US Army Corps of Engineers
BUILDING STRONG®

Operation Watershed Recovery

Responding to the Historic Mississippi River Flood of 2011

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Operation Watershed

Responding to the Historic Mississippi River Flood of 2011

RECOVERY OPERATIONS

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Operation Watershed Recover

Talking Points

US Army Corps of Engineers
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Operation Watershed

Responding to the Historic Mississippi River Flood of 2011

RECOVERY OPERATIONS

OPERATION WATERSHED RECOVERY

- The Mississippi River and Tributaries (MR&T) flood risk management system performed remarkably well under tremendous and prolonged pressure from this historic event, it is the Flood or Record for most gauges between Cape Girardeau, MO and the Gulf of Mexico.

- Not a single life was lost to flooding in the areas across seven states protected by the MR&T system.

- Prior to the 2011 flood event $13.6 billion had been invested in the Mississippi River and Tributaries (MR&T) project that to date has prevented $474.3 billion in damages (a 40:1 return on investment)

- Although the current 2011 flood flooded 6,786,000 unprotected acres preliminary estimates indicate the MR&T project has prevented flooding of 9,864,000 acres and prevented damages of $110 billion.

- As a part of the total systems response within the watershed, the reservoir system associated with the Ohio, Arkansas, Mississippi and Missouri Rivers were fully engaged to manage the flow of water into the Mississippi River.

- The 2011 flood fight is the first time the total watershed system was required to be operated in a synchronized manner to manage the highest level of water it has ever seen, it is important to point out that this event was just shy of the Project Design Flood.

- Assessment and Evaluation of this historic event and system response will serve as a valuable guide for the process and methodologies used to reset and restore components necessary to ensure the dependability and functionality of the MR&T system.

- The assessment and evaluation will be conducted utilizing the full range of USACE personnel in combination with world-class experts drawn from government, private sector, industry, and academia in their respective fields.

- The REPAIR effort will strive to provide the rapid development and installation of initial interim measures designed to provide a basic level of protection and functionality before the next flood season. Current rough order of magnitude cost for the REPAIR effort is $1.0 billion and will directly address system functionality with respect to floodways, dredging for navigation, and levee degradation.

- The RESTORE effort will strive to provide for the development and installation of permanent measures designed to return the structure to the full level protection and functionality. Current rough order of magnitude cost for the RESTORE effort will require an additional $1.0 billion above and beyond the REPAIR effort. The damaged areas and weak points in the system must be restored to functionality to prevent future catastrophic flooding.

- Under a self-financing approach, it is likely critical repairs may take 2-3 years to accomplish and over a decade to complete the restore projects.

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* Designee
** Nominee

MISSISSIPPI RIVER COMMISSION
VICKSBURG, MISSISSIPPI

October 11, 2011

Statement of the Mississippi River Commission
Mississippi River and Tributaries Project
Top tier things discovered in the Historic Flood of 2011

Since 1928, successive administrations and congresses teamed with the nation's engineers and local project sponsors to authorize, fund, construct, and maintain a comprehensive world-class engineering marvel known as the Mississippi River and Tributaries (MR&T) project. The performance of the MR&T system during the 2011 flood on the lower Mississippi and Ohio Rivers validated that wise investment of more than $13 billion by protecting the lives and livelihoods of 4 million people living in the lower Mississippi Valley, preventing more than $200 billion in damages to vital infrastructure. For every dollar the nation has invested in the MR&T project, it has received more than $34 as a return on investment.

The national investment and the determination of a countless number of people were involved in making the MR&T a truly comprehensive project and can be described as disciplined and courageous. The project is not just about levees and floodways. It is a comprehensive project that involves many other critical, but lesser known, components -- channel improvements, diversions, flood control reservoirs, pumps, and backwater areas -- that all reduce pressure on the system during large floods. It is easy to fall into that trap of not knowing what you need until you need it and then realizing that it is too late. That was not the case in the lower Mississippi watershed this past spring, thanks to the team of teams that led and nurtured the continued development of the project over the past 83 years.

It is extremely challenging and rewarding to live with the diversity and the dynamics of a comprehensive system that assimilates water from the 3rd largest watershed in the world. Impacting people's land, lives, and livelihood is hard politics, but has long-term benefits. We, as a nation, must recognize, value, and engage the larger watershed approach -- it is an intergenerational approach that the Mississippi River Commission embraces and champions. Enclosed is the MRC's working vision "America's Watershed - a 200-Year Vision."

Since 1879, the seven-member Presidentially appointed Mississippi River Commission has developed and matured plans for the general improvement of the Mississippi River from the Head of Passes to the Headwaters. The Mississippi River Commission brings critical engineering representation to the drainage basin, which impacts 41% of the United States and includes 1.25 million square miles, over 250 tributaries, 31 states, and 2 Canadian provinces.

Listening, Inspecting, Partnering and Engineering since 1879

The Mississippi River Commission is not satisfied with great. We continue to seek ways to address the multi-use, high-benefit, and comprehensive system approach in the watershed. A few of the critical areas observed by the Commission for action and system improvements follow:

System Thinking

- **There is Room for the River.** During the 2011 flood, more than 1.5 million acres of available storage in the project's floodways and backwater were not used:
    - Only 85% of the project design flood system was used to reduce flood stages
    - 3 of 4 floodways activated (366,000 acres available; 212,000 acres used)
    - 20% of backwater storage areas activated (1.65 million acres available; 335,000 acres used by interior drainage system)

- **The MR&T system operation plan must address post operation activities**. When the system is operated, we must have an "after the flood plan" that puts life safety features back immediately – to help reduce future less drastic high-water events from becoming a national physical and economic disaster.

System Investment

- **Proper Resources**. The trained, ready, resourced, and available people are essential to the emergency operation of the system. It is impossible to manage the system without strong partnerships, mature local and regional relationships with states, levee boards, and non-government organizations.

- **Infrastructure Investment.** Continued investment must be made in the Nation's aging levees and reservoirs to ensure their readiness and safe operation during flood fights. In addition to the MR&T system features, the reservoirs within the Ohio River watershed critical to the flood fight must be maintained.

System Leadership

- **Central Leadership**. Successful management of a comprehensive system covering multiple states requires central leadership with clear, unambiguous, and reviewed authority.

System Leadership (continued)

- **Unambiguous Authority**. Central leadership must have clear and unambiguous authority to operate the system with processes and plans that are thoroughly vetted with local partners, states, and governmental and non-governmental agencies over a number of years to help with stand criticism and legal challenges.

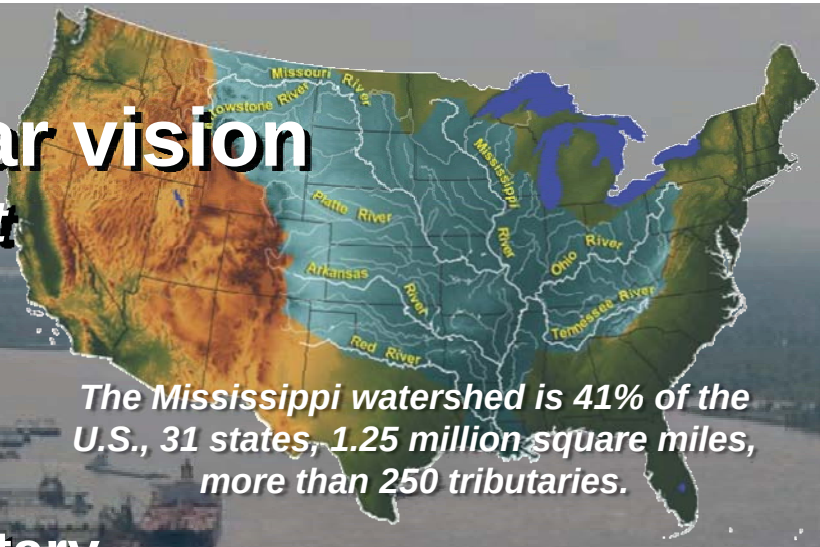
- **A Team of Teams**. Strong long-term relationships make the project work. Local entities cannot do it by themselves, due to the large geographic footprint of the drainage system. The river and its tributaries do not respect political boundaries. Likewise, the federal government cannot make the project work without state and local engagement, long-term partnerships, and vigilance.

