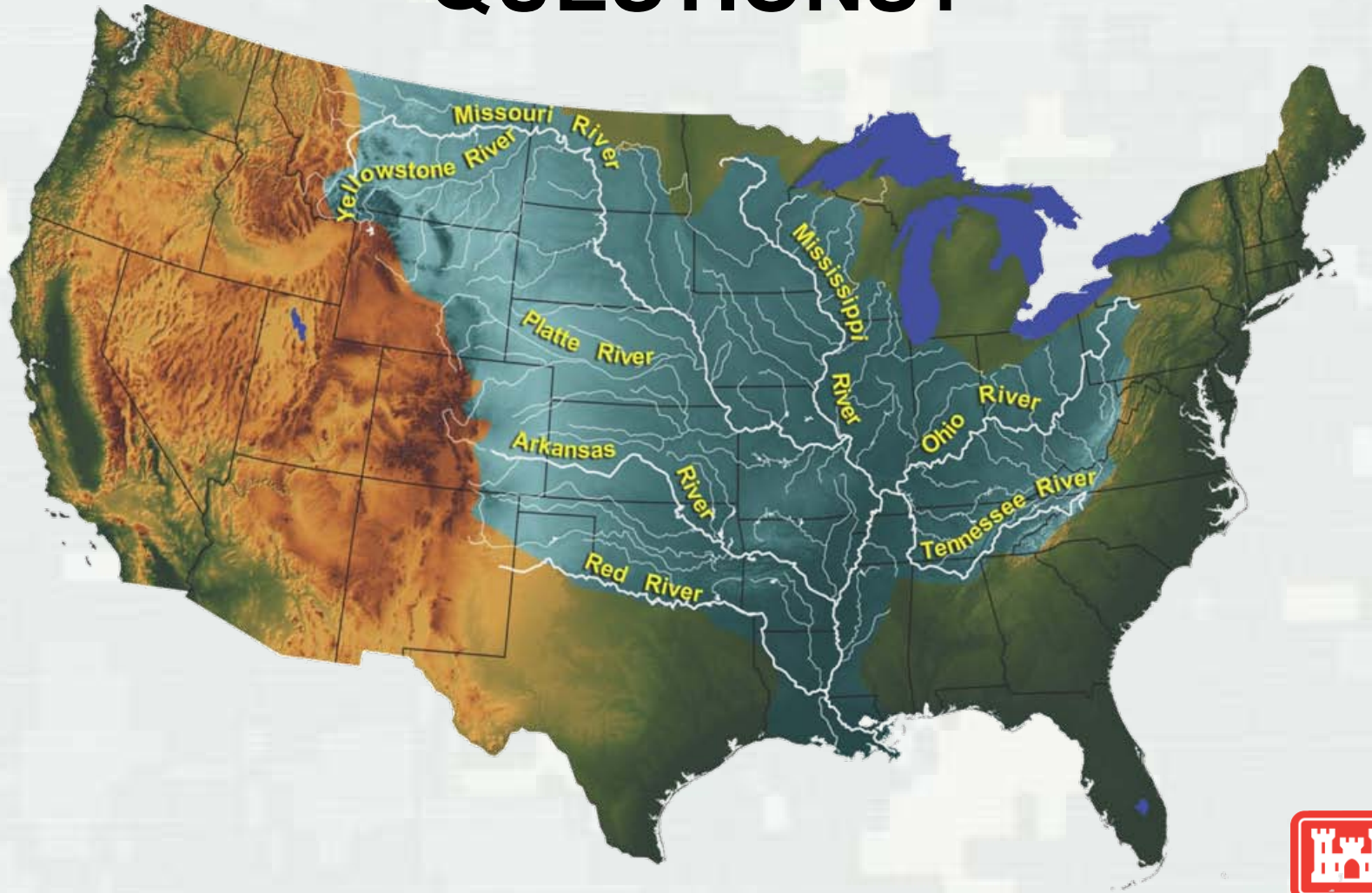


Devils Lake Basin – Tolna Coulee



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QUESTIONS?



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Rock Island District Flood Season Preparedness Measures

Rodney L. Delp

Chief, Emergency Management
Division

23 February 2012



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2011 Flood Season

- NWS forecast February
- Crest in MVR April
- Damages



Review and Update Plans

- MVR Flood Plan
- MVR COOP
- FAE/AFAE Execution Plan
- Response Team Rosters



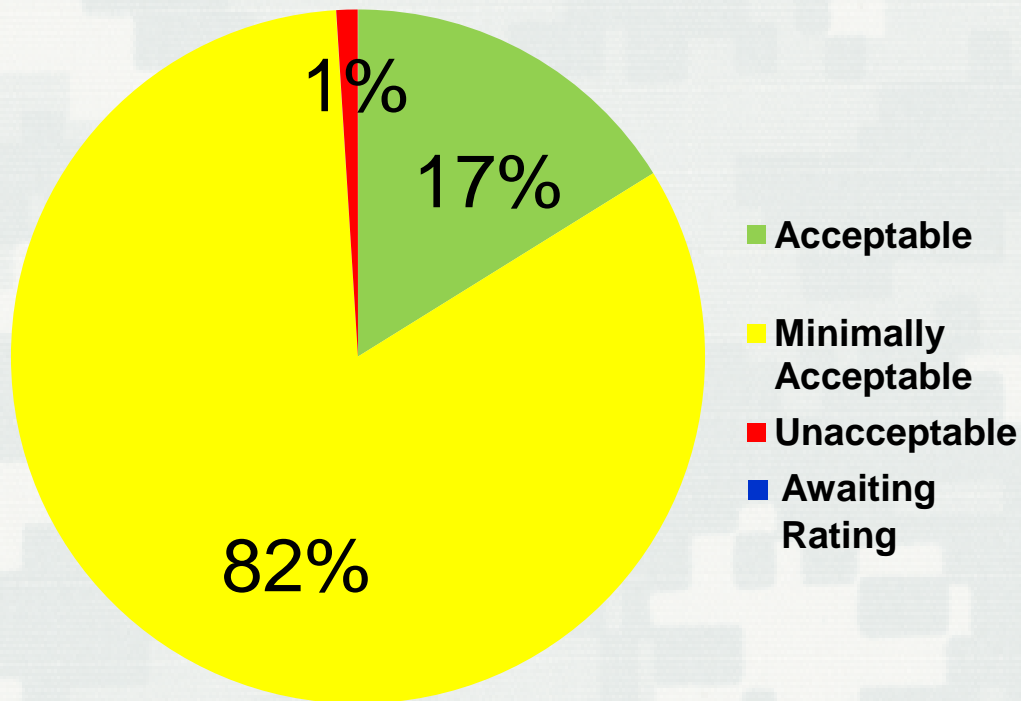
Routine Inspection Schedule

- FY11 Rating results are posted on MVR website
- FY12 Inspections
 - Federally Built / Local O&M (As of 3 Feb 2012)
 - All physical inspections complete
 - 51 Inspection reports sent to sponsors
 - Locally Built / Local O&M (As of 3 Feb 2012)
 - 8 physical inspections complete
 - 4 Inspection reports sent to sponsors
 - Waiting funding for additional inspections

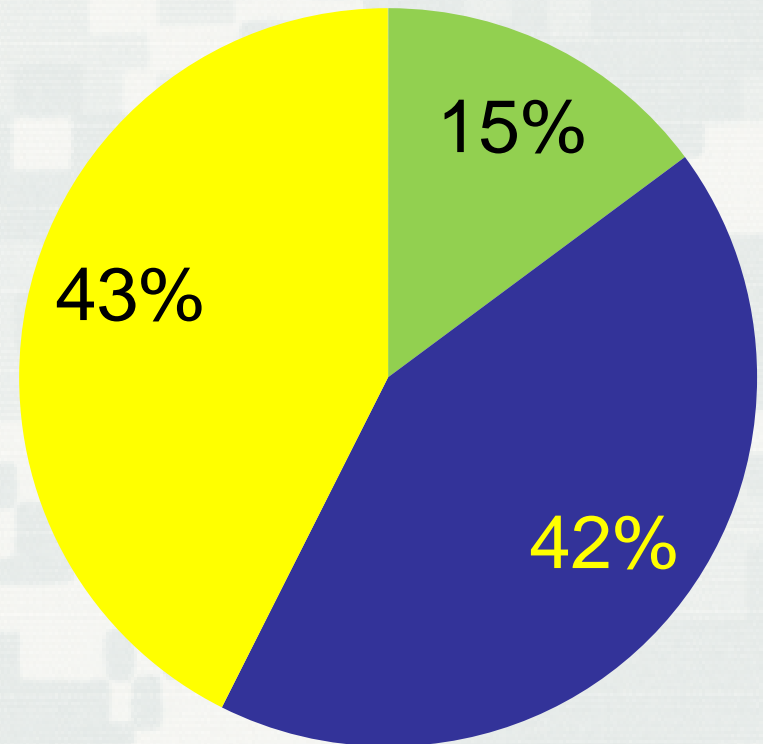


Routine Inspection Results

Routine Inspections FY11



Routine Inspections FY12*



Coordinate with Federal, State, and Local Partners

- FAE outreach to PL84-99 L&DD sponsors.
- FAE outreach to frequently impacted towns.
- UMIMRA
- Silver Jackets
- State EOCs
- NWS
- FEMA



Monitor Potential Flood Conditions

NWS Probabilistic Outlook

- Snow pack levels
- Soil moisture conditions
- Expected spring thaw
- Snow cover late in spring

NWS 7 Day Forecast

- Potential temperature changes, causing rapid snowmelt.
- Forecasted precipitation



Regional Flood Fight Center

Typical Sandbag, Large Sandbags, and Poly

- History of.
- Current levels.
- Contracting capabilities



Regional Flood Fight Center

Typical Sandbag, Large Sandbags, and Poly

- 4 foot containers.
- 8 foot containers.
- Transportation capabilities
- Benefits



Regional Flood Fight Center

Expedient Flood Fight Products (EFFP)



- HESCO
- RDFW
- Portadam
- Other Products
- Current state of the National EFFP Program.

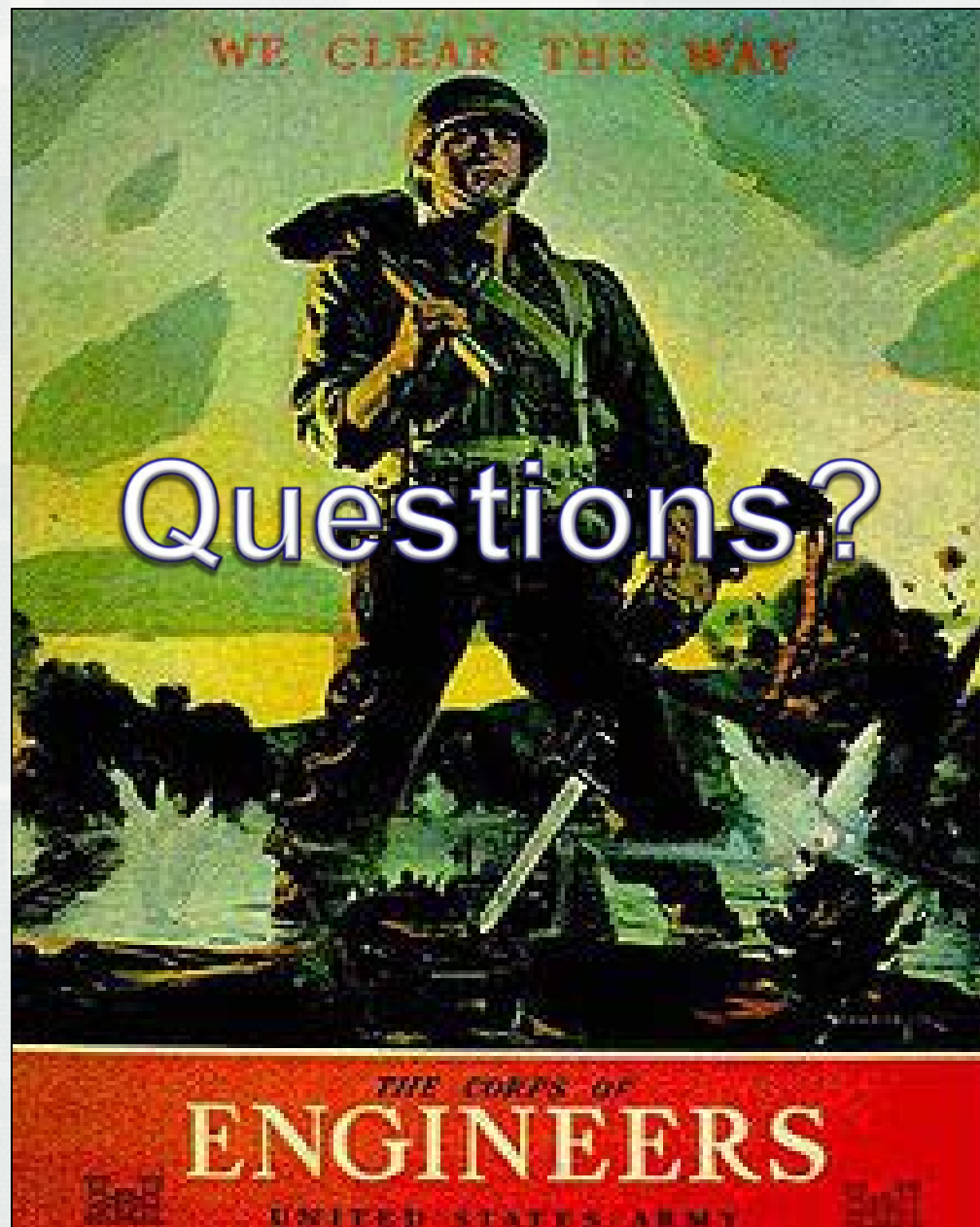


Regional Flood Fight Center

Flood Pumps

- Ensure adequate inventory for the Region.
- Purchase new pumps to replace outdated, unusable pumps.
- Perform routine maintenance.
- Acquire space for additional inventory.





