

INTERIM STANDING INSTRUCTIONS TO THE PROJECT MANAGER FOR  
WATER CONTROL

MORGANZA CONTROL STRUCTURE  
MISSISSIPPI RIVER AND TRIBUTARIES PROJECT  
LOWER MISSISSIPPI RIVER BASIN, LOUISIANA

Exhibit B  
to the Water Control Manual  
for  
Morganza Floodway

New Orleans District  
U.S. Army Corps of Engineers  
August 2014

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## PERTINENT DATA

Completion Date	1955
Structure Composition	125 bays, each containing two steel leaves, each 11.25 feet high by 28.25 feet wide.
Weir Crest Elevation	37.5 feet NGVD29
Top of Gate Elevation	60.0 feet NGVD29
Net Weir Width	3,531.25 feet
Maximum Headwater, Gates Closed	60.0 feet NGVD29
Maximum Headwater, Gates Open	57.0 feet NGVD29
Maximum Tailwater	56.0 feet NGVD29
Design Discharge	600,000 cfs
Adjustment from NGVD29 to NAVD88 [2004.65] Datum	Subtract 0.38 feet

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1. BACKGROUND AND RESPONSIBILITIES.

a. General Information.

(1) This interim water control document is prepared in accordance with paragraph 5 and pg A-9-12 of Mississippi Valley Division Regulation 1110-2-240 and is intended to clarify the current Morganza Floodway Water Control Manual dated Feb 2000. A copy of these instructions should be kept on hand at the project site or Project Manager's Office at all times. Any deviation from these instructions will require the approval of the District Commander. As a result of the performance of the Morganza Floodway feature of the Mississippi River and Tributaries (MR&T) Project during the 2011 Flood, these interim standing instructions have been prepared to address deficiencies and issues with the floodway. These interim standing instructions will remain in effect until completion of analyses on the floodway itself and the ongoing review of the MR&T Project Flood Flowline which will inform a future complete update and revision of the Morganza Floodway Water Control Manual.

(2) The Morganza Control Structure is a major feature of the "Mississippi River and Tributaries" Flood Control Project authorized by the Flood Control Act of 15 May 1928 and several subsequent amendments. It is operated as a component of the MR&T project to avoid unacceptable stress along the main stem of the Mississippi River. This operation involves passing water from the Mississippi River to the Atchafalaya Basin via the Morganza Floodway in order to minimize flood damages in the lower river reaches, minimize stress in leveed reaches, prevent stages from exceeding the approved flowline (i.e. encroachment on freeboard requirements), and prevent the discharge in the

Mississippi River from exceeding 1,500,000 cubic feet per second (cfs) below the floodway or 1,250,000 cfs at New Orleans.

(3) The Morganza Control Structure is located in Pointe Coupee Parish, Louisiana, in the right descending bank of the Mississippi River levee just above the town of Morganza, Louisiana, at about river mile 280 above Head of Passes (AHP). The structure consists of a vertical lift gate controlled concrete weir 4,160 feet long. The gated portion is 3,906 feet long with approaches on each side 127 feet long. The gated portion consists of a weir at 37.5 feet NGVD29 which has 125 bays, each 28 feet 3 inches wide, separated by 36 inch wide piers.

(4) Physical operation of the Morganza Control Structure may be constrained by scour damage to the tailbay area resulting from structure operation. Repairs and improvements to the tailbay scour protection were completed in 2014 to address issues exposed during the Flood of 2011. The tailbay scour protection should now be able to withstand scouring as long as the structure is operated as described in this manual. Nevertheless, scour indicators will be used and scour surveys will be performed to monitor any possible damage to the tailbay area. Scour surveys will be performed at least once a week, with some structure bays closed and others opened as necessary to facilitate the surveys.

The presence of the endangered Louisiana black bear in the Morganza Floodway represents a constraint on a sudden full operation of the structure, as the Floodway provides critical habitat to these bears, which belong to one of three remaining subpopulations still existing in Louisiana. As detailed in paragraph 3.b.(2), the structure must be opened slowly and well in advance of full operation to allow these bears to escape to higher ground. Other wildlife losses, damage to domesticated crops, and damage to recreational facilities are not considered major constraints to operation.