- **State Participation**. State leadership and participation is essential to the success of comprehensive system development and its operation.

The Mississippi River Commission and our strong partners in the world's third largest watershed continue to keep an ear to the past, a hand on the present, and a steady voice for our nation's bright and productive future.

America's Watershed: A 200-year vision

An Intergenerational Commitment



The Mississippi watershed is 41% of the U.S., 31 states, 1.25 million square miles, more than 250 tributaries.

Our people enjoy a quality of life unmatched in the world. We ...

- Lead secure lives along the river or tributary.
- Enjoy fresh air and the surrounding fauna, flora, and forests while hunting, fishing, and recreating.
- Travel easily, safely, and affordably.
- Drink from and use the abundant waters of any river, stream, or aquifer.
- Choose from an abundance of affordable basic goods and essential supplies that are grown, manufactured, and transported along the river to local and world markets.

Balancing the Nation's needs for …

- National Security & Flood Damage Reduction
- Environmental sustainability & recreation
- Infrastructure & energy
- Water supply & water quality
- Movement of goods; agriculture & manufacturing

Leveraging science, engineering, technology, and public policy

TAB B

Damage Assessments

MVDs OPERATION WATERSHED - RECOVERY

MVD 2011 Critical Flood Repair Projects: Construction Funded

Last Update: 4 Nov 2011

FEATURE	FLOOD DAMAGED SITE	CORPS DISTRICT	STATE	COUNTY / PARRISH	Critical Repair Class	Estimated Cost ($1000)
MRL	BPNM Floodway - Make Safe and Stable	MVM	MO	Mississippi	1	$18,500
CI	Cache-Cairo	MVM	IL	Alexander	1	$26,110
MRL	City of Cairo, IL	MVM	IL	Alexander	1	$3,000
MRL	Cairo Parcel 5	MVM	IL	Alexander	1	$7,000
MRL	Above Cairo Parcel 2A - Relief Wells	MVM	IL	Alexander	1	$1,500
MRL	Above Cairo Parcel 2 - Slurry Trench	MVM	IL	Alexander	1	$5,500
MRL	Buck Chute	MVK	MS	Warren	1	$2,640
MRL	Albermarle Slide	MVK	MS	Issaquena	1	$1,006
MRL	Duncan Point	MVN	LA	E Baton Rouge	1	$8,850
MRL	Baton Rouge Front	MVN	LA	E Baton Rouge	1	$1,762
				TOTAL CONSTRUCTION FUNDING RECEIVED		**$75,868**

MVDs OPERATION WATERSHED - RECOVERY

2011 MVD Critical Flood Repair Projects: Not Construction Funded

Last Update: 4 Nov 2011

FEATURE	FLOOD DAMAGED SITE	CORPS DISTRICT	STATE	COUNTY / PARRISH	Critical Repair Class	Estimated Cost ($1000)
PL84-99	Souris River	MVP	ND	Ward	1	$5,000
Dredge	Mississippi River (MVR Portion)	MVR	Multiple	Multiple	2	$575
Dredge	Mississippi River (MVP Portion)	MVP	Multiple	Multiple	2	$1,000
Dredge	Mississippi River (MVS above MO River mouth portion)	MVS	MO / IL	Multiple	2	$650
Dredge	Mississippi River (MVS below MO River mouth portion)	MVS	Multiple	Multiple	2	$2,000
PL84-99	Scott County Levee Breach	MVS	IL	Scott	2	$2,000
PL84-99	Len Small Levee Breach	MVS	IL	Alexander	2	$8,000
Dredge	Kaskaskia Navigation Project	MVS	IL	Multiple	3	$900
Dredge	L&D 18 Auxiliary Lock	MVR	IA	Des Moines	4	$100
Dredge	L&D 16 Auxiliary Lock	MVR	IL	Rock Island	4	$50
Dredge	L&D 17 Auxiliary Lock	MVR	IL	Mercer	4	$50
Dredge	L&D 20 Auxiliary Lock	MVR	MO	Lewis	4	$50
Dredge	L&D 22 Auxiliary Lock	MVR	MO	Ralls	4	$150
Dredge	L&D 21 Auxiliary Lock	MVR	IL	Adams	4	$150
				Upper Mississippi River States SUBTOTAL		**$20,675**
CI	Chute of Island 8	MVM	KY	Fulton	2	$9,650
MRL	Island 8, KY	MVM	KY	Fulton	2	$5,500
MRL	Cates Levee (Madrid Bend)	MVM	KY	Fulton	3	$436
CI	Richardson Landing Casting Field	MVM	KY	Tipton	3	$10,000
Dredge	Elvis Stahr Harbor, KY	MVM	KY	Fulton	3	$1,000
				State of Kentucky SUBTOTAL		**$26,586**
CI	Merriwether-Cherokee, top bank and revetment deep reach	MVM	TN	Lake	2	$24,115
CI	Presidents Island	MVM	TN	Shelby	2	$26,689
CI	Randolph Dikes	MVM	TN	Tipton	2	$4,000
PL84-99	Dyer County Levee Breach	MVM	TN	Dyer	2	$2,000
PL84-99	Ensley Levee Breach	MVM	TN	Shelby	2	$4,500
Dredge	Sycamore Chute	MVM	TN / AR	Shelby / Crittenden	2	$2,000
Dredge	McKellar Lake	MVM	TN / AR	Shelby / Crittenden	2	500
CI	Merriwether-Cherokee, US DS Revetment	MVM	TN	Lake	3	$8,212
CI	Fritz	MVM	TN	Lake	3	$5,822
CI	Ensley	MVM	TN / AR	Shelby / Crittenden	3	$13,631
				State of Tennessee SUBTOTAL		**$91,469**
MRL	BPNM Floodway - Restore	MVM	MO	Mississippi	2	$25,000
MRL	New Madrid Mainline Culvert Failure, MO	MVM	MO	New Madrid	2	$900
MRL	Nash Levee	MVM	MO	Cape Girardeau	3	$1,500
CI	Little Cypress	MVM	MO	Pemiscot	3	$6,386
Dredge	New Madrid Co. Harbor, MO	MVM	MO	New Madrid	3	$550
Dredge	SEMO Port	MVS	MO	Cape Girardeau	3	$450
				State of Missouri SUBTOTAL		**$34,786**
MRL	Gammon Area boils LM 141	MVM	AR	Crittenden	2	$2,500
CI	Cypress Bend	MVK	AR	Desha	2	$3,276
CI	Walnut Bend	MVM	AR	Lee	2	$2,900
CI	Oldtown	MVM	AR	Phillips	2	$6,253
MRL	Leland Chute AR 2150+00	MVK	AR	Chicot	2	$2,922
MRL	Lake Chicot	MVK	AR	Chicot	2	$587
MRL	Willow Lake	MVK	AR	Chicot	3	$2,936
MRL	Grand Lake	MVK	AR	Chicot	3	$617