2012 Flood Season Preparedness

Preparation and Case Study St. Louis District

Michael Rodgers, PE

PL84-99 Project Manager

23 February



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Flood Season Preparedness

Four Annual Regional MVS Flood Preparedness Meetings

- ▶ March 12- Old Monroe, MO (Upper Miss)
- ▶ March 14- East St. Louis, IL (Middle Miss & Missouri)
- ▶ March 26- Cape Girardeau, MO (Lower Miss & Kaski)
- ▶ March 28- Jacksonville, IL (Illinois)
- NWS- Spring Flood Outlook
- USACE/FEMA/State and Local EMA's Preparedness
- Inspection results / SWIF
- Levee Screenings
- PL 84-99 Requirements / 2011 Repair Status
- 408 Permitting



Len Small Case Study

- Damages include 1,300' of breached mainline levee section (230,000cy), two slides, and a 36" RCP gravity drain. D&LD protects approx 12,000 acres of primarily agriculture land.
- Temporary breach repair completed by D&LD, approx 5yr LOP (11' below remaining levee). Final repair will restore to 15yr LOP.
- Pre-positioning sand bags and plastic (SOA).
- Estimated project cost \$5M
- 80/20 cost shared project (non-Fed)



Len Small Case Study

D&LD limits RM 39 - 21

Inundation Map removed



Arrival Time

6 Hours	24 Hours	42 Hours	49 Hours	51 Hours
12 Hours	36 Hours	48 Hours	50 Hours	52 Hours



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Len Small Case Study



Breach

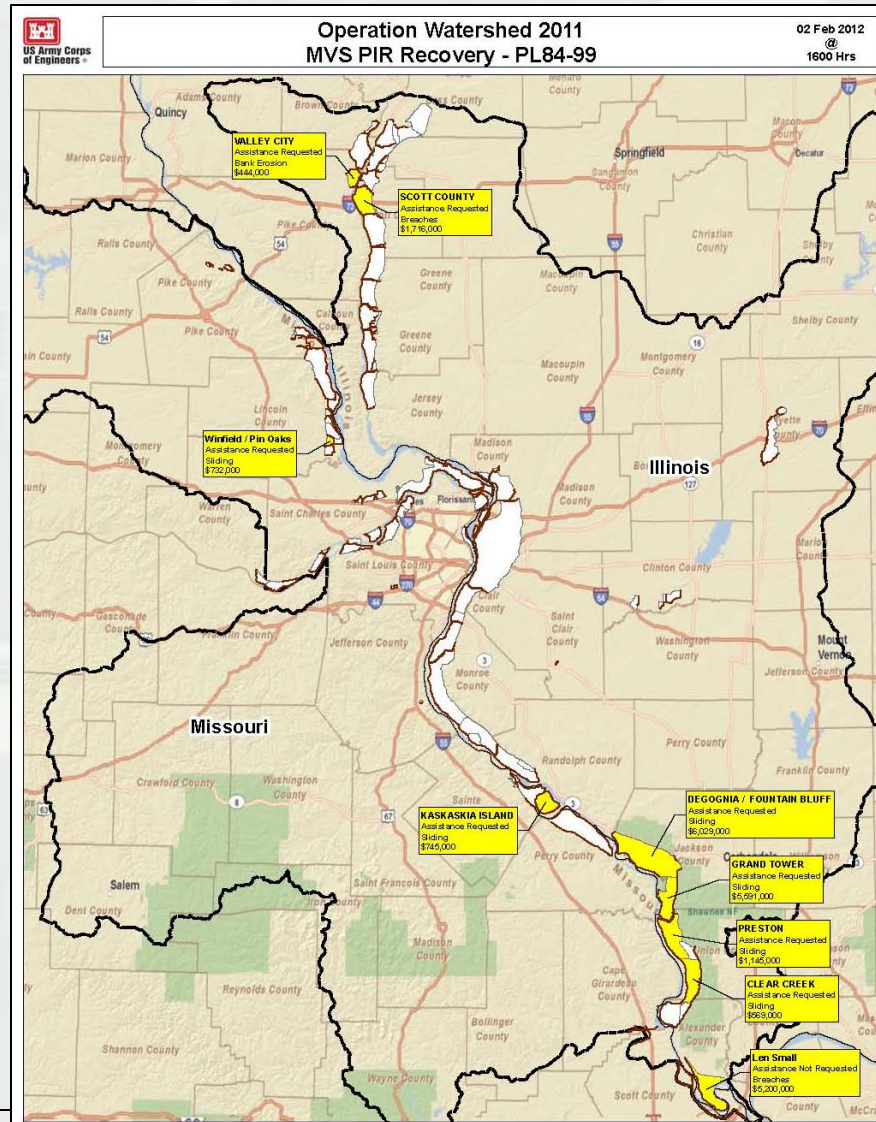


Temporary Repair



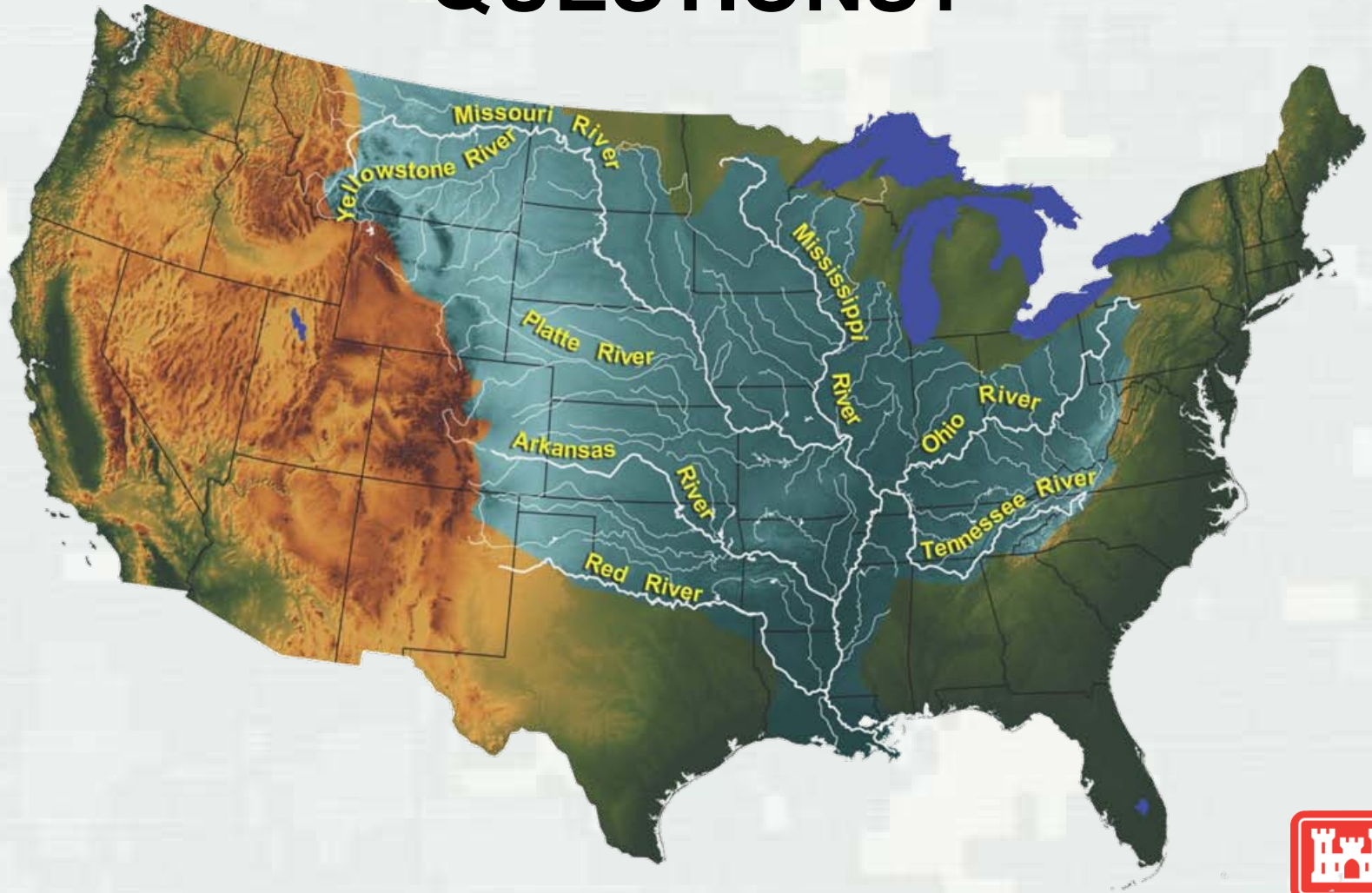
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MVS PL84-99 Projects



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QUESTIONS?



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2012 Flood Season Preparedness Preparation and Case Study