(5) The Morganza Control Structure is owned by the U.S. Army Corps of Engineers. Operation and maintenance of the structure is provided by the Corps, as stated in the operation and maintenance manual dated September 1962.

b. Role of the Project Manager

(1) Normal Conditions. The Morganza Control Structure is not operated under normal hydrometeorological conditions; it is operated only during major floods. The two 5.5 foot square sluice gates may be operated to drain the forebay area if it is flooded by rainfall or by river stages overtopping the potato ridge levee separating the forebay from the river. Under normal hydrometeorological conditions, the Project Manager is responsible for operating these sluice gates without day-to-day instruction from the District office. However, the Hydraulics and Hydrologic Branch should be contacted any time conditions are such that consultation or additional instruction regarding water control procedures is needed. A list of contact phone numbers is included in these instructions as Plate 1.

(2) Emergency Conditions. The Project Manager will be instructed by water control managers in the District office on a day-to-day basis for water control actions under emergency conditions. The Project Manager will issue adequate warning or otherwise alert all affected interests to possible hazards caused by project regulation.

2. HYDROMETEOROLOGICAL DATA COLLECTION AND REPORTING.

a. Normal Conditions. There is no routine data collection required of the Project Manager during normal hydrometeorological conditions. If the forebay area is flooded, the District office may request readings from the MFI-4 or MD-8 staff gages. These readings may be transmitted to the District office by phone, email, fax, or other practicable means.

b. Emergency Conditions. During emergency conditions the Project Manager will read the MFI-4 and MD-8 gages at least once daily, but more frequent readings may be requested. Readings from other staff gages (MA-1, ME-6, ME-7, MD-6, MD-7, etc.) may also be requested. The Project Manager will be notified by the District Office of regional hydrometeorological conditions that may impact the project.

### 3. WATER CONTROL ACTION AND REPORTING.

a. Normal Conditions. No water control actions are required under normal conditions; the structure is only operated during major floods. If the forebay area is flooded, the Project Manager may operate the two sluice gates to drain the forebay under otherwise normal conditions, adjusting gate openings as necessary to keep the flow in Cowhead Bayou within its banks downstream of the structure.

b. Emergency Conditions.

(1) Pre-Opening Action. Upon notification that operation of the Floodway may become necessary, the Project Manager will mobilize the necessary personnel and resources for Floodway activation, then promptly take the following actions, prior to opening the floodway.

(a) Establish liaison with all interested parties, flood fight sector commanders, and agencies.

(b) Contact State Police Headquarters and arrange for control of traffic by Highway Patrol along Louisiana Highway No. 1 in the vicinity of the structure and guide levees. Contact the railroads crossing the weir and arrange for traffic control and a daily list of dangerous cargo crossing the floodway once the structure is in operation.

(c) Inspect and test all operating machinery and install scour indicators in the tailbay.

(d) Approximately two weeks before a possible Floodway activation, test operate the Pointe Coupee Drainage Structure by executing a complete normal operation of this structure to verify that it is fully functional. Instructions for physical operation of this structure are provided in the Operation and Maintenance Manual, Morganza Floodway, Louisiana, Floodway Control Structure and Pointe Coupee Drainage Structure, dated September 1962.

(e) After the “potato ridge levee” in the forebay is overtopped, initiate degrading of this levee using a floating plant if Floodway operation appears imminent.

(f) Invoke safety requirements and provide equipment and facilities necessary for protection of Corps of Engineers personnel and the general public.

(g) Advise EOC and Chief, Operations Division when all of the above has been completed.

(2) Structure Opening. Upon direction from the Chief, Operations Division, the Project Manager will open the structure gates in accordance with the Operations and Maintenance Manual in the order shown in Tables 1 and 2 (Plates 5-1 and 5-2). This opening sequence was developed by MVN Water Management personnel in collaboration with the ERDC researchers who performed the physical model investigation leading to the improved scour protection in the tailbay. The number of gates to open with each change and their bay numbers will be specified in a joint memorandum prepared by personnel from the Water Management Unit and signed by the Chief, Engineering Division and Chief, Operations Division. Operating instructions will be timed and prepared such that, to the extent possible, the water depth in the floodway does not increase by more than one foot per day for the first three days of operation, in accordance with endangered species constraints detailed in Chapter V of this Water Control Manual. This rate of rise will be assessed at staff gage C-6, located on the



Morganza Floodway East Guide Levee / East Atchafalaya Basin Protection Levee at approximately 30° 43' 44" N, 91° 39' 40" W (see Figure 1). Under most flood conditions, this rate of rise can be achieved by limiting the initial opening to one full bay per day, which may require opening the structure as much as three days in advance of full operation.