FEATURE	FLOOD DAMAGED SITE	CORPS DISTRICT	STATE	COUNTY / PARRISH	Critical Repair Class	Estimated Cost ($1000)
MRL	AR 2250+00	MVK	AR	Chicot	3	$438
MRL	Lake Chicot Pumping Station	MVK	AR	Chicot	3	$795
CI	Big Island	MVK	AR	Desha	3	$2,621
Dredge	Yellow Bend Harbor	MVK	AR/MS	Chicot, Desha/Bolivar	3	$115
				State of Arkansas SUBTOTAL		**$25,960**
MRL	Francis (Sand Boil - Rosedale)	MVK	MS	Bolivar	2	$474
MRL	Winterville	MVK	MS	Washington	2	$510
CI	Walnut Point/ Kentucky Bend	MVK	MS	Washington	2	$13,541
Dredge	Victoria Bend	MVK	MS / AR	Bolivar / Desha	2	$1,600
MRL	Yazoo MP 89/90 to MP 92/93 (Rena Lara)	MVM	MS	Coahoma	2	$3,000
MRL	Tara	MVK	MS	Warren	2	$2,758
CI	Kempe Bend	MVK	LA / MS	Tensas / Jefferson	2	$10,920
CI	Commerce	MVM	MS	Tunica	3	$18,728
CI	Dennis	MVK	MS	Bolivar	3	$4,805
CI	Mhoon Bend	MVM	MS	Tunica	3	$2,184
CI	Mayersville	MVK	MS	Issaquena	3	$1,770
CI	Rescue	MVM	MS	Coahoma	3	$9,300
CI	Mississippi River Repairs btn 610-320 AHP	MVK	Multiple	Multiple	3	$10,032
CI	Mississippi River Repairs btn 956-599 AHP	MVM	Multiple	Multiple	3	$8,003
Dredge	Vicksburg Harbor, MS	MVK	MS	Warren	3	$750
Dredge	Greenville Harbor, MS	MVK	MS	Washington	3	$1,000
Dredge	Rosedale Harbor	MVK	MS/AR	Bolivar/Desha	3	$200
Dredge	Mouth of the Yazoo River, MS	MVK	MS/LA	Warren/Madison	3	$175
MRL	Avon	MVK	MS	Washington	3	$927
MRL	Leota	MVK	MS	Washington	3	$438
MRL	Ben Lomand	MVK	MS	Issaquena	3	$617
MRL	Lake Jackson	MVK	MS	Issaquena	3	$795
MRL	Greenville	MVK	MS	Washington	3	$438
Structure	Muddy Bayou - Roller Gate Operators	MVK	MS	Warren	3	$126
CI	Leland - Lagrange	MVK	MS	Washington	4	$1,138
				State of Mississippi SUBTOTAL		**$94,229**
CI	Third District	MVN	LA	Orleans	2	$11,400
Struct	Morganza Control, Piezometers and relief wells	MVN	LA	Pointe Coupee	2	$750
CI	Greenville Bend	MVN	LA	Jefferson	2	$3,902
CI	Avondale Bend, RM 108.0	MVN	LA	Jefferson	2	$4,700
CI	Avondale Bend, RM 108.3	MVN	LA	Jefferson	2	$4,703
CI	Port Allen	MVN	LA	W/E Baton Rouge	2	$3,800
Struct	Morganza Control, Stilling Basin	MVN	LA	Pointe Coupee	2	$25,650
MRL	Chalmette Seepage	MVN	LA	St Bernard	2	$2,268
MRL	Old River Seepage	MVN	LA	Pointe Coupee	2	$21,200
MRL	Audubon Seepage	MVN	LA	Pointe Coupee	2	$233
CI	Saint Gabriel	MVN	LA	Iberville	2	$4,040
CI	Milliken Bend	MVK	LA	East Carroll	2	$5,460
CI	Alliance	MVN	LA	Plaquemines	2	$4,500
CI	Gibson	MVK	LA	Concordia	2	$1,966
Struct	Old River Aux CS	MVN	LA	Concordia	2	$16,800
Struct	Morganza Control, Lower Guide Levee	MVN	LA	Pointe Coupee	2	$1,800
CI	English Turn	MVN	LA	Plaquemines	2	$2,566
Dredge	Deep Draft Projects	MVN	LA	Multiple	2	$130,000
Dredge	Gulf Intracoastal Waterway, LA	MVN	LA	Multiple	2	$3,000
MRL	Lake Bruin	MVK	LA	Tensas	2	$765

FEATURE	FLOOD DAMAGED SITE	CORPS DISTRICT	STATE	COUNTY / PARRISH	Critical Repair Class	Estimated Cost ($1000)
MRL	Henderson	MVK	LA	E Carroll	2	$1,836
MRL	Ice Box Hole	MVK	LA	E Carroll	2	$587
MRL	Pt Coupee Seepage	MVN	LA	Pointe Coupee	2	$49,626
MRL	Pt Pleasant Seepage	MVK	LA	Iberville	2	$147,866
MRL	Algiers Seepage	MVN	LA	Orleans	2	$7,888
MRL	Blackhawk Slide	MVN	LA	Concordia	2	$3,203
MRL	Jackson Barricks Slope Paving	MVN	LA	Orleans	2	$126
MRL	Huey P Long Seepage	MVN	LA	Jefferson	2	$10,044
MRL	Belle Chase Slope Paving	MVN	LA	Plaquemines	2	$116
MRL	St. Joe	MVK	LA	Tensas	3	$3,383
CI	Mississippi River Repairs btn 320-0 AHP	MVN	LA	Multiple	3	$3,014
MRL	Lake St. John	MVK	LA	Concordia	3	$973
MRL	Davis Landing (Lake St. Joseph)	MVK	LA	Tensas	3	$1,851
MRL	Wilson Point	MVK	LA	East Carroll	3	$974
MRL	Kemp Bend	MVK	LA	Tensas	3	$260
CI	Bourgere	MVN	LA	Concordia	3	$23,587
Struct	Morganza Control,curtain wall	MVN	LA	Pointe Coupee	3	$200
CI	Saint Alice	MVN	LA	St. James	3	$2,839
CI	Tropical Bend	MVN	LA	Plaquemines	3	$3,112
CI	Port Sulphur	MVN	LA	Plaquemines	3	$1,419
CI	Gravolet	MVN	LA	Plaquemines	3	$3,003
CI	Morville	MVN	LA	Concordia	3	$3,276
CI	Hardscrabble DS Ext	MVK	LA	Tensas	3	$2,184
CI	Goodrich Upstream Extension	MVK	LA	E Carroll	3	$3,413
Dredge	Old River , Maintenance	MVN	LA	Concordia	3	$10,000
Dredge	Red River, Maintenance	MVK	LA	Concordia / Avoyelles	3	$1,200
Dredge	Ouachita/Black River, Maintenance	MVK	LA	Concordia / Catahoula	3	$1,200
Dredge	Baton Rouge Harbor (Devils Swamp) - Maintenance	MVN	LA	East Baton Rouge	3	$250
Dredge	Lake Providence Harbor, LA	MVK	LA	East Carroll	3	$1,200
Dredge	Madison Parish Port	MVK	LA	Madison	3	$150
CI	Marchand	MVN	LA	Ascension	3	$3,711
Struct	Old River CS, erosion	MVN	LA	Concordia	3	$3,000
Struct	Morganza Control, seepage	MVN	LA	Pointe Coupee	3	$50
Struct	Old River CS, outflow channel	MVN	LA	Concordia	3	$15,000
Dredge	Atchafalaya Basin, Maintenance	MVN	LA	St Mary	3	$6,000
Struct	Wax Lake East PS	MVN	LA	St Mary	3	$1,100
Struct	Wax Lake West PS	MVN	LA	St Mary	3	$1,400
Struct	Franklin PS	MVN	LA	St Mary	3	$1,300
Struct	Centerville PS	MVN	LA	St Mary	3	$2,500
Struct	Northbend PS	MVN	LA	St Mary	3	$1,000
					State of Louisiana SUBTOTAL	**$573,345**
					TOTAL CONSTRUCTION FUNDING NEED	**$867,050**