Steve Barry

Chief, Readiness Branch

Memphis District

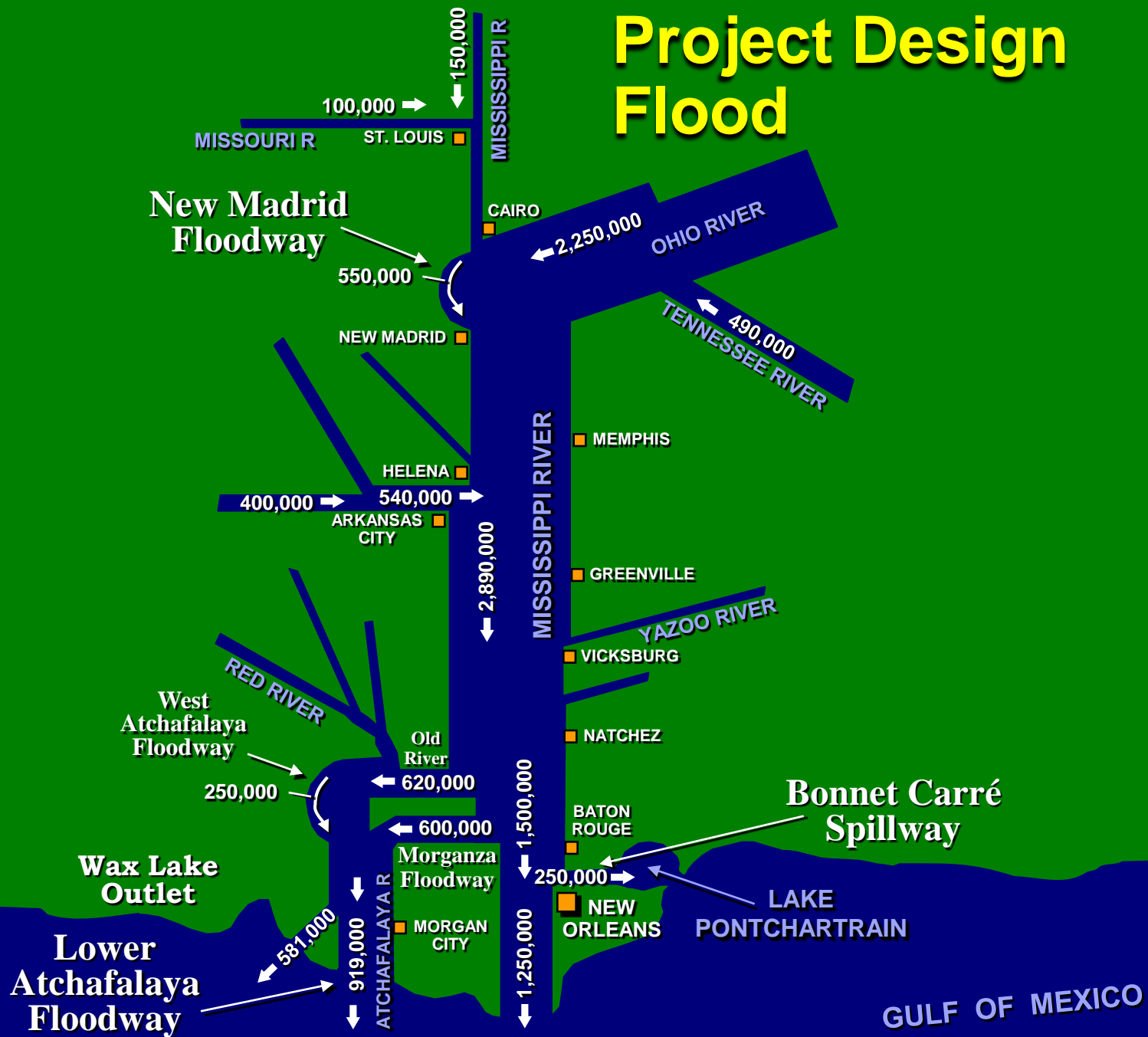
26 April, 2010



US Army Corps of Engineers
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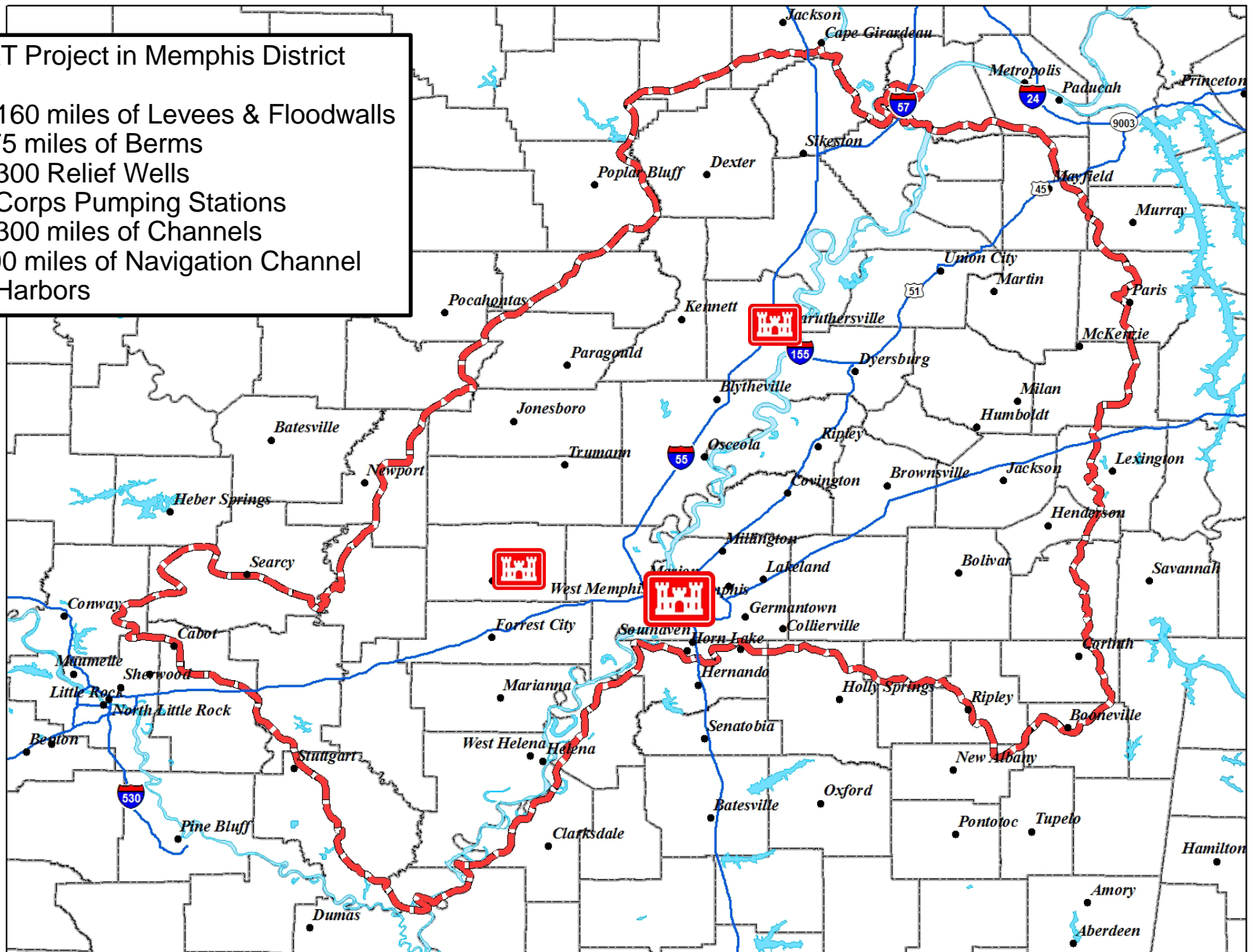
Project Design Flood



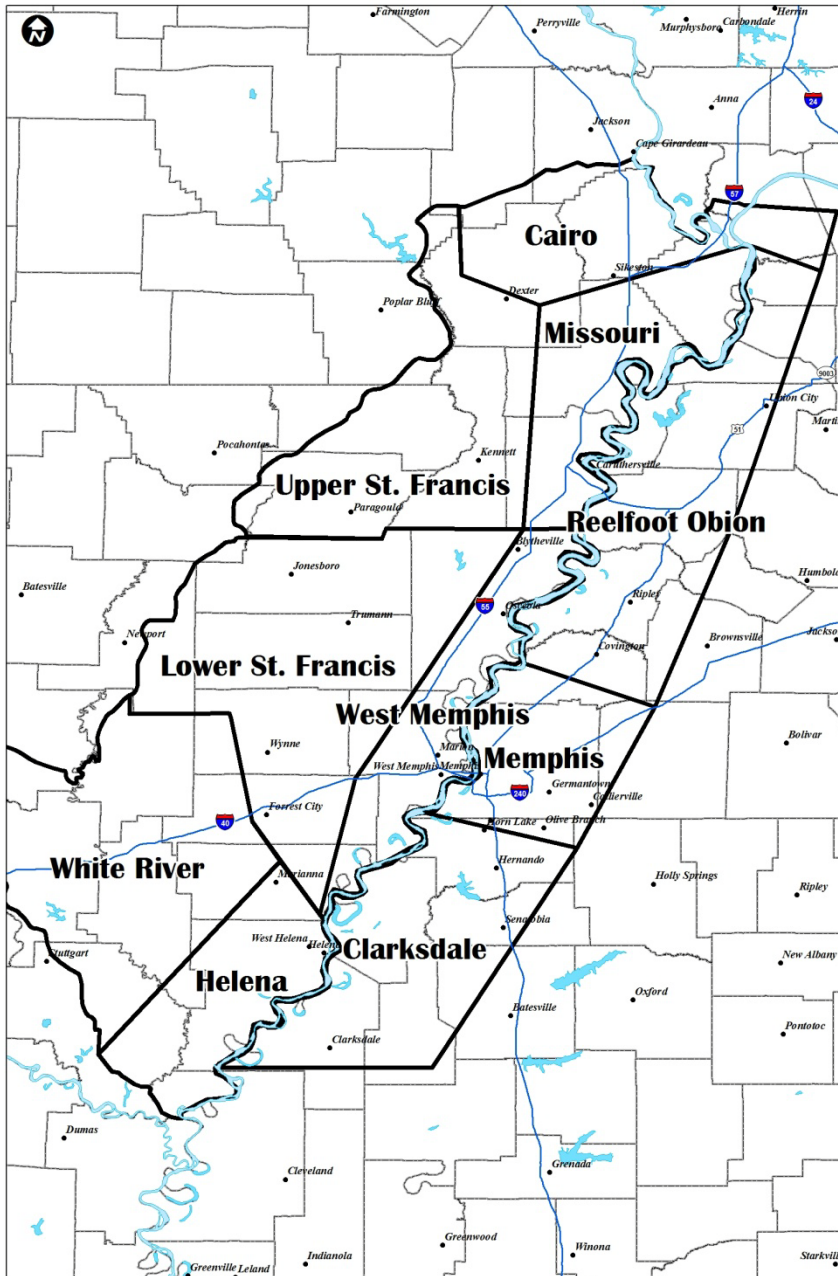
Memphis District Boundaries

MRT Project in Memphis District

- 1,160 miles of Levees & Floodwalls
- 275 miles of Berms
- 1,300 Relief Wells
- 4 Corps Pumping Stations
- 1,300 miles of Channels
- 600 miles of Navigation Channel
- 2 Harbors



Memphis Flood Fight Areas & Activation Levels



INDICATED STAGES FOR MOBILIZATION WITH SUSTAINED RISE IN SIGHT

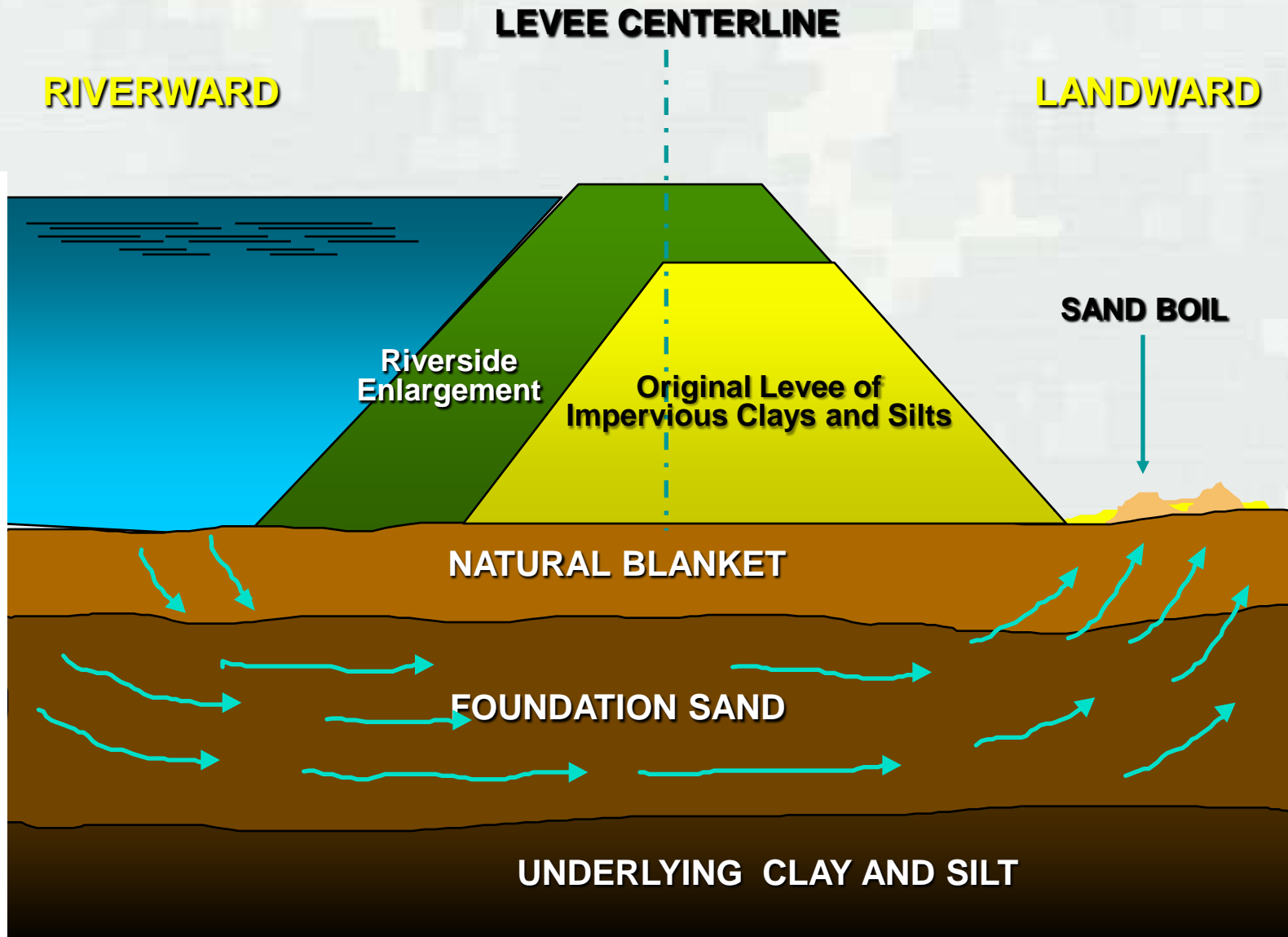
	FLOOD STAGE	INDICATED MOBILIZATION STAGE	
		PHASE I	PHASE II
Little River Diversion Channel (Cape Girardeau, MO, Gage)	32 ft	38 ft	43 ft
MISSISSIPPI RIVER:			
Cairo Gage	40 ft	49 ft	52 ft
Memphis Gage	34 ft	37 ft	39 ft
Helena Gage	44 ft	46 ft	48 ft
ST. FRANCIS RIVER:			
St. Francistown Gage	18 ft	24 ft	25 ft
Lake City Gage	6 ft	12 ft	13.5 ft
WHITE RIVER:			
Georgetown Gage	21 ft	22 ft	29 ft
Des Arc Gage	24 ft	25 ft	31 ft
Clarendon Gage	26 ft	32 ft	35 ft



- Table top exercise conducted at District EOC on 15 Feb 2012
 - ▶ Local partners participated
 - ▶ Hot spots/issue areas discussed

- Flood fight supplies on hand:
 - ▶ Sandbags – 536,100
 - ▶ HESCO – 9000 linear feet (currently installed)
 - ▶ Poly – 214 rolls
 - ▶ Pumps – 37 Crissafulli







Typical Sandboils near Hickman, KY

Sandboil in Cairo, IL



Fulton County KY Water Berm



Fulton County KY Water Berm



05/05/2011

05/04/2011



Typical sandboils at Fulton County KY



Fulton County KY Water Berm



05/04/2011



13

Typical Relief well

An aerial photograph showing a wide river with a bridge crossing it. The riverbanks are heavily flooded, with water reaching up to the trees and surrounding land. The bridge is a multi-lane highway bridge with a metal truss structure at the bottom left. The water is a murky brown color, and the sky is a clear blue. The word "Questions ?" is overlaid in large white text in the center of the image.