The structure shall be operated such that the stage on the river side of the structure does not exceed 57 feet NGVD29 (56.7 feet NAVD88 [2004.65]) and the Mississippi River discharge below the floodway does not exceed 1,500,000 cfs on a projected rise, based upon a 10 day forecast. The structure may also be operated to minimize flood damages in the lower river reaches, minimize stress in leveed reaches, prevent stages from exceeding the approved flowline (i.e. encroachment on freeboard requirements), and prevent the discharge in the Mississippi River from exceeding 1,250,000 cfs at New Orleans, but will not be operated to increase the total discharge in the Atchafalaya Basin beyond 1,500,000 cfs unless discharge in the Mississippi River below the structure will also exceed 1,500,000 cfs. A river stage of 57 feet NGVD29 at the structure equates to a Mississippi River discharge of approximately 1,400,000 cfs as of the most recent update of this document. This headwater stage constraint is in place to ensure personnel safety and operational reliability by avoiding possible overtopping of the structure. Normally, this stage will occur approximately three to five days after stages at Arkansas City reach approximately 40 to 52 feet on the gage there, depending on the speed of the rise and the effects of tributaries and storage areas between Arkansas City and the Morganza Structure. Extending this analysis further upriver of Arkansas City is problematic due to the great influence of the Arkansas and White Rivers on Mississippi River discharge. Ten-day river forecasts will be prepared daily by the Hydraulics and Hydrologic Branch so that predictions may be prepared for the date when floodway operation may become necessary.

(3) Activities During Operation. Operation of the Morganza Floodway increases the discharge in the Atchafalaya Basin Floodway beyond the 30% of total latitude discharge the Floodway carries during normal conditions. The following activities will be required prior to, or coincident with, operation of the Morganza Floodway.

(a) Pointe Coupee Drainage Structure. The Project Manager of the Morganza Floodway will normally close the Pointe Coupee Drainage Structure (located in the Morganza Upper Guide Levee) coincidentally with the opening of the Morganza Control Structure. The Pointe Coupee Pumping Station is indirectly affected by floodway operation. In the event of local rainfall while the drainage structure is closed, the pumping station is forced to operate longer than normal to drain the upper Pointe Coupee Parish loop area, which is surrounded by levees. Additionally, the Project Manager will maintain constant contact with the EOC, Lafayette Area Engineer, and the Pointe Coupee-Morganza Sector Commander, as necessary to ensure effective coordination of actions regarding possible manipulation of gates and/or possible drainage pump requirements for the Pointe Coupee loop area on an emergency basis.

(b) Morgan City Floodwall and East Atchafalaya Basin Protection Levee. There are a total of nine vehicular gates, one railroad gate, and one combined vehicular/railroad gate in the Morgan City Floodwall which must be closed during times of high discharge in the Lower Atchafalaya River. These include eight swing gates, two overhead roller gates and one stoplog gate. The metal stoplog appurtenances are in storage in care of the city government at Morgan City, together with sufficient concrete panels to complete closure to the top of the adjacent flood wall. The responsibility for the timely closure of the gates rests with the Sector Commander, Lower East Atchafalaya Sector. Two floodgates in the storm drainage system in the vicinity of Station 32+00 must also be closed by the Sector Commander.

(c) West Atchafalaya Basin Protection Levee. The Upper West Atchafalaya Sector Commander is responsible for the proper closure of the Bayou D'Arbonne Culvert and Courtableau Floodgates. Normally, the Sector Commander will request the Project Manager, Morganza, to have Morganza personnel close the D'Arbonne and Courtableau Structures. The Sector Commander will also ensure proper closure of the Coulee des Grues Floodgates located northwest of the levee system.

(d) Berwick Floodwall. There are a total of eight vehicular gates, one railroad gate and two combined vehicular/railroad gates in the Berwick Floodwall which must be closed. All gates are overhead roller gates, except the gate for the Southern Pacific railroad mainline track, which is a stoplog gate. The movable steel gates will be closed coincidentally with a Morganza operation. The responsibility for the timely closure of the gates rests with the Sector Commander, Lower East Atchafalaya Sector. (See Plate 1-13).

(e) Levees West of Berwick. Areas west of Berwick, protected by Federal levees, are provided pumping stations to evacuate local rainfall-runoff coincident with major floods along the lower Mississippi River Basin. Through cooperative agreements, locals are responsible for operating these pumping stations.

(f) Melville, Simmesport, and Krotz Springs Ring Levees. The responsibility for the timely closure of the culverts and for securing adequate pumping facilities rests with the West Atchafalaya River Sector Commander.

(4) Structure Closure. Upon direction from the Chief, Operations Division, the Project Manager will close the structure gates in accordance with the Operations and Maintenance Manual in reverse of the order shown in Tables 1 and 2 (Plates 5-1 and 5-2). The number of gates to close and their bay numbers will be specified in a joint memorandum prepared by personnel from the Water Management Unit and signed by the Chief, Engineering Division and Chief, Operations Division.