US Army Corps of Engineers
Memphis District

Information Paper

Birds Point New Madrid Floodway
"Make Safe & Stable Operations"

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Memphis District
TYPE: Levee Damage – Three (3) Artificial Crevasses
RM: 951R to 890R
FRAGO CLASS: 1 - High Potential for Loss of Life
RISK: Unexploded Ordinance; Scour hole through county road; Loss of protection to 133,000 Acres agricultural land.
REPAIR: Remove residual blasting agent. Limit access along county road. Sand fill scour holes and construct interim clay levee.
REPAIR COST: $18,500,000

Damage Assessment
Three sections of the frontline levee were artificially crevassed by MVM on 2 May 2011 for the purpose of activating the 133,000 acre Birds Point New Madrid Floodway. The combined length of crevasses is approximately four miles. Detonation of blasting agent used in creating crevasses was incomplete and the residual material that remained on site was assumed to be a viable product. Inflow thru the middle crevasse created a 45' deep scour hole across a county road. There was additional damage to levee sections adjacent to intentional crevasses from natural overtopping. Significant damage to public infrastructure and private property located within the floodway.

Risk and Consequence
The risk to the public by not removing the residual blasting agent and erecting road closures was deemed unacceptable. Failure to provide interim level of protection creates tremendous economic hardship on the local economy and in particular Mississippi and New Madrid counties.

Critical Repairs
The removal of residual blasting agent and providing safe traverse is critical to public safety.

Figure 1: BPNM Floodway Vicinity Map

Special Considerations
An Environmental Assessment is out for Public Comment that addresses construction of the interim levee at the middle crevasse and future Restore Operations for all three crevasses. We are also operating a Claims Information Center located in New Madrid, MO.

Schedule
CEMVG guidance provided 15 Jun 11 to commence "Make Safe & Stable" operations based on a target elevation of 51' on the Cairo gage. Construction commenced on 16 Jun 11 and construction is scheduled for completion NLT 30 Nov 11.

Acquisition Strategy
Work is being accomplished by MVM hired labor forces that are being supplemented with other regional hired labor forces. We are also making use of supply services contracts for delivery of materials.

US Army Corps of Engineers
Memphis District

Information Paper
Cache-Cairo (Cairo, IL)

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Memphis District
TYPE: Bank Stability
RM: 958-956L (Ohio River)
FRAGO CLASS: 1 - High Potential for Loss of Life
RISK: 5,930 residents, $73M infrastructure
REPAIR: Reconstruct bank slope and Place ACM Revetment
REPAIR COST: $26,110,000

Damage Assessment
There are several areas along the Cache-Cairo Revetment in Alexander County, IL that have experienced excessive scour during the great flood of 2011. Hydrographic surveys have indicated that from River Mile 958 to 956 (OH) that there has been scour at the toe and in the slopes of the existing underwater revetment. These slopes in several areas range from 1V:2H to as steep as 1V:1H. The previously recommended and existing slopes in this area were approximately 1V:3H. These over steepened slopes represent a significant risk to life and property with many facilities located along top bank, including the Cairo Floodwall. In addition, there are several areas with only one previous layer of ACM protecting the bank which is most likely destroyed. This area is also heavily used as a fleeting area by the navigation industry

Risk and Consequence
If the West Bank of the Ohio River at Cairo, IL were to fail at the Cache Cairo site, the population at risk would be 5,930. The value of the 3,540 affected structures is $629,344,930. In addition, excessive scour has been observed approximately 500' from an existing pier of the Cairo-Ohio River Bridge. A large bank failure at this location could adversely impact both Mississippi River Navigation as well as transportation over the Ohio River.

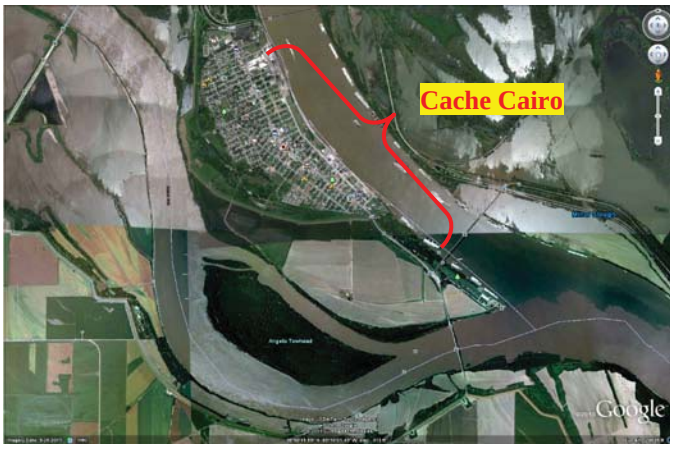

Figure: Google Map of Cairo, IL

Critical Repairs
Preliminary investigations suggest that a stone blank / stone toe will need to be constructed for bank stability, with a new layer of ACM constructed to protect against future scour at the toe. The Geotechnical Analysis is underway to determine the most cost effective corrective measures. Topographic Survey Crews are collecting the necessary data from the floodwall to water's edge for use in the analysis. The estimated cost of this repair is $26,110,000.

Special Considerations
The Cache Cairo site is covered under the 1976 MR&T EIS. Based on preliminary estimates for the recommended repair, the entire ROW that will be required is below the ordinary high water mark.

Schedule
Survey – 14 Sep 2011
Geotechnical Analysis – 15 Nov 2011
Design – 16 Dec 2011

Acquisition Strategy
Phase I (Stone placement) will be constructed by using existing stone placement MATOC contract.

Phase II (ACM) will be constructed by hired labor crews during 2012 sinking season.

US Army Corps of Engineers
Memphis District

Information Paper
City of Cairo, IL

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Memphis District
TYPE: Levee Damage – Boil and Seepage
LM: 8/21+00 – 9/16+00
FRAGO CLASS: 1– High Potential for Loss of Life.
RISK: 5,930 residents, $630M infrastructure
REPAIR: 2 Berms and 7 relief Wells
REPAIR COST: $3,000,000

Damage Assessment
The most significant issues observed during the damage assessment were tremendous amounts of seepage and sand boils in the City of Cairo. Major seepage in the form of three high energy boils with sand cones from 8 to 15 feet was present in segment 3**.** A high energy sand boil occurred next to a piezometer and was piping a large amount of coarse material, it was immediately ringed and later stabilized. Another large energy boil was discovered further west in the same field, it was ringed, stabilized and then shifted 5 ft south and the ring was expanded to contain it. Another large sand boil was ringed near levee mile 9/10+00. This piped material most likely left behind voids of unconsolidated material in the subsurface beneath the System 1 flood control works, especially in the area near the floodwall where three high energy boils were found. The importance of installing seepage control measures in this area has never been more evident as during this past flood. The possible subsurface damage caused by this most recent flood, when coupled with subsurface damage caused by floods of the past, could have detrimental effect on System 1.