Questions ?

2012 Flood Season Preparedness

Preparation and Case Study Vicksburg District

Gordon Watkins, P.E.

Natural Disaster Program Manager

23 February



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Agenda

- District Overview
- Flood Season Preparation in General
- Flood Season Preparation for 2012
- Case Study at Francis, MS
- Lessons Learned and Best Practices from 2011 Flood





What We Do

- Supplement the Resources of State and Local Interest in Time of Flood.
 - Assist with Levee Patrols
 - Identify Problem Areas, such as Sand Boils, Slides, Seepage
 - Provide Technical Assistance to Address Problem Areas
 - Monitor Problem Areas



When We Start

**VICKSBURG DISTRICT RIVER STAGE
AND MOBILIZATION INFORMATION**

GAGE	RIVER	BANK FULL STAGE	PHASE I	PHASE II
ARKANSAS CITY	MISSISSIPPI	37	38	44
GREENVILLE	MISSISSIPPI	48	49	55
VICKSBURG	MISSISSIPPI	43	44	49
NATCHEZ	MISSISSIPPI	48	49	53
PINE BLUFF, AR	ARKANSAS	47	45	50
CALION	OUACHITA	79	86	**
MONROE	OUACHITA	40	45	**
JONESVILLE L&D	BLACK	50	51	**
ACME	BLACK-RED	48	48	50
SWAN LAKE	TALLAHATCHIE	26	26	**
GREENWOOD	YAZOO	35	35	**
SHELL BLUFF	YAZOO	28	28	**
JACKSON	PEARL	28	33	**
FULTON, AR	RED	25	25	**
SHREVEPORT	RED	30	30	**
GRAND ECORE	RED	33	33	**
ALEXANDRIA, LA	RED	34	32	**

Phase I Activities

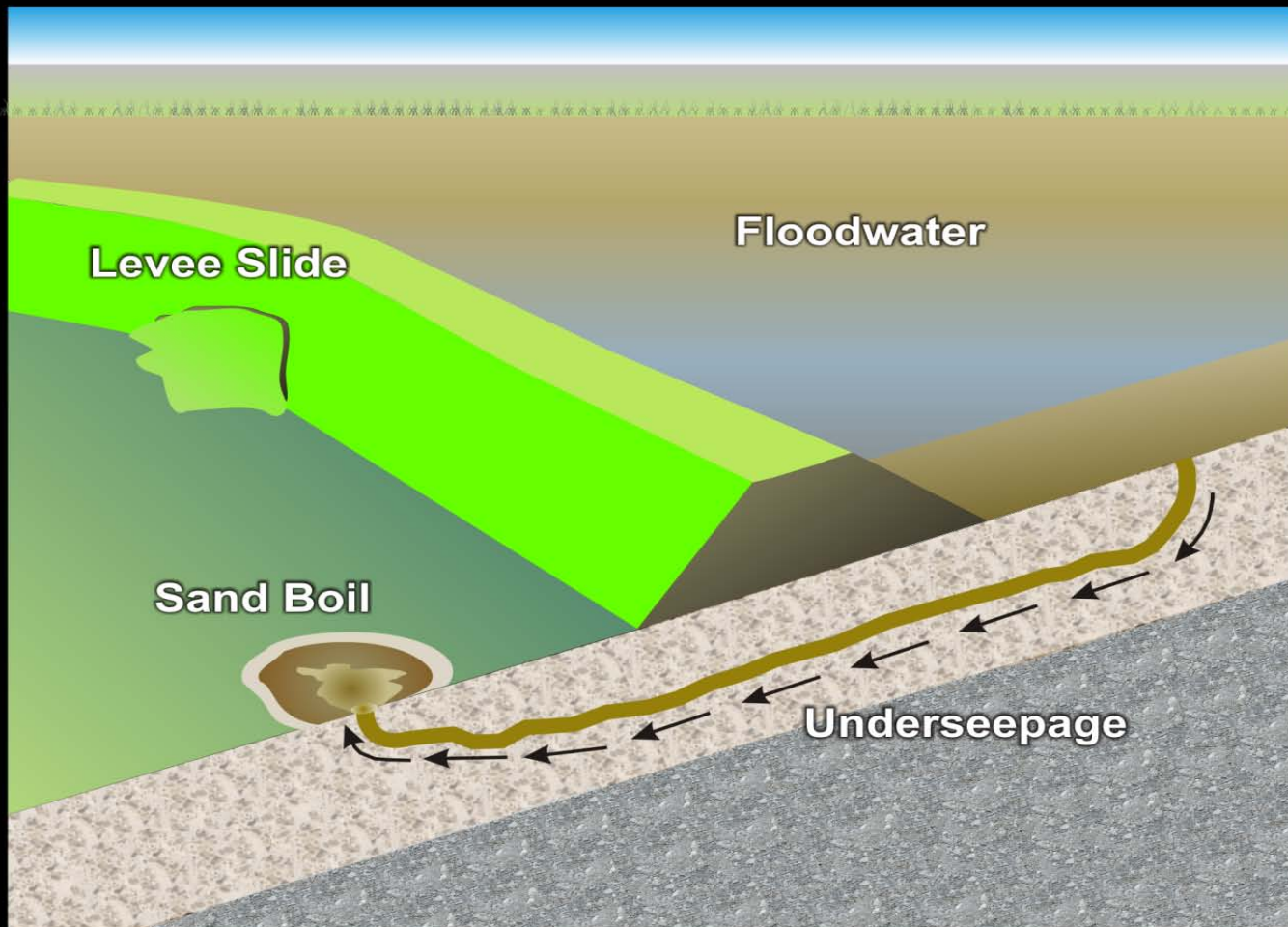
- Activate EOC
- Activate Sectors
- Conduct Levee Patrols
- Provide Technical Assistance
- Distribute Flood Fight Supplies

Phase II Activities

Detailed and Specific Activities
to Continue the Flood Fight
Initiated Under Phase I
Increased Levee Patrols
Precautionary Levee Closure
Measures



What We Look For



What We Do (Con't)

- Supplement the Resources of State and Local Interest in Time of Flood.
 - Provide Technical and/or Direct Assistance
 - Solutions to Problems/Issues
 - Develop Inundation Mapping
 - Provide Information on Flood Forecasts and Water Levels
 - Contingency Contracting
 - Provide/Loan Flood Fight Supplies



How We Do It

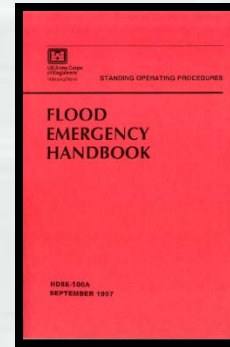
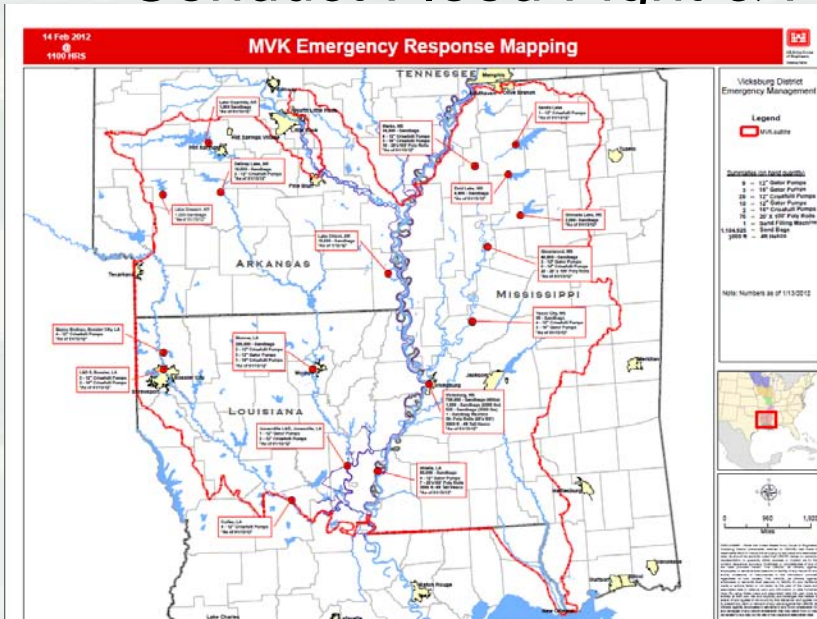


- Flood Fight Resources
 - Sand Bags
 - Pumps
 - Hesco Bastions
 - Liaison Personnel



General - Flood Season Preparedness

- Replenishment of Flood Fight Supplies
- Maintain Flood Fight Roster
- Perform Maintenance of Pumps
- Conduct Flood Fight & Freeboard Training



RED RIVER AREA OFFICE

HDQRS	SHREVEPORT, LA
AREA CDR	RICHARD JONES
COORDINATOR	DAVID DUPRE
GEOTECH ENG	BRIAN JORDAN

TEXARKANA SECTOR

HDQRS	TEXARKANA, AR
SECTOR CDR	JACOB HAYMON
DEP SEC CDR	CHAD BOUNDS

SHREVEPORT SECTOR

HDQRS	SHREVEPORT, LA
SECTOR CDR	EVAN KOSTELKA
DEP SEC CDR	JONATHAN BOONE

MIDDLE RED RIVER SECTOR

HDQRS	NATCHITOCHES, LA
SECTOR CDR	RODNEY NORDBY
DEP SEC CDR	JONATHON SILAS

LOWER RED RIVER SECTOR

HDQRS	ALEXANDRIA, LA
SECTOR CDR	RODNEY NORDBY
DEP SEC CDR	ABE KIDDER

RED CHUTE SECTOR

HDQRS	BOSSIER CITY, LA
SECTOR CDR	RODNEY NORDBY
DEP SEC CDR	JACOB HAYMON

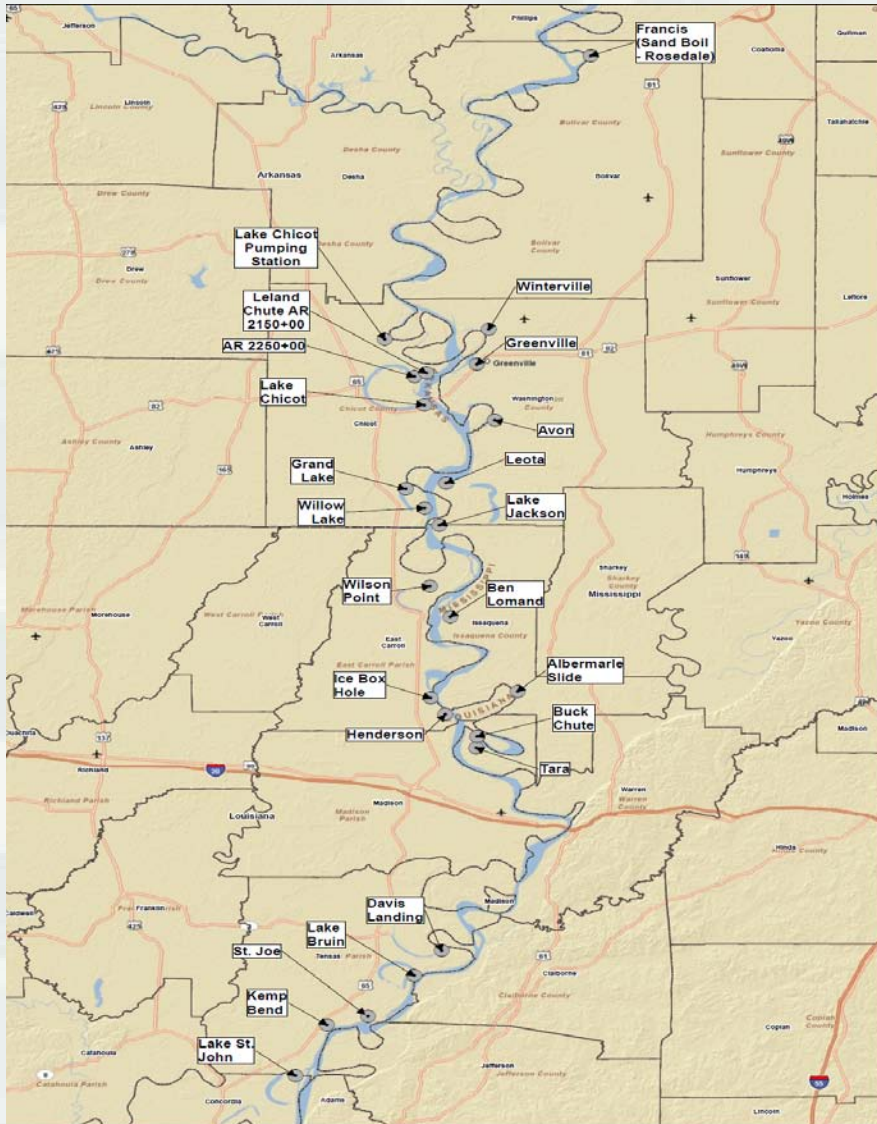


General - Flood Season Preparedness (Con't)

- Review AARs & Problem Areas
- Conduct Preparatory Meetings with Levee Boards
 - ▶ 10 Jan – Met with MS Silver Jackets
 - ▶ 31 Jan – Met with SE Arkansas Levee Board
 - ▶ 16 Feb – Met with LA GOSHEP
 - ▶ 22 Feb – Met with LA GOSHEP & Parishes in Vidalia, LA (MVK AOR)
 - ▶ 24 Feb – MS Levee Board – Annual Flood Fight Preparation
 - ▶ 2 Mar – Annual Flood Fight Prep for all District Area Offices
 - ▶ 29 Mar – Flood Fight Training for SE AR Levee Districts



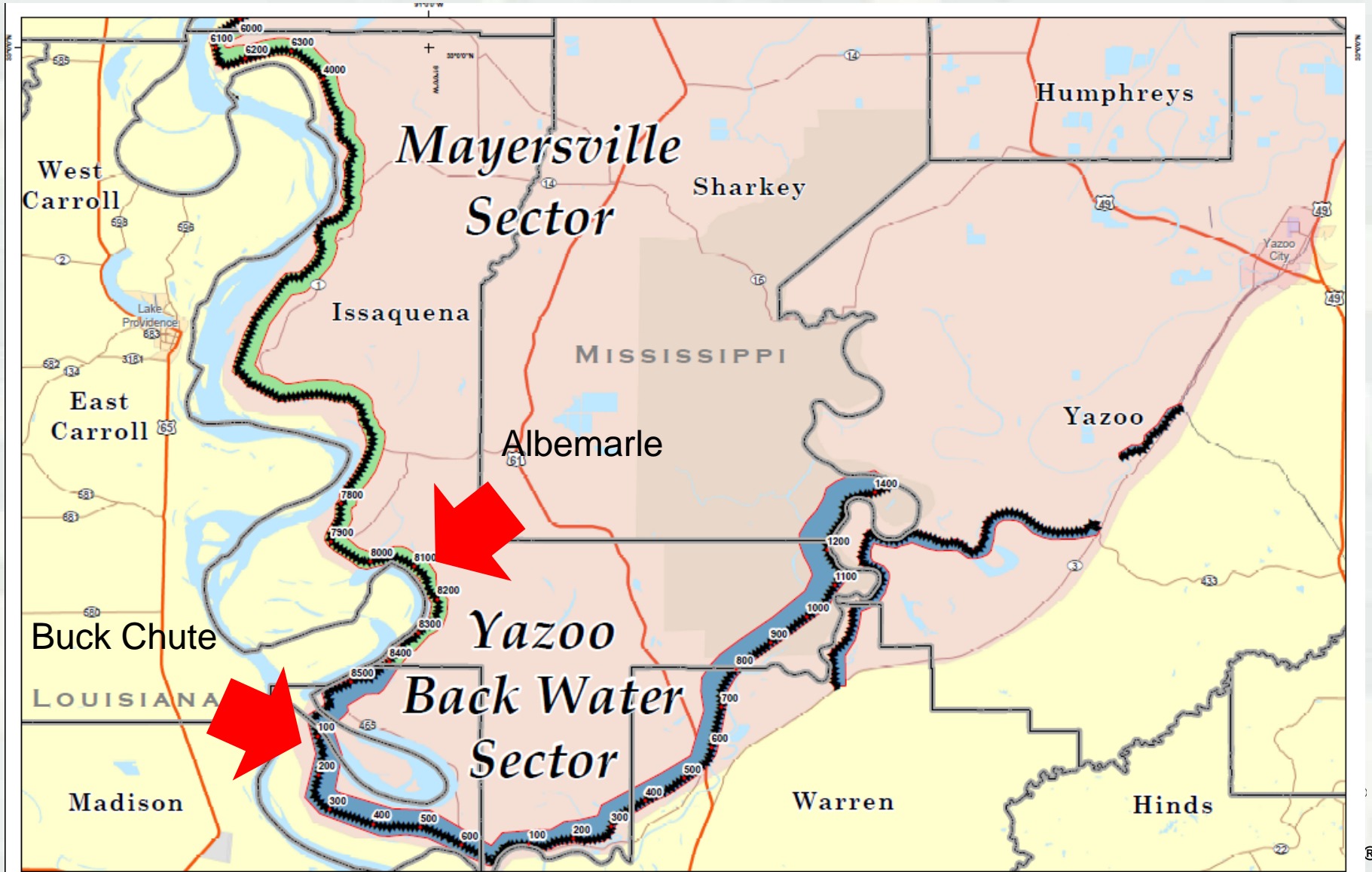
2012 Flood Season Preparedness



MRL	Location (County/Par, State)
Buck Chute	Warren County, MS
Albemarle	Issaquena County, MS
Francis	Bolivar County, MS
Winterville	Washington County, MS
Tara	Warren County, MS
Lake Bruin	Tensas Parish, LA
Leland Chute	Chicot County, AR
Lake Chicot	Chicot County, AR
Henderson	East Carroll Parish, LA
Ice Box Hole	East Carroll Parish, LA
Avon	Washington County, MS
Leota	Washington County, MS
Lake Jackson	Washington County, MS
Ben Lomond	Issaquena County, MS
Davis Landing	Tensas Parish, LA
St. Joe	Tensas Parish, LA
Kemp Bend	Tensas Parish, LA
Lake St. John	Concordia Parish, LA
Grand Lake	Chicot County, AR
Willow Lake	Chicot County, AR



2012 Flood Season Preparedness



2012 Flood Season Preparedness - Buck Chute



March 2011



April 2011



May 2011



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2012 Flood Season Preparedness Buck Chute



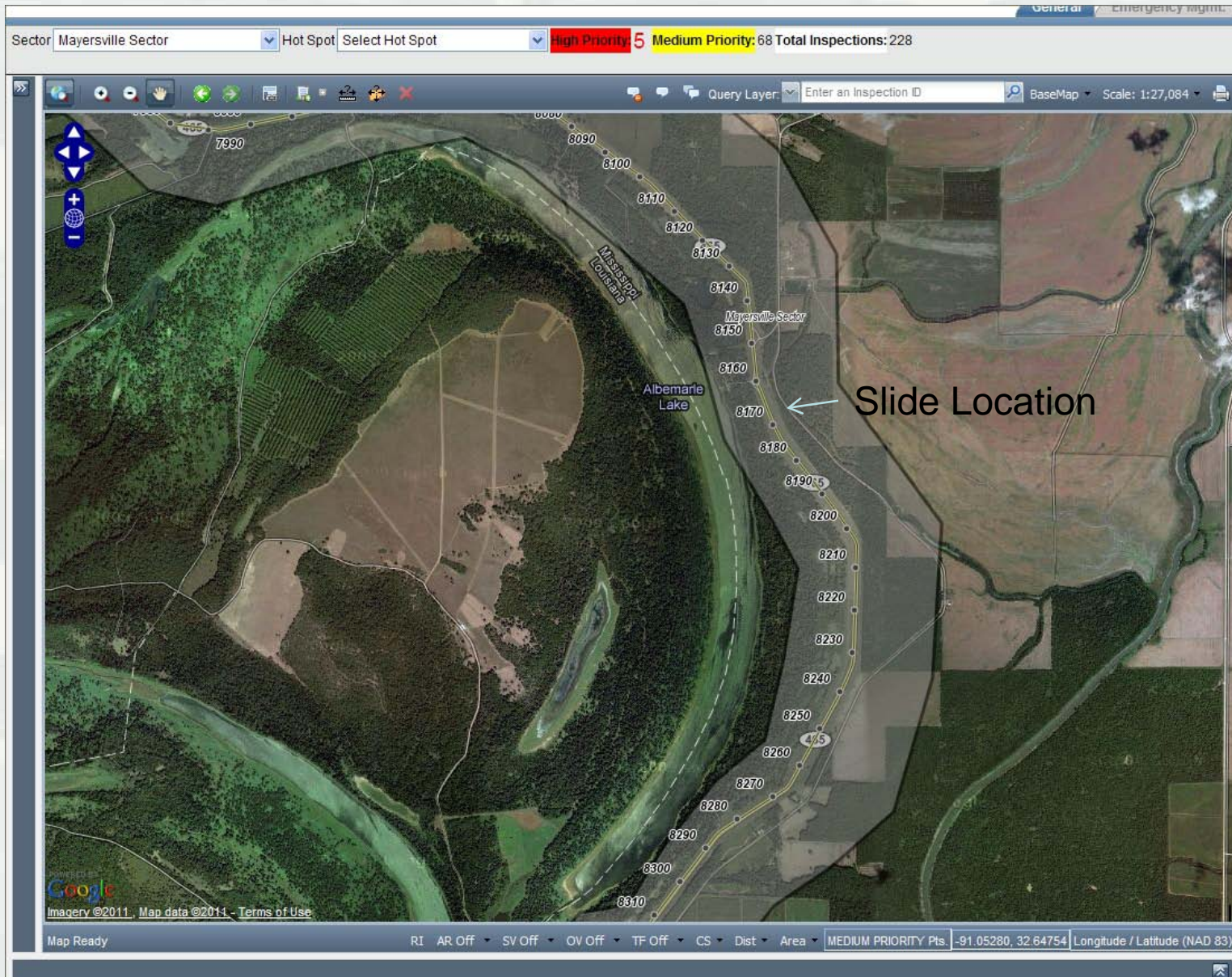
November 2011

Work is essentially complete
Wells have been flowing



November 2011

Flood Season Preparedness- Albemarle



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Flood Season Preparedness- Albemarle



BUILDING STRONG®

Flood Season Preparedness- Albemarle

Additional Material to be
Hauled in When Weather
Permits to Meet Berm
Design

Site is Stable and as of
Today New Berm
Constructed is Longer and
Wider than Existing Berm
Section During 2011 Flood



CASE STUDY

FRANCIS, MS



Case Study – Francis, MS



- Rosedale Sector
- Bolivar County, MS
- Left Bank at RM 616
- Sta 150+00



Francis, MS - Then

- Boils Developed and Ringed with Sand Bags
- Boils Developed Outside Sand Bag Ring
- Hauled Material for Embankment to Create Water Berm



Francis, MS - Today

- Temporary Measures Still in Place
- Area is Fenced and Maintained
- Identified Stockpile Areas Adjacent to Site
- Located Sources of Material for Enlargement of Earthen Berm if Needed



Francis, MS - Inundation Map

Inundation Map removed



Francis, MS - In the Future

- Relief Wells Being Designed
- ROW Has Been Requested
- Award in Late FY 12
- Construction Complete in FY 13



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Lessons Learned

- Field Office Organization
- Communication and Coordination
- Coordination of Air Support
- Training with Assisting Agencies
- Maintenance of Levee
- Coordination with Adjacent Sectors



Best Practices

- Innovative Flood Fight Products
- Smart Phones
- Use of Freeboard
- Social Media
- EOC Liaisons
- Hired Labor Force



QUESTIONS?