Risk and Consequence
The flood control works that make up System 1 form a V-shape that protects the tip of Southern Illinois' Alexander County. It is unbroken except for the locations designed as gates. The system protects urban and rural lands, including industries such as Bunge, ADM Grain, Consolidated Grain and Barge, and Riverbend Rice. It also protects an airport, electrical substations, museums, oil and gas pipelines, US oil gas wells, schools, thousands of acres of farmland, and the Magnolia Manor National Symbol. According to the data

Figure 1: Aerial view of completed sand boil ring

found on the Levee Screening Tool, the total population at risk within System 1 is approximately 5,930 people with 3,540 structures. The Levee Screening Tool values the property within the System 1 protected area at approximately $629,344,930. Cities and communities within the protected area include Klondike, Future City, Cairo, Urbandale, Mound City, and Mounds.

Critical Repairs
The preliminary repair recommendation for this site includes seven relief wells and two earthen berms. The estimated cost of this repair is $3,000,000.

Special Considerations
The Bunge Corp and the water treatment plant own the land where the relief wells and berm will be constructed. The City of Cairo and Bunge will need to provide the ROW prior to construction of any berms or wells. The Bunge Corporation currently plans to expand their facilities in the area of the planned berms and wells. If no agreement can be reached, relief wells may replace the berms. Some additional drainage considerations will be constructed to account for the addition of relief well water. The cost for pumping that water will be the responsibility of the City. The City does not have the funding to operate and maintain the pumping stations that they have today, so this additional water will be an issue. Provide ROW plans to Sponsor NLT 1 Feb 12 and obtain ROW from Sponsor within 6 months of receiving plans.

Schedule
Complete P&S 1Jun 12, RTA 15 Jun 12, Award 1 Aug 12

Acquisition Strategy
Will use unrestricted solicitation for this contract.

US Army Corps of Engineers
Memphis District

Information Paper
Cairo, IL Parcel 5

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Memphis District
TYPE: Levee Damage – Boil and Seepage
LM: 6/15+00 – 8/20+00
FRAGO CLASS: 1– High Potential for Loss of Life.
RISK: 5,930 residents, $630M infrastructure
REPAIR: Berms, relief wells, and slurry trench
REPAIR COST: $7,000,000

Damage Assessment
The most significant issues observed during the damage assessment were tremendous amounts of seepage and sand boils segment 5. Numerous medium to large sand boils were observed along the levee toe and in the woods toward the west. Heavy seepage and sand boils were observed in the sump area for the Goose Pond Pump Station. Evidence of the extremely high pressures can be seen in the hundreds of sand boils in the area that piped thousands of cubic yards of material over the course of the flood. This piped material most likely left behind voids of unconsolidated material in the subsurface beneath the System 1 flood control works, especially in the area near the floodwall where three high energy boils were found. The importance of installing seepage control measures in this area has never been more evident as during this past flood. The possible subsurface damage caused by this most recent flood, when coupled with subsurface damage caused by floods of the past, could have a detrimental effect on System 1.

Risk and Consequence
The flood control works that make up System 1 form a V-shape that protects the tip of Southern Illinois' Alexander County. It is unbroken except for the locations designed as gates. The system protects urban and rural lands, including industries such as Bunge, ADM Grain, Consolidated Grain and Barge, and Riverbend Rice. It also protects an airport, electrical substations, museums, oil and gas pipelines, US oil gas wells, schools, thousands of acres of farmland, and the Magnolia Manor National Symbol. According to the data found on the Levee Screening Tool, the total population at risk within System 1 is approximately 5,930 people with 3,540 structures. The Levee Screening Tool values the property within the System 1 protected area at approximately $629,344,930. Cities and communities within the protected area include Klondike, Future City, Cairo, Urbandale, Mound City and Mounds.

Figure: Close up view of sand cone

Critical Repairs
The preliminary repair recommendation for this site includes two earthen berms, seventeen 8 inch diameter relief wells and forty-two hundred linear feet of slurry trench. The estimated cost of this repair is $7,000,000.

Special Considerations
Constructing seepage measures on the Ohio River side has significant ROW issues. The design for this parcel balances constructing relief wells, berms and slurry trenches. Each seepage measure can be constructed as a feasible project; however, there are limitations due to ROW, borrow sources, surface drainage issues and cost (i.e. berms - limited borrow sources and problems acquiring ROW within berm footprint; relief wells - can be designed to reduce required ROW and eliminate need for borrow material; however, due to local concern of increased surface water and pumping required due to seepage flows from the wells, the Sponsor is not in agreement with relief wells). Therefore, the above project is considered to balance any increase in seepage and need for borrow sources or additional ROW. Provide ROW plans to Sponsor NLT 1 Apr 12 and obtain ROW from Sponsor within 6 months of receiving plans.

Schedule
Complete P&S 2 Jul 12, RTA 16 Jul 12, Award 14 Sep 12

Acquisition Strategy
Will use unrestricted solicitation for this contract.

US Army Corps of Engineers
Memphis District

Information Paper
Above Cairo Parcel 2A - Relief Wells

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Memphis District
TYPE: Levee Damage – Boil and Seepage
LM: 16/30+00 – 20/12+50
FRAGO CLASS: 1– High Potential for Loss of Life.
RISK: 5,930 residents, $630M infrastructure
REPAIR: 28 Relief Wells
REPAIR COST: $1,500,000

Damage Assessment
The most significant issues observed during the damage assessment were tremendous amounts of seepage and sand boils in the City of Cairo. Major seepage in the form of hundreds of small to medium boils 150 to 300 ft from levee toe was present in segment 5**.** Numerous small and medium sand boils were found and ringed with sandbags. One large sand boil was found in a small ditch beside Luby St and was immediately ringed with sandbags. Overnight the boil stopped flowing and a smaller boil appeared roughly 20 ft to the west. Several other small to medium boils were also found in the same area and ringed with sandbags. Most of the area around Luby St. was standing in 12 to 18 in of water even though the ditches on the side of Hwy 3 were not blocked, which indicated heavy seepage in addition to the sand boils. The importance of installing seepage control measures in this area has never been more evident as during this past flood. The possible subsurface damage caused by this most recent flood, when coupled with subsurface damage caused by floods of the past, could have detrimental effect on System 1.

Risk and Consequence
The flood control works that make up System 1 form a V-shape that protects the tip of Southern Illinois' Alexander County. It is unbroken except for the locations designed as gates. The system protects urban and rural lands, including industries such as Bunge, ADM Grain, Consolidated Grain and Barge, and Riverbend Rice. It also protects an airport, electrical substations, museums, oil and gas pipelines, US oil gas wells, schools, thousands of acres of farmland, and the Magnolia Manor National Symbol

Figure: Large boil beside Luby St. after it stopped flowing.

According to the data found on the Levee Screening Tool, the total population at risk within System 1 is approximately 5,930 people with 3,540 structures. The Levee Screening Tool values the property within the System 1 protected area at approximately $629,344,930. Cities and communities within the protected area include Klondike, Future City, Cairo, Urbandale, Mound City, and Mounds.

Critical Repairs
The preliminary repair recommendation for this site includes twenty-eight 8 in diameter relief wells. The estimated cost of this repair is $1,500,000.