2012 Flood Season Preparedness

Preparation and Case Study

Mike Stack Jr., PE

Chief, Emergency Management

23 February 2012

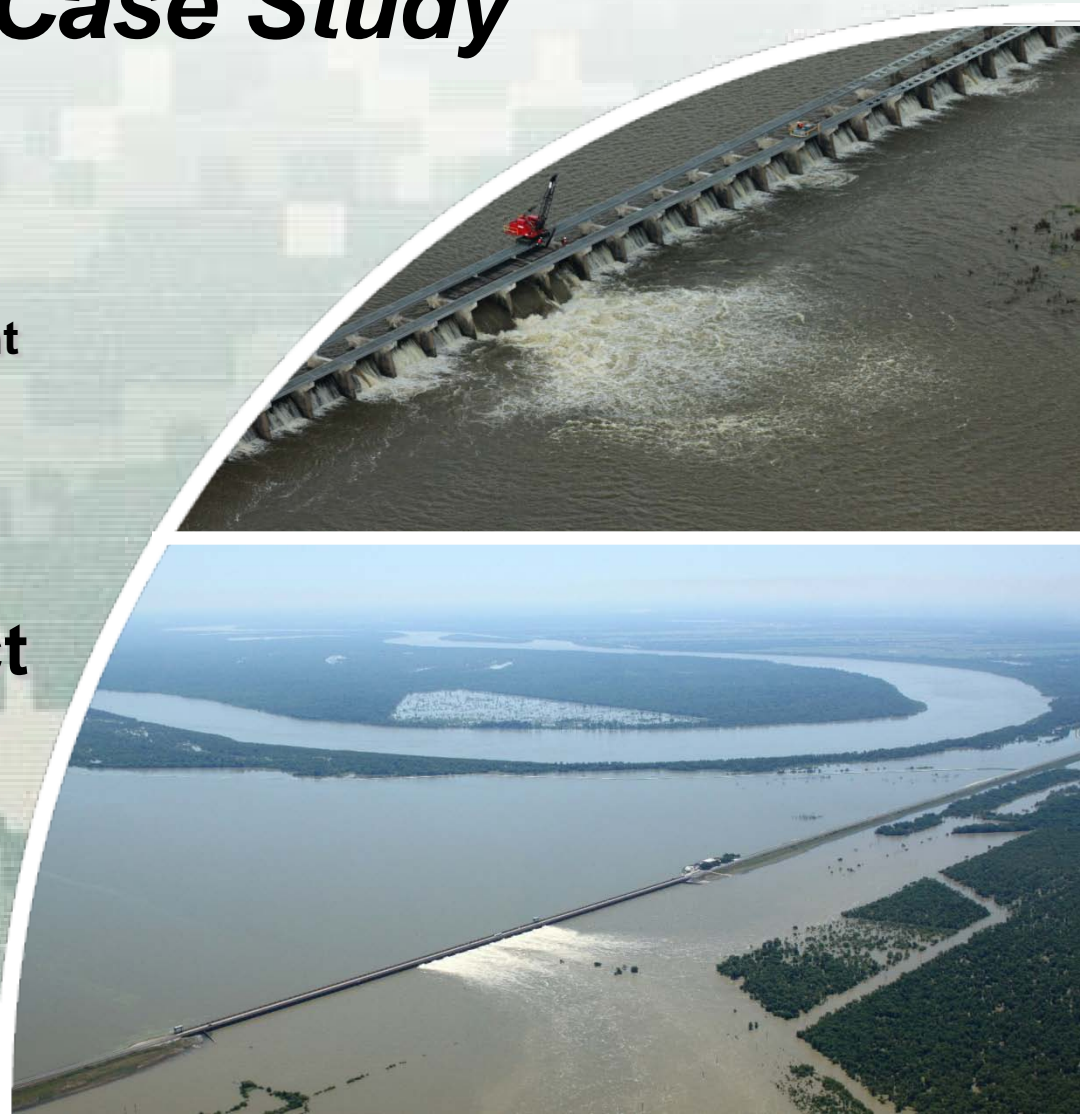
New Orleans District



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US Army Corps of Engineers

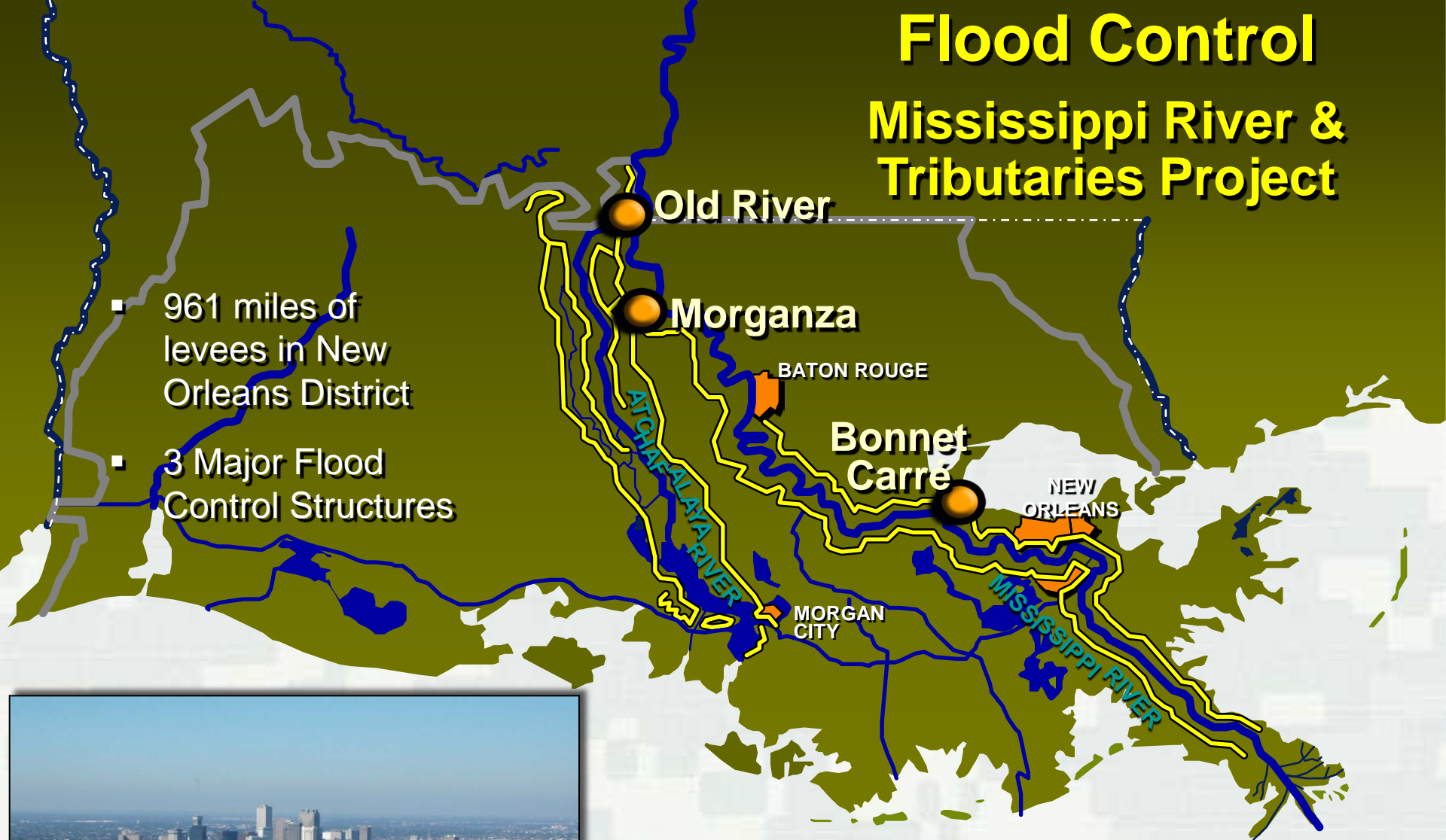
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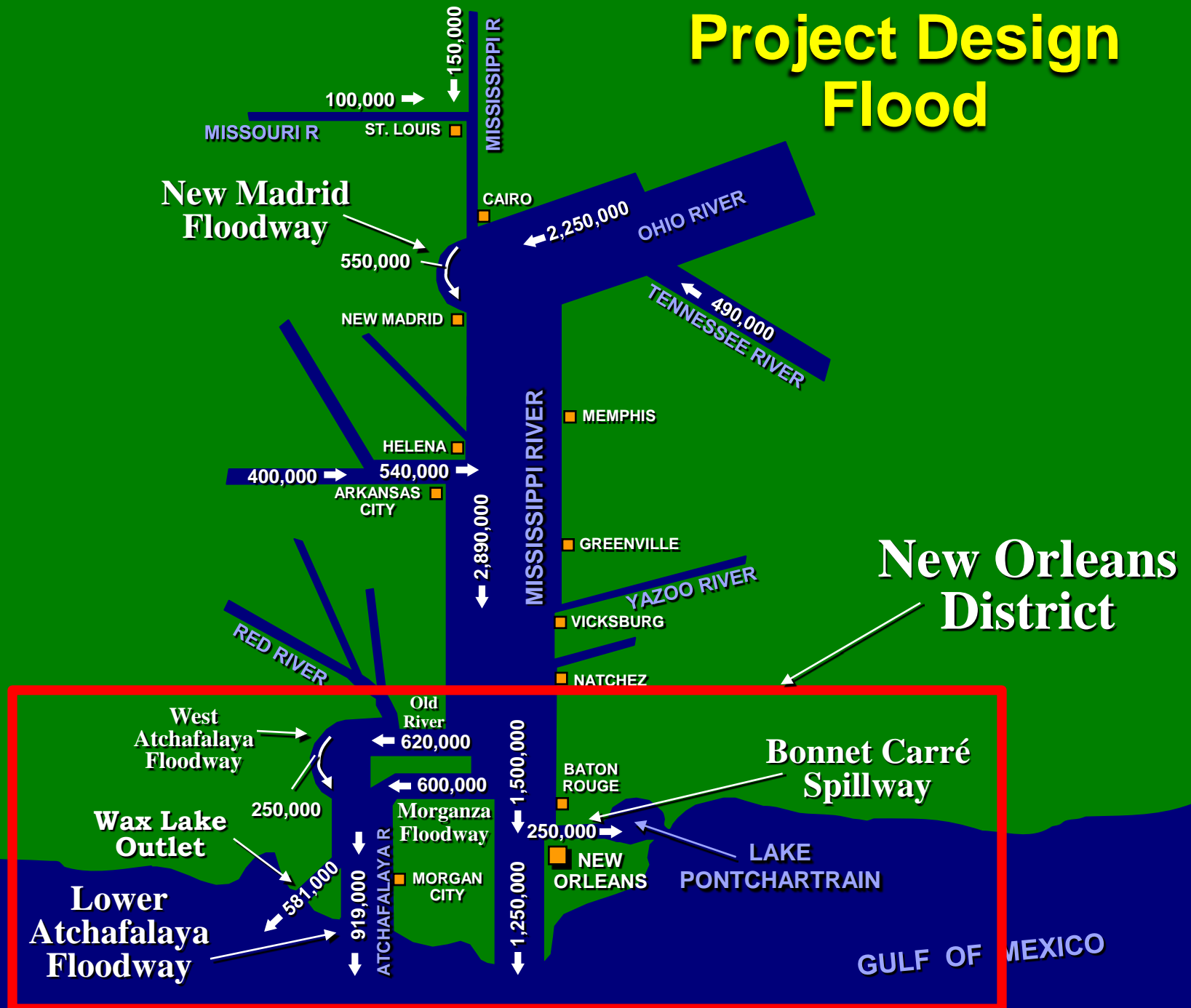
Flood Control

Mississippi River & Tributaries Project

- 961 miles of levees in New Orleans District
- 3 Major Flood Control Structures



Project Design Flood



Flood Fight

Phase I

- Mississippi begins when Carrollton Gage reaches 11.0 feet and rising.
- Atchafalaya generally begins when Morgan City Gage reaches 5.0 feet and rising.
- USACE works with local levee districts to inspect the levee system for problem areas 1-2 times per week.
- EOC opens 7 days a week from 0700 to 1730.

Phase II

- Mississippi begins when Carrollton Gage reaches 15.0 feet and rising.
- Atchafalaya generally begins when Morgan City Gage reaches 6.0 feet and rising.
- USACE works with the local levee districts to inspect the levee system more frequently, including daily inspections on critical reaches.
- All subsurface work within 1500 feet of the levee is shut down.
- EOC Open 24/7

Flood Fight Sectors


Legend

Structure Type

-  Lock
-  Interim Control Structure
-  Federal Water Control Structure
-  Sector Gate
-  Channel Floodgate
-  Weir
-  Control Structure
-  Diversion Structure
-  Drainage Structure
-  Navigable Structure
-  Equipment Staging Areas

Emergency Inspection Sectors

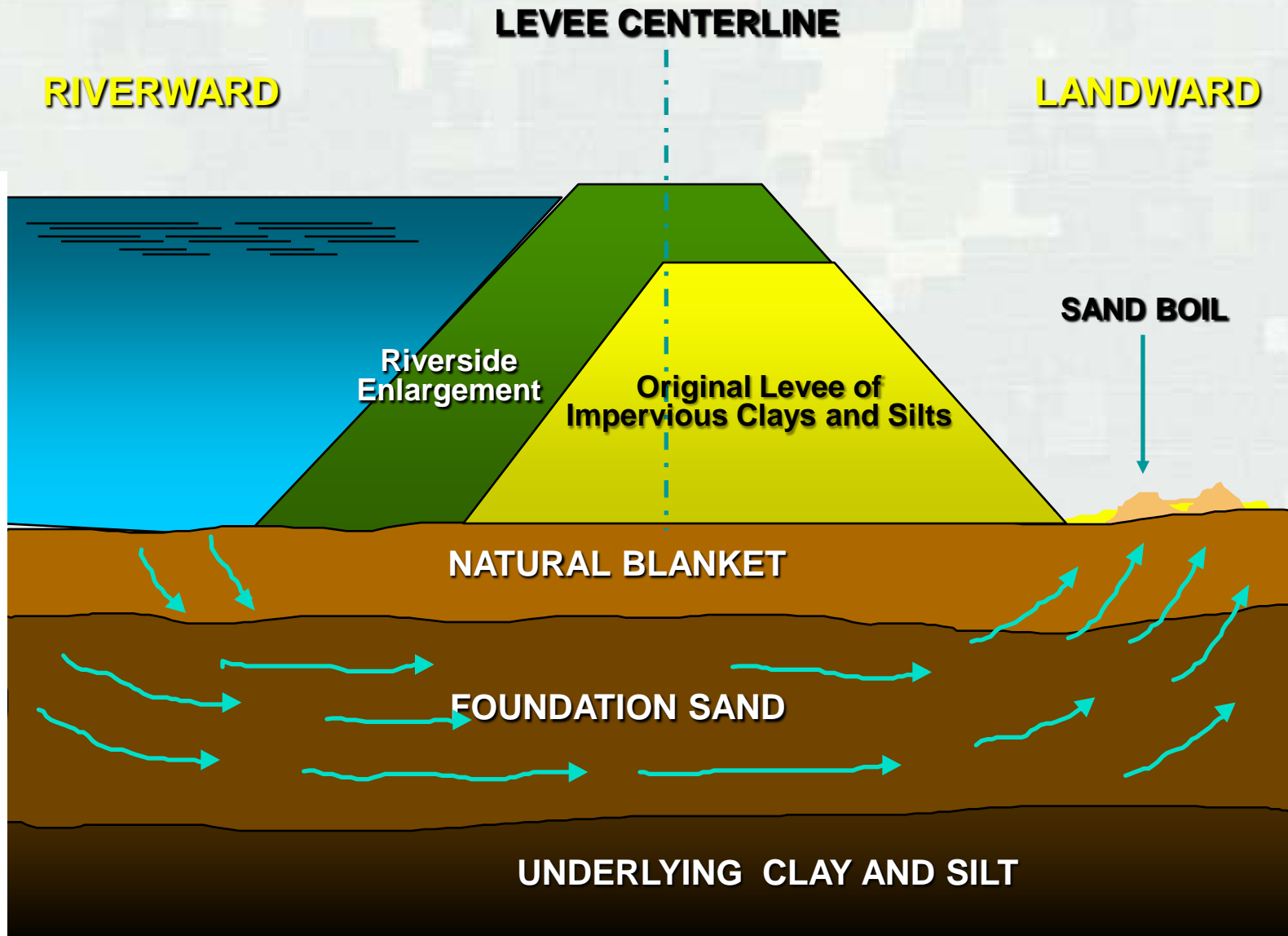
-  Angola Sector
-  East Atchafalaya River Sector
-  Lafourche Sector
-  Lake Borgne Sector
-  Lower Coast Sector
-  Lower East Atchafalaya Sector
-  Lower West Atchafalaya Sector
-  Lower West Mississippi Sector
-  Orleans-Jefferson Sector
-  Pontchartrain Sector
-  Upper East Atchafalaya Sector
-  Upper West Atchafalaya Sector
-  West Atchafalaya River Sector
-  Upper West Mississippi Sector
-  Bonnet Carré Structure
-  Morganza Control Structure
-  Old River Control Structure
-  Points Coupée Structure

 Parish Boundary

Miles
0 10 20 30 40 50

Flood Fight Trigger Points

Area	Region		Sector	Gage	Phase I	Phase II		
						A	B	
Mississippi	Upper	Mississippi	Angola Sector	Red River Landing	48+ 1 day a week	54+ 2 days a week	56+ 3-7 days a week	
			Upper West Mississippi Sector		48+ 1 day a week	54+ 2 days a week	56+ 3-7 days a week	
			Lower West Mississippi Sector		48+ 2 days a week	52 and steady 3-7 days a week	52 and rising 7 days a week	
	Lower	Mississippi	Lafourche, Lake Borgne, Lower Coast, Orleans-Jefferson, and Pontchartrain Sectors	Carrollton	11 and rising 2 days a week	15+ 7 days a week		
Atchafalaya	Upper	Atchafalaya	Upper West Atchafalaya Sector	Morganza Closed Morganza Open	Simmesport	35+ Initial Assessment Ride Only	40+ 1 day a week	
			Automatically in Phase II, Inspect Everyday					
			West Atchafalaya River Levee Sector	Simmesport	35+ 1 day a week	40+ 2-3 days a week	47+ 7 days a week	
			Upper East Atchafalaya Sector	Simmesport	35+ 1 day a week	40+ 2-3 days a week	47+ 3-7 days a week	
			East Atchafalaya River Levee Sector	Simmesport	35+ 1 day a week	40+ 2-3 days a week	47+ 7 days a week	
	Lower	Atchafalaya	Lower West Atchafalaya Sector	Morganza Closed Morganza Open	Morgan City	4.0+ (predicted to 5.0) 1 day a week	6.0+ 3 days a week	
			Automatically in Phase II, Inspect Everyday					
			Lower East Atchafalaya Sector	Morganza Closed Morganza Open	Morgan City	4.0+ (predicted to 5.0) 1 -2 days a week	6 & steady 2-3 days a week	6 & rising 3+ days a week
			Automatically in Phase II, Inspect Everyday					



Flood Fight Inspections

What are we looking for?



Seepage



Sand Boils

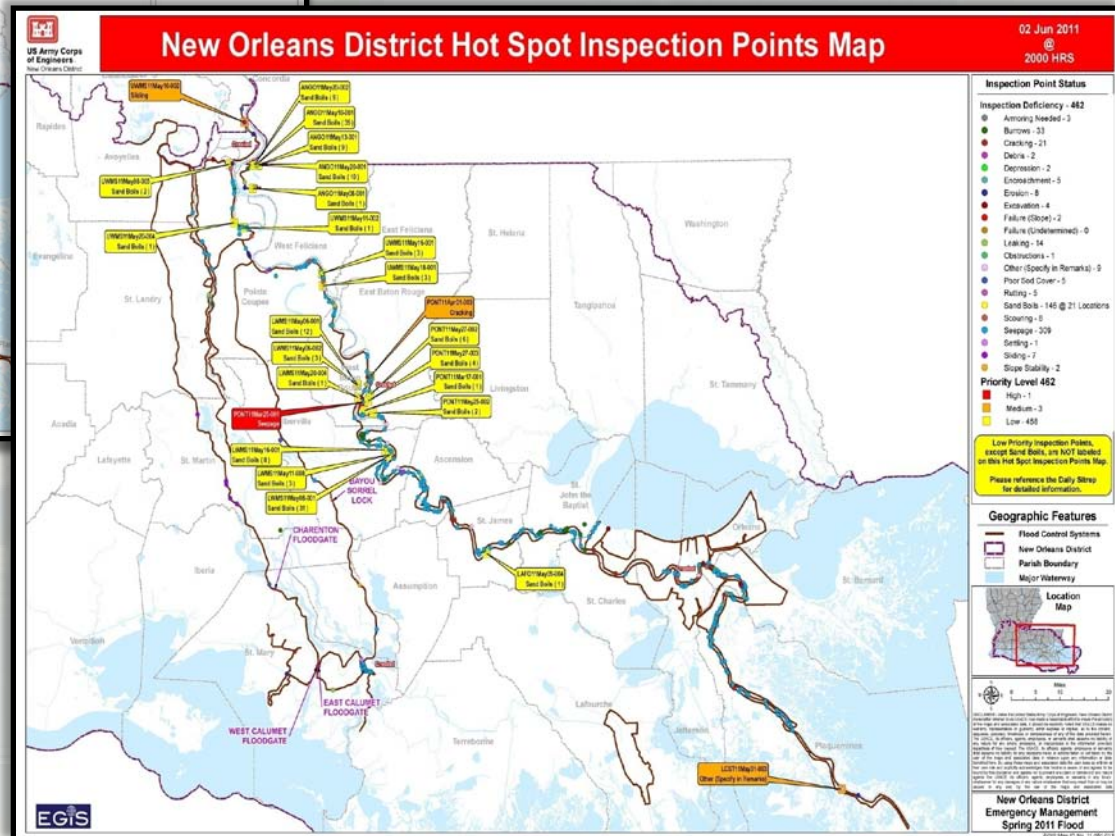
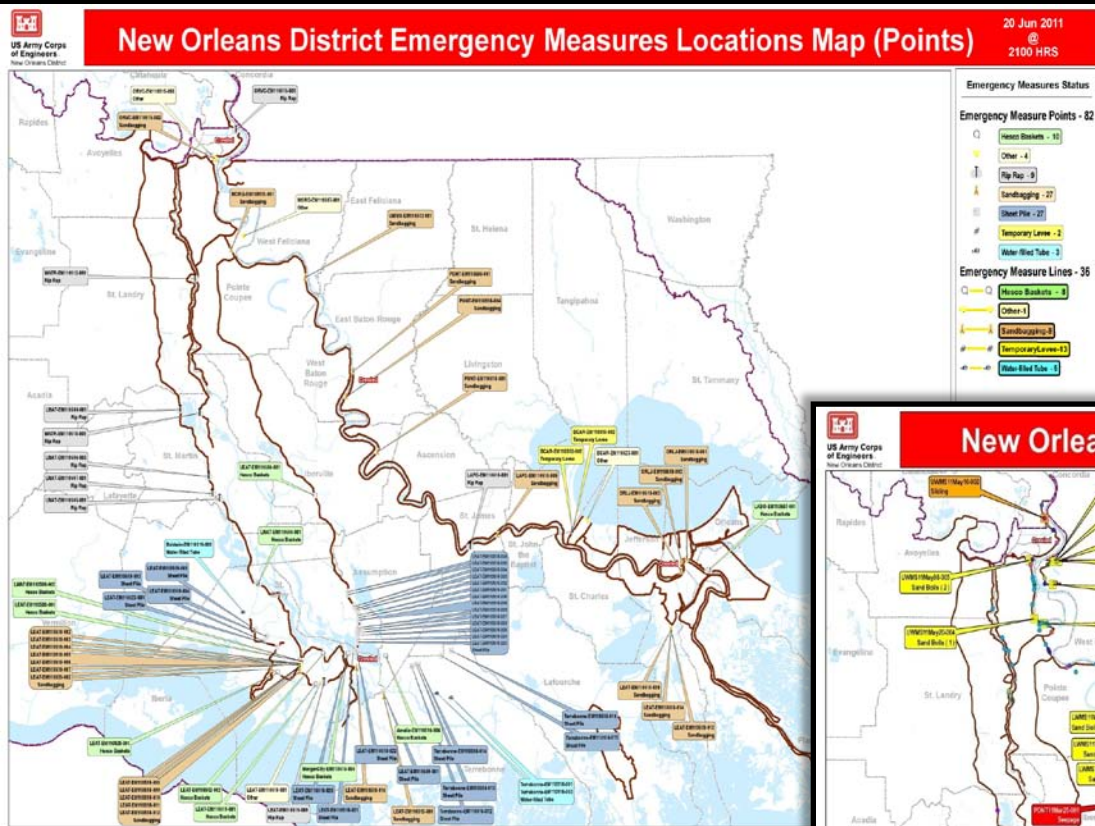


**Potential
Problems**



Erosion

Flood Fight Tracking




Data Management


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BaseMap Layers

Inspection Feature Details

Inspection Area	New Orleans Area
Inspection Sector	Lake Borgne Sector
Incident Number	LKBO1May07-001
Feature	Levee Toe (R/S)
Deficiency	Seepage
Coordinates	-89°58'11" 29°55'50.45"
Inspection Date	05/07/2011 15:10
Inspection Remarks	LAKE BORGNE-Hesco Baskets were placed, as a preventative measure, along the toe of the levee to prevent seepage.
Engineering Recommendations	09May11 - Known seepage site with long term plans under development. Continue to monitor.
Map Label	-
Priority Level	Low
Assessment Type	Field Inspection
Remediation Type	Rehabilitation and Repair
Gage Name	CARROLLTON STAFF GAGE
Basin Code	01300
Gage Reading	15.5
Station	175+00.00 LBLD
Seepage Time Description	No Flow
Seepage Flow Rate	-
Sandfill Count	-
Avg Sandfill Diameter Inches	-
Avg Sandfill Thrust Width Inches	-
Avg Sandfill Height Inches	-
Observed Date	07/15/2011 13:29
Revision Date	-

Inspection Monitoring Report

Name	Basin Code	Gage Reading	Monitoring Date	Monitoring Remarks
CARROLLTON STAFF GAGE	01300	-	07/15/2011 13:03	No visible signs of seepage. Recommend closing this inspection site.
CARROLLTON STAFF GAGE	01300	-	07/08/2011 08:54	There is still water at the base of the Hesco baskets, but based on river levels, ponding water is probably from rain water being retained in the sand, not seepage. Will assess on the inspection site next week.
CARROLLTON STAFF GAGE	01300	-	07/05/2011 13:02	No change
CARROLLTON STAFF GAGE	01300	-	06/30/2011 07:38	No change
CARROLLTON STAFF GAGE	01300	-	06/27/2011 13:55	No change
CARROLLTON STAFF GAGE	01300	-	06/24/2011 14:38	No change
CARROLLTON STAFF GAGE	01300	-	06/20/2011 08:05	No change
CARROLLTON STAFF GAGE	01300	-	06/16/2011 07:25	No change
CARROLLTON STAFF GAGE	01300	-	06/15/2011 07:05	No change
CARROLLTON STAFF GAGE	01300	-	06/14/2011 11:09	No change
CARROLLTON STAFF GAGE	01300	-	06/13/2011 07:08	No change
CARROLLTON STAFF GAGE	01300	-	06/12/2011 14:10	No change
CARROLLTON STAFF GAGE	01300	-	06/11/2011 06:47	No change
CARROLLTON STAFF GAGE	01300	-	06/10/2011 07:12	No change
CARROLLTON STAFF GAGE	01300	-	06/09/2011 06:37	No change