Special Considerations
Due to the tremendous magnitude and long duration of the May 2011 flood, the area protected by System 1 was under hydraulic pressures far exceeding anything experienced before. Evidence of the extremely high pressures can be seen in the hundreds of sand boils in the area that piped thousands of cubic yards of material over the course of the flood. This piped material most likely left behind voids of unconsolidated material in the subsurface beneath the System 1 flood control works, especially in the area near the floodwall where three high energy boils were found.

Schedule
Contract Award: NLT 30 Sep 11

Acquisition Strategy
Will use 8a sole-source set-aside.

US Army Corps of Engineers
Memphis District

Information Paper
Above Cairo Parcel 2 – Slurry Trench

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Memphis District
TYPE: Levee Damage – Boil and Seepage
LM: 18/40+00 – 20/12+00
FRAGO CLASS: 1– High Potential for Loss of Life.
RISK: 5,930 residents, $630M infrastructure
REPAIR: Slurry Trench
REPAIR COST: $5,500,000

Damage Assessment
The most significant issues observed during the damage assessment were tremendous amounts of seepage and sand boils in the City of Cairo. Major seepage in the form of hundreds of small to medium boils 150 to 300 ft from levee toe was present in segment 5. Numerous small and medium sand boils were found and ringed with sandbags. Numerous heavy seepage with medium to large sand boils was observed. A sandbag weir was built across the west ditch at approximately sta. 19/45+00, and another was built across the east ditch at roughly stat. 19/40+00. A large boil was found just downstream of the weir in the west ditch, and it was ringed with sandbags. The boil stabilized, but several days later 2 more medium boils appeared just outside the sandbag ring. The importance of installing seepage control measures in this area has never been more evident as during this past flood. The possible subsurface damage caused by this most recent flood, when coupled with subsurface damage caused by floods of the past, could have detrimental effect on System 1.

Risk and Consequence
The flood control works that make up System 1 form a V-shape that protects the tip of Southern Illinois' Alexander County. It is unbroken except for the locations designed as gates. The system protects urban and rural lands, including industries such as Bunge, ADM Grain, Consolidated Grain and Barge, and Riverbend Rice. It also protects an airport, electrical substations, museums, oil and gas pipelines, US oil gas wells, schools, thousands of acres of farmland, and the Magnolia Manor National Symbol. According to the data found on the Levee Screening Tool, the total population at risk within System 1 is approximately 5,930 people with 3,540 structures. The Levee Screening Tool values the property within the System 1 protected area at approximately $629,344,930. Cities and communities within the protected area include Klondike, Future City, Cairo, Urbandale, Mound City, and Mounds.


Figure: Sandbag weir in east ditch at sta. 19/40+00

Critical Repairs
The preliminary repair recommendation for this site includes installing a 3 ft wide trench of varying depths between 70 and 90 ft of 7,311 ft in length. The estimated cost of this repair is $5,500,000.

Special Considerations
Due to the tremendous magnitude and long duration of the May 2011 flood, the area protected by System 1 was under hydraulic pressures far exceeding anything experienced before. Evidence of the extremely high pressures can be seen in the hundreds of sand boils in the area that piped thousands of cubic yards of material over the course of the flood. This piped material most likely left behind voids of unconsolidated material in the subsurface beneath the System 1 flood control works, especially in the area near the floodwall where three high energy boils were found.

Schedule
Contract Award: NLT 30 Sep 11

Acquisition Strategy
Will use unrestricted solicitation for this contract.

US Army Corps of Engineers
Vicksburg District

Information Paper
Buck Chute

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

Contacts
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OVERVIEW

DISTRICT: Vicksburg District
TYPE: Boils and Seepage
RM: RM 459.6 (110+00 BEL)
FRAGO CLASS: 1 – High Potential for Loss of Life
RISK: 3,996 residents, $188.5M infrastructure
REPAIR: Berm, 30 Relief Wells, and 12 Horiz. drains
EST. REPAIR COST: $2,640,000

Damage Assessment
In early 2010, MVK was notified of multiple boils in the project area. In early summer of 2010, the boils were sandbagged as River Levels reached flood stage and the flow of the boils increased. In February, 2011, when conditions in the project area were dry, two of the largest boils were pumped, revealing voids at boil sources as wide as 20 ft and as deep as 10 ft. The voids revealed no obvious "pipes" that continued downward or laterally from the void bottom. As River levels continued to rise and approach flood stages in March 2011, the boil area voids were backfilled with sand material, covered with a nonwoven filter fabric, and either sandbagged or earthen dams were constructed around them. In May 2011, an emergency berm was constructed over the area which encompassed the worst known boil areas. The top of the berm was constructed to approximate elevation 85.0 ft. Because of the high exit gradients for the predicted flood stages for the known boil areas, and the consequences of failure at this location, it was decided to flood the entire project site by raising water levels in Eagle Lake to approximate elevation 90.0 ft through the use of Muddy Bayou Control Structure. In order to reduce the risk of failure without raising water levels in Eagle Lake, remediation is recommended prior to the next high water season.

Risk and Consequence
If the East Bank Mississippi River Levee System were to fail at the Buck Chute site, the population at risk would be 3,996. The value of the non-residential structures is $31,141,000, and the value of the 1,436 residential structures is $157,396,000.

Figure 1. Aerial view of Buck Chute during 2011flood fight.

Critical Repairs
The reset recommendation for this site includes a 1700 ft reach of earthen berm 200 to 240 ft wide and relief wells from Station 106+50 to 123+50. A 400 ft section of the berm includes a drainage and collection feature, including horizontal drains and a pervious sand layer. The item includes 30 relief wells and 12 horizontal drains. In-place berm volumes will be approximately 13,600 cubic yards of sand for the drainage feature and 150,000 cubic yards for the remaining berm.

Special Considerations
The site is covered under the 1998 MRL SEIS, as item 458-L, and covers multiple work items. The SEIS does not cover planned relief wells for this site; however, an EA was prepared to cover these wells and a FONSI signed. Coordination under Section 9 of the Endangered Species Act has been completed. The 404 water quality permit for the project has been obtained, and all project impacts have been mitigated for, as this site is part of the existing MRL mitigation program. This segment of EBMRL is not currently certified, but this fix, along with other work MVK currently has planned in the area, will allow certification of the levee system. The Board of Mississippi Levee Commissioners has acquired the necessary ROW for the project.

Schedule
Bids solicited - 10 Aug 2011
Contract Awarded - 30 Aug 2011
Anticipated contract duration 120 days. Scheduled completion in January 2012.

Acquisition Strategy
Unrestricted competitive bid awarded 30 Aug 2011 to Phylway Construction, LLC for $3,100,225.00. This site was combined with No. 8 site, Albermarle.

US Army Corps of Engineers
Vicksburg District

Information Paper
Albemarle Slide

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: Vicksburg District
TYPE: Levee slide and boils
RM: RM 463.5 (8170+00)
FRAGO CLASS: 1 – High Potential for Loss of Life
RISK: 7,656 residents, $347.5M infrastructure
REPAIR: Berm
EST. REPAIR COST: $1,006,000

Damage Assessment
During the flood of 2011, the initial site assessment identified five medium sized, high energy sand boils at the toe of the levee. Also found was a significant landside slide immediately downstream of the boils. A stone ring was placed around the sand boils, and a filter of sand was placed over the throat. The MS Levee Board worked throughout the night to stabilize the boil. Corps hired labor forces were called in and began stabilization of the slide the following day. An additional slide developed over the second night. Both slides were accompanied with and possibly the result of heavy seepage exiting at the slide face and on the slope below. Hired labor continued to work by placing crushed limestone at the toe and sand on the lower end of the slide to provide additional weight and drainage. A small slide near the levee toe formed immediately above the sand boils on the third day that connected the two larger slides. Hired labor forces worked for approximately 14 days to stabilize both the slides and the boils. Approximately 6,000 tons of #57 stone and 11,000 tons of sand were used to stabilize the slope. The boils at the levee toe and the embankment instability could have progressed to loss of levee foundation material and/or significant loss of the net levee section if these emergency repairs had not been undertaken.