Inspection Media











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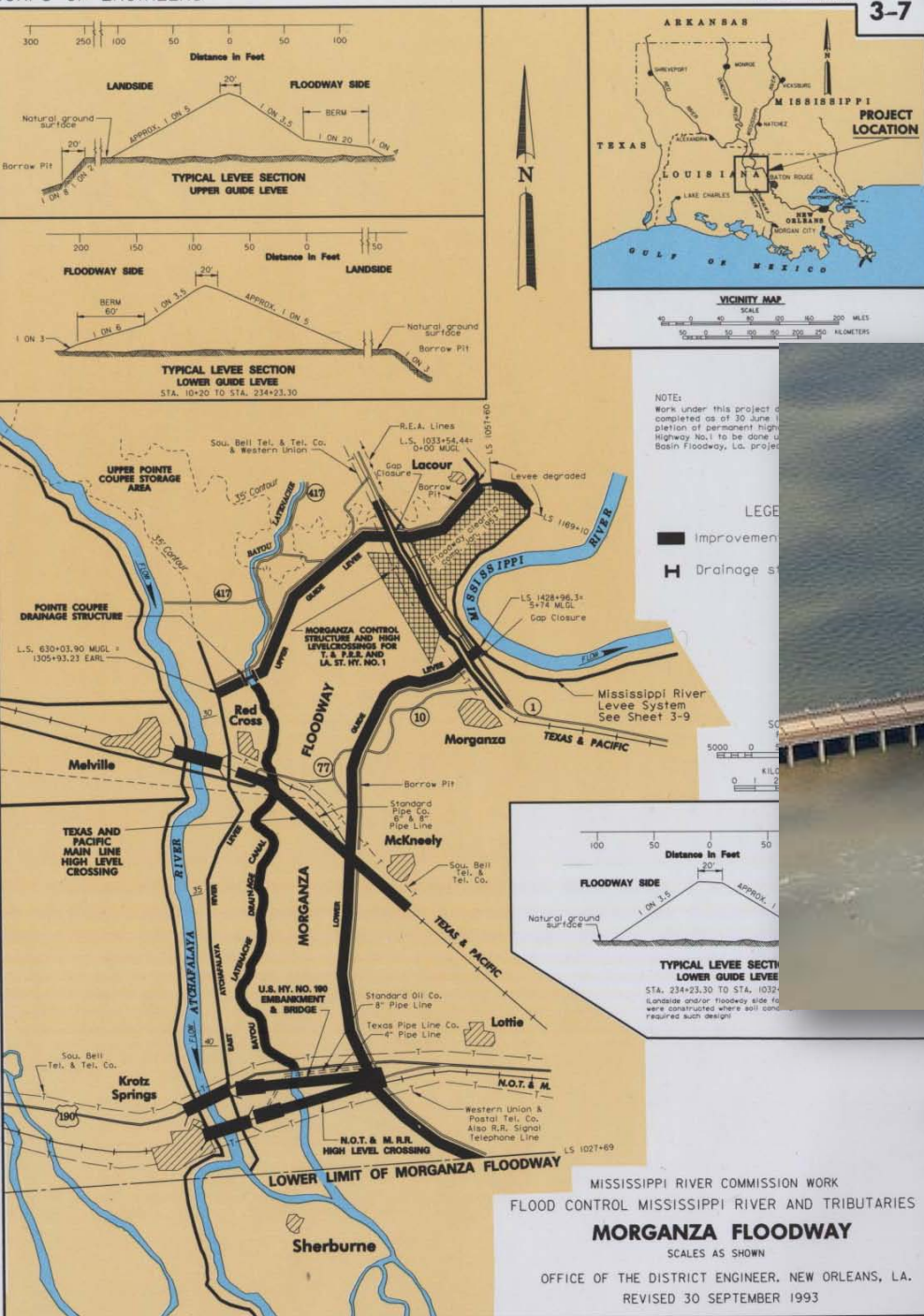
Damage Assessment Site

Assessment Site Name	LKBO1May07-001 "Chalmers Seepage"
Assessment Site Id	MVA-ML-0002
Assessment Type	Field Inspection
Estimated Cost	2268000
Permanent Repair Description	Seepage cutoff wall
Repair Justification	If this site goes without repair for the next flood season the risk could vary from small shelf flow to softening of levee soils to slope failure, which could ultimately result in a levee failure. Borrow is required.
District Priority	2
Remediation Type	Rehabilitation and Repair
Levee System Name	St Bernard Polder
Levee System Structure Count	20100
Levee System Population Count	41161
Inspection Deficiency	Seepage
Inspection Remarks	LKBO1May07-001 LAKE BORGNE-Hesco Baskets were placed, as a preventative measure, along the toe of the levee to prevent seepage (L)

Levee Embankments
For use during Initial and Continuing Eligibility Inspections of levee segments / systems

Rated Dam	Rating	Rating Guidelines	Location/Remarks/Recommendations
15 Seepage	U	A	No evidence or history of unrepai red seepage, saturated areas, or boils.
		M	Evidence of history of minor unrepai red seepage or small saturated areas at or beyond the inside toe but not on the landward slope of levee. No evidence of soil transport.
		U	Evidence of history of active seepage, extensive saturated areas, or boils.

Case Study: Morganza Floodway



Operational Trigger: Discharge of 1.5 million cfs and rising at Red River Landing

Morganza Floodway Operations



- Construction completed in 1954
- 71,500 acre floodway
- Operated (Structure opened) twice, 1973 and 2011
- Project Flood Flow = 600,000 cfs
- Peak Flow = 194,000 cfs, 1973 (initial opening)
- 2011 Peak Flow = 186,000 cfs





Morganza Floodway



Morganza Control Structure

Current Status

- Scour holes exist in the tailbay of the structure
- Piezometers and relief wells are not functional
- Contract being prepared to repair piezometers and relief wells
- Hydraulic analysis ongoing for scour repairs

Operating Plan

- Operate as per the Project Flood Design
- Deploy monitoring and surveying plan
- Evaluate gate bay sequence and staggering to minimize scour
- Complete initial opening with stage as low as possible

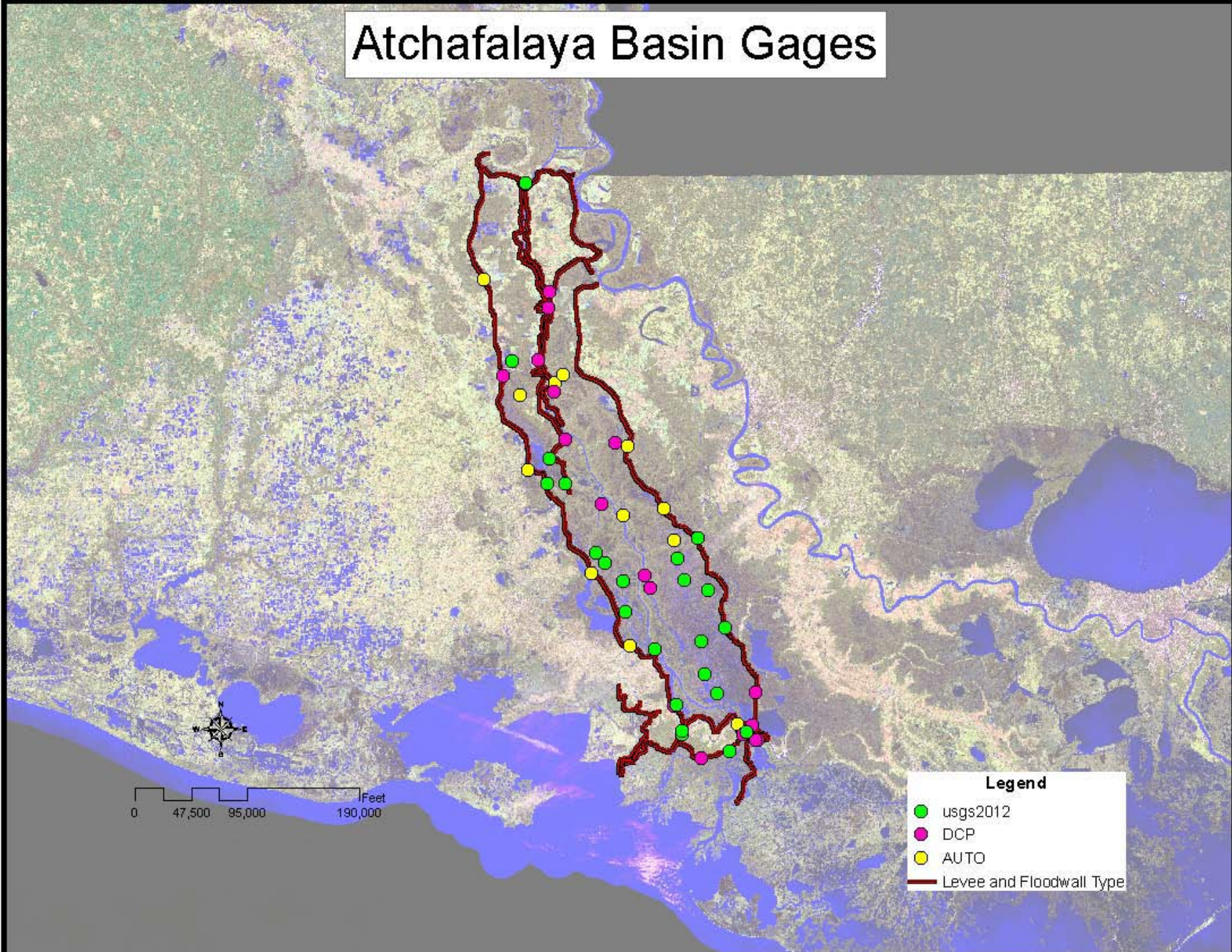
Atchafalaya Basin Gages

0 47,500 95,000 190,000 Feet

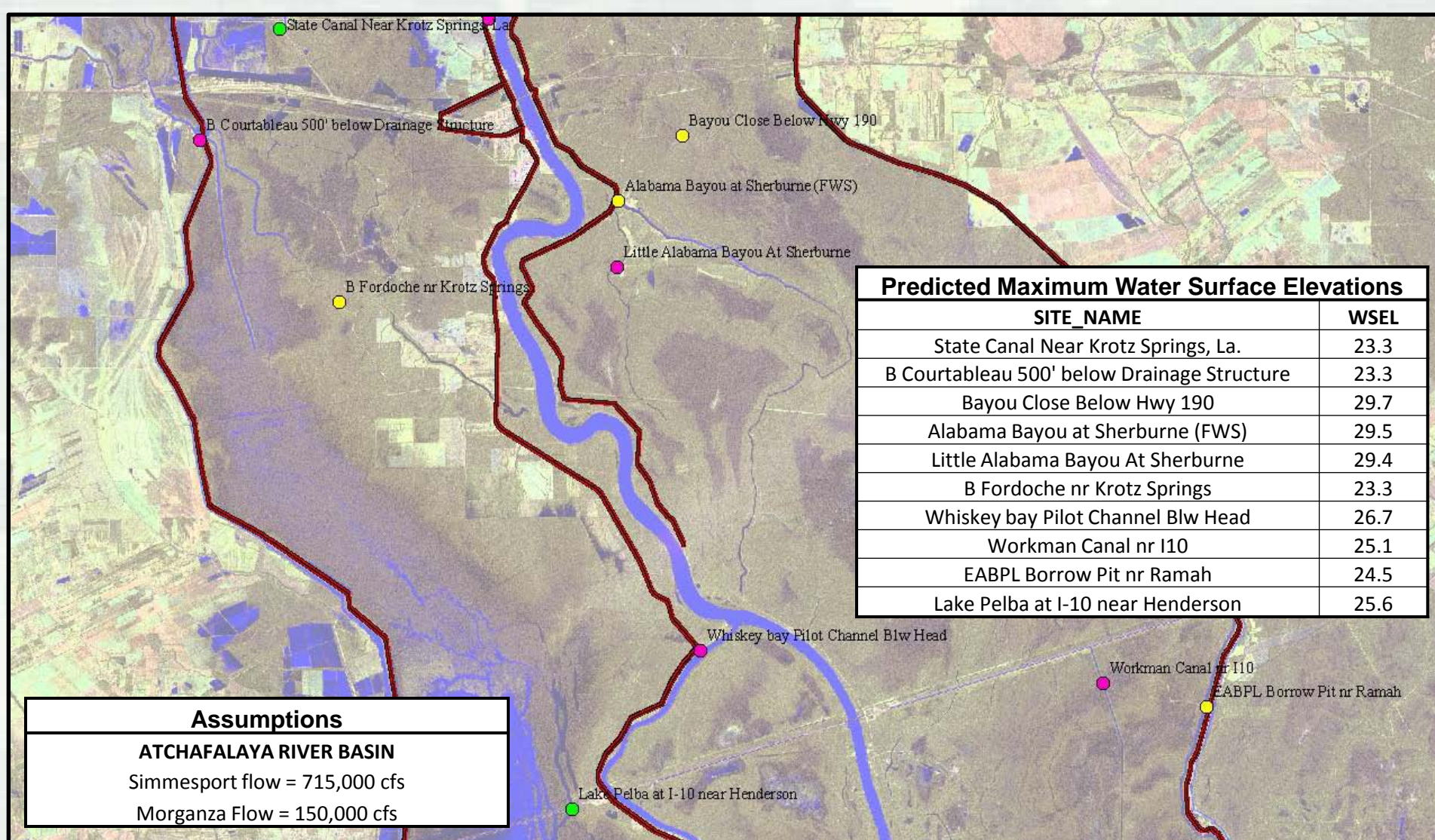


Legend

- usgs2012
- DCP
- AUTO
- Levee and Floodwall Type



Morganza Operation



QUESTIONS?