Risk and Consequence
If the East Bank Mississippi River Levee System were to fail at the Albemarle site, the population at risk would be 7,656. The value of the non-residential structures is $72,963,000, and the value of the 2,599 residential structures is $274,488,000.

Figure 1. Albermarle Levee Slide

Critical Repairs
The reset recommendation for this site includes a 2,500 foot reach of earthen berm from Station 8160+00 to 8185+00. The recommended berm width is 150 feet, which will address both the slope stability issues in the landside slope of the levee as well as the high exit gradients that exist in the vicinity of the toe. Granular fill from the emergency berm will be moved to the outer limits of the reset berm. In-place berm volume will be approximately 130,000 cubic yards.

Special Considerations
The Albemarle site is covered under the 1998 MRL SEIS (item 465-L) and covers multiple work items. Coordination under Section 9 of the Endangered Species Act has been completed. The 404 water quality permit for the project has been obtained, and all project impacts have been mitigated for, as this site is part of the existing MRL mitigation program. This segment of EBMRL is not currently certified, but this fix, along with other work MVK currently has planned in the area, will allow certification of the levee system. The Board of Mississippi Levee Commissioners has acquired the necessary ROW for the project.

Schedule
Bids solicited - 10 Aug 2011
Contract Awarded - 30 Aug 2011
Anticipated contract duration 120 days. Scheduled completion in January 2012.

Acquisition Strategy
Unrestricted competitive bid awarded 30 Aug 2011 to Phylway Construction, LLC for $3,100,225.00. This site was combined with No. 7 site, Buck Chute.

US Army Corps of Engineers
New Orleans District

Information Paper
Duncan Point

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: New Orleans District (MVN)
TYPE: Levee Damage – Boil and Extensive Seepage
RM: 224 Left Descending Bank **(**PLD 0185+00 to 0195+00)
FRAGO CLASS: 1– High Potential for Loss of Life and Significant Economic Damage.
RISK: 440,171 residents, in excess of $37B in structures
REPAIR: Seepage Berm and Highway Relocation
REPAIR COST: $8,850,000

Damage Assessment
There is extensive seepage at this site to include a sand boil at levee toe and soft, spongy conditions one-third up the levee slope, requiring extensive flood-fight efforts. Site had to be continually monitored during the flood fight. A stabilization berm was constructed in 2010. Seepage moved from berm to area north on protected-side toe of the levee. Adjacent highway experienced spongy conditions requiring closure. This is MVNs number one priority for levee safety. The levee system in this area is built to current design criteria. If this site goes without repair for the next flood season the risk could vary from extensive sheet flow and standing water near the toe of the levee to sloughing of protected side slope to the most severe case with the development of sand boils and movement of material under the levee which could ultimately result in a levee failure.

Risk and Consequence
The Mississippi River East Bank System consists of approximately 107.2 miles of Mississippi River Levees. The System is located on the east side of the Mississippi river stretching from the north side of Baton Rouge down to the Bonnet Carré Spillway. The levees protect residential, commercial, industrial (heavy and light), pasture and farm land from Baton Rouge to New Orleans. If the levees were to fail at the Duncan Point site, the population at risk could be 440,171. The housing units at risk in this system are 190,270 at an approximate total value of $28,121,906,000. The total value of non-residential structures is approximately $9,736,095,000. The total estimated value of structures is in excess of $37B.


Figure: Duncan Point Sandbag Repair

Critical Repairs
Recommended repair is a seepage berm and relocation of highway. The estimated cost of this repair is $8,850,000.

Special Considerations
NEPA compliance will be achieved through an environmental assessment with an expected completion date of Septermber 2011. No mitigation costs are expected as result of construction of this Reset action.

Schedule
Duncan Point is scheduled to advertise via a MATOC low bid contract on 9 September 2011. The award date is scheduled for 23 September 2011. The construction duration is anticipated to take seven months after award.

Acquisition Strategy
Duncan Point is planned to be advertised via a MATOC Low Bid Contract.

US Army Corps of Engineers
New Orleans District

Information Paper
Baton Rouge Front

OPERATION WATERSHED RECOVERY – PHASE I CRITICAL SITES

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OVERVIEW

DISTRICT: New Orleans District (MVN)
TYPE: Levee Damage – Slope Pavement Failure
RM: 230 Left Descending Bank (BRLD Sta. 40+00)
FRAGO CLASS: 1 - High Potential for Loss of Life
RISK: 440,171 residents, in excess of $37B in structures
REPAIR: Flood Side Berm
REPAIR COST: $1,761,000

Damage Assessment
Baton Rouge Front is a known flood-side slope paving site that is experiencing large cracking due to flood side stability that was monitored closely during high water. MVN began monitoring 1 Apr 11. Engineering has previously taken borings at the site and have started design on a permanent fix. CN railroad tracks are on top of the levee section at this location. The CN railroad was restricted to use of the landside track only and no parking and speed limit of 10 mph on 6 May 11, due to placement of sand bags on the riverside track. If this site goes without repair for the next flood season the risk would be the advancement of ongoing flood-side slope slide and scour due to undermining of concrete slope pavement.

Risk and Consequence
The Mississippi River East Bank System consists of approximately 107.2 miles of Mississippi River Levees. The System is located on the east side of the Mississippi river stretching from the north side of Baton Rouge down to the Bonnet Carré Spillway. The levees protect residential, commercial, industrial (heavy and light), pasture and farm land from Baton Rouge to New Orleans. If the levees were to fail at the Baton Rouge Front site, the population at risk could be 440,171. The housing units at risk in this system are 190,270 at an approximate total value of $28,121,906,000. The total value of non-residential structures is approximately $9,736,095,000. The total estimated value of structures is in excess of $37B.


Figure 1: Baton Rouge Front Cracked Slope Pavement

Critical Repairs
Recommended repair is flood-side berm. The total project is estimated to cost $1,761,000.

Special Considerations
NEPA compliance will be achieved through a categorical exclusion. Additional environmental compliance documentation including, but not limited to Section 404(b)(1), Section 401 Water Quality Certification, Threatened and Endangered Species, and Section 106 Cultural Resources will be prepared as required. No mitigation costs are expected as result of construction of the proposed Reset action.

Schedule
The Baton Rouge Point repair is scheduled to advertise on 16 October 2011. The award date is scheduled for 31 October 2011. The construction duration is anticipated to take six months after award.

Acquisition Strategy
The Baton Rouge Front repair contract is planned to be executed via a MATOC Low Bid Contract.

TAB D

Congressional Hearing

CONGRESSIONAL HEARINGS

Senate Appropriations (12 Oct 11)

Senate EPW (18 Oct 11)

Senate Appropriations (12 Oct 11)

12 October – Senate Appropriations (multiple subcommittees) – Disaster response and recovery – future requirements and how Federal agencies work together (there will be reps from FEMA, SBA, Ag, HUD and Transportation in addition to Army).

MVD Members:

SEN Landrieu (MVD)

SEN Cochran (MVD/SAD)

SEN Alexander (LRD/MVD)

SEN Kohl (LRD/MVD)

SEN Blunt (MVD/NWD)

SEN Durbin (MVD/LRD)

Senate EPW (18 Oct 11)

18 October – Senate EPW – full committee – Missouri/Mississippi River basin flooding – disaster response and recovery/repairs.

MVD Members:

SEN Vitter (MVD)

SEN Alexander (LRD/MVD) (also for 12 October hearing)

SEN Boozman (SWD/MVD)

As of: 03 October 2011

Mississippi River Flooding

Purpose: Senate Appropriations (subcommittees) and Senate EPW hearings on disaster, recovery, and repairs.

Summary Statement: Throughout most of this past spring and all of this summer, USACE has been engaged in responding and attempting recovery from the most historic & unprecedented flood in our nation's history. Current working estimates are that repairs to the system components and infrastructure will exceed $2B.

Impacts to projects: While not a single life was lost in this historic flooding, the lives and livelihoods of millions of Americans have been significantly affected. Critically important flood damage control and navigation infrastructure have experienced significant damages that if not repaired in near-term will lead to far greater economic losses and increased risk for catastrophic failures.

Repair/Restore: Operation Watershed Recovery is comprised of four critical components: Interagency Recovery Task Force, damage assessments, system performance evaluation and repair/recovery construction projects. With limited or uncertain funding outlook for repair/restore construction, it is possible that it may take more than a decade to fully restore the navigational functionality or level of flood protection provided by the pre-flood MR&T. The USACE has prepared a purposeful prioritization protocol for flood recovery that first seeks to repair/restore the most critically damaged areas with clear and present danger to human life/public safety.

Background: Since its initiation, the MR&T project has brought an unprecedented degree of flood protection to over 4.5 million people living in the 35,000 square-mile project area within the lower Mississippi Valley. The nation has contributed $13.9 billion toward the planning, construction, operation and maintenance of the project and, to date, the nation has received a 34 to 1 return on that investment. Such astounding figures place the MR&T project among the most successful and cost-effective public works projects in the history of the United States.

Interagency Approach: The U.S. Army Corps of Engineers' Mississippi Valley Division launched, along with federal and state partners, an Interagency Recovery Task Force intended to develop solutions to restore the Mississippi River Basin's flood risk management systems damaged by recent flood events.
The task force was formed to ensure effective communication and collaboration across the many federal and state agencies that are engaged in the recovery effort. Communication and participation are crucial in making the best decisions for the current impacts to and future flood risk management in the valley. By pooling resources, talents and expertise to create short- and long-term restoration priorities, the task force will focus on key elements that protect the lives and livelihoods of millions of Americans and ensure the system is prepared to prevent future catastrophic flooding.

OPERATION WATERSHED - RECOVERY

Responding to the Historic Mississippi River Flood of 2011

PREPARED STATEMENT (approx 5 min delivery)

Prepared for ASA(CW) Darcy's Congressional Subcommittee Testimony (12 & 18 Oct 2011)

During the early morning hours of May 1, and with concerns of the rapidly increasing flood waters on the Mississippi and Ohio rivers, Major General Michael J. Walsh, Commander of the Mississippi Valley Division, established Operation Watershed. During the flood event, Operation Watershed concentrated efforts on current, future and recovery operations. Current and future operations focused on planning, preparing and executing safety plans that protected the lives and livelihoods of nearly 4.5 million citizens and Infrastructure. Recovery operations were tracking the damages, documenting the event and projecting the recovery needs.

During the 1927 flood the region only employed a haphazard system of public and private levees as a flood control measure, trying to confine the river within the levee system. The result was 72% of the lower valley was under water. More than 26,000-square-miles or 16.8 million acres were flooded, 500 people dead and another 700,000 left homeless.

After the 1927 flood, the nation authorized and funded the Mississippi River and Tributaries system that included levees supplemented by reservoirs, floodways, backwater areas and channel improvements. During the 2011 event, flood flows were roughly equal or greater than those experienced during the 1927 flood, but because of the MR&T project only 38% of the area that flooded in 1927 flooded during the 2011 event. In other words, only 6.35 million acres flooded, with most of that being the land between the levees. The MR&T, while only 89% complete had room to handle more floodwaters. There were an additional 1.8 million acres designed to "make room for the river" between the unused floodway and the backwater areas that were not used as flood storage during the 2011 event. IT IS IMPORTANT TO NOTE THAT NOT A SINGLE LIFE WAS LOST IN THIS HISTORIC FLOOD EVENT.

While the flood waters have now receded, Operation Watershed Recovery remains in full swing. Recovery efforts are broken down into four critical components: Interagency Recovery Task Force, Damage assessments, System Performance Evaluation and Constructing Repair/Restore projects.

For the first time, three of the system's floodways were placed in simultaneous operation to help relieve the enormous stress on the levee system and to reduce the danger to people, their

homes and the businesses that bolster our economy. A watershed approach was used to keep the system intact, and a watershed approach would be needed to repair and restore it, as well. The creation of the Interagency Recovery Task force was meant to do just that. The Corps invited seven states and ten federal agencies to set priorities and plan a comprehensive approach to restoring the flood protection system. All share a responsibility in the recovery efforts and by pooling resources, talents and expertise, the task force will focus on key elements that protect the lives and livelihoods of millions of Americans, while preparing for spring floods. The Mississippi River is a major artery in America's heartland, and as such is a key element of state and local government economic development and job-creation efforts, which is essential in maintaining economic competitiveness and national security.

Since the day waters started to rise, the Corps and our partners have had "boots on the ground" assessing and documenting flood effects. With recession of flood waters, multidisciplinary teams were deployed to inspect, investigate and record damages to project areas. These teams have now largely completed this effort with careful and voluminous documentation that characterize the location, nature, extent, repair alternatives and preliminary repair cost estimates for hundreds of damaged areas. In early August, a Phase I prioritization was conducted to rank order the most critical "REPAIR" areas, this effort identified nearly one-hundred critical project areas with estimated repair cost of roughly eight hundred million dollars. Currently, we are completing a Phase II prioritization which will similarly rank order several hundred additional "RESTORE" sites that have been inspected, estimated total additional cost will be in the $1.0 to $1.2 billion range.

System performance evaluation is a look at what went wrong and what went right. The purpose of this evaluation would be to assess the Mississippi River & Tributaries system performance, identify and prioritize funding requirements for system components necessary to repair/restore the system for future flood events, and assess areas of improvement for water control communication and coordination across the watershed. The resulting document would be a valuable resource for system management, operation and improvements. It would also serve as a reference guide for future flood risk management.

Currently, only ten of our most critical "Human Life/Safety" repair projects have been funded ($75 million) for construction. These projects will provide some very basic level of repair to reduce risk during the approaching flood season. In most cases, a more comprehensive and permanent fix to these and hundreds of additional areas will still be needed.

Without supplemental funding to address the flood and navigation system repair/restore costs, the Corps is looking at internal funding sources to repair and restore the most critical flood control projects damaged by this year's event. Under an internally funded scenario it will require nearly a decade to bring the MR&T system back to its pre-flood performance level leaving many lives, infrastructure and livelihoods in position of increased risk or possibly catastrophe from subsequent flood events.

As the Mississippi River Valley rebounds from the 2011 flood, Operation Watershed Recovery the Corps will continue the work that is crucial to the restoration of our region. With the support of our task force members, damage assessments, system performance evaluations and construction crews, the best decisions can be made toward current impacts and future flood risk management in the valley.