Typically, closure operations will begin as early as possible while maintaining stages in the Mississippi River at Morganza below 57 feet NGVD29, maintaining Mississippi River discharge below the Floodway below 1,500,000 cfs, maintaining Mississippi River discharge past New Orleans below 1,250,000 cfs, and protecting downstream leveed reaches from unacceptable stress.

(a) Drainage of Forebay. After a Morganza floodway operation, the forebay area should be drained quickly to allow inspections of the structure and guide levees. Draining the forebay using the sluice gates alone can take many months, depending on weather conditions. One or more structure bays may be used to drain the forebay more quickly, but gate openings must be computed such that tailbay stages will not be increased after the main floodway operation has ended, to ensure that impacts in the floodway are minimized. Once forebay stages have fallen to the weir crest, all remaining open bays will be closed and the two 5.5 foot square sluice gates will be used for further drainage.

The Project Manager may temporarily deviate from these Standing Instructions in the event it is necessary for emergency reasons to protect the safety of the structure, to avoid health hazards, or to avoid any other critical situation that may arise. Such action will be reported immediately to a water control manager in the District Office. The District Office will forward information on such emergency deviations to the Mississippi Valley Division Office.

c. Inquiries. All significant inquiries received by the Project Manager from citizens, constituents or interest groups regarding water control procedures or actions must be referred directly to water control managers in the Hydraulics and Hydrologic Branch, Engineering Division, New Orleans District.

d. Water Control Problems. Water control managers in the Hydraulics and Hydrologic Branch of the New Orleans District Office must be contacted immediately by the most rapid means available in the event an operational malfunction, erosion, or other incident occurs that could impact project integrity in general or water control capability in particular. The New Orleans District Office will keep the Mississippi Valley Division Watershed Division Office informed of any possible impairments to project integrity or water control capability.

e. Communication Outage. If primary telephone circuits are unavailable or inoperative, the Project Manager shall communicate with the District Office by cellular telephone. In the event of a total communication outage, the Project Manager will continue to regulate the project using these instructions until communications are restored.

MORGANZA STRUCTURE SEQUENCE OF OPERATIONS TABLE I NORTH CRANE					10 Jun 2014
Sequence	Bay	Opening	Sequence	Bay	Opening
1	69	Halfway	44	87	Halfway
2	77	Halfway	45	93	Halfway
3	65	Halfway	46	99	Halfway
4	73	Halfway	47	105	Halfway
5	81	Halfway	48	111	Halfway
6	63	Halfway	49	117	Halfway
7	67	Halfway	50	123	Halfway
8	71	Halfway	51	66	Halfway
9	75	Halfway	52	72	Halfway
10	79	Halfway	53	78	Halfway
11-20	Repeat sequences 1-10, opening gates fully		54	89	Halfway
			55	95	Halfway
21	88	Halfway	56	101	Halfway
22	108	Halfway	57	107	Halfway
23	124	Halfway	58	113	Halfway
24	96	Halfway	59	119	Halfway
25	116	Halfway	60	125	Halfway
26	92	Halfway	61	64	Halfway
27	100	Halfway	62	70	Halfway
28	104	Halfway	63	76	Halfway
29	112	Halfway	64	82	Halfway
30	120	Halfway	65	91	Halfway
31	86	Halfway	66	97	Halfway
32	90	Halfway	67	103	Halfway
33	94	Halfway	68	109	Halfway
34	98	Halfway	69	115	Halfway
35	102	Halfway	70	121	Halfway
36	106	Halfway	71-120	Repeat sequences 21-70, opening gates fully	
37	110	Halfway			
38	114	Halfway	121	85	Halfway
39	118	Halfway	122	84	Halfway
40	122	Halfway	123	83	Halfway
41	68	Halfway	124	85	Full open
42	74	Halfway	125	84	Full open
43	80	Halfway	126	83	Full open

NOTE: The South Crane will open Bay 61 before the North Crane opens Bay 69.

MORGANZA STRUCTURE SEQUENCE OF OPERATIONS TABLE II SOUTH CRANE					10 Jun 2014
Sequence	Bay	Opening	Sequence	Bay	Opening
1	61	Halfway	44	37	Halfway
2	53	Halfway	45	31	Halfway
3	45	Halfway	46	25	Halfway
4	57	Halfway	47	19	Halfway
5	49	Halfway	48	13	Halfway
6	59	Halfway	49	7	Halfway
7	55	Halfway	50	1	Halfway
8	51	Halfway	51	60	Halfway
9	47	Halfway	52	54	Halfway
10	43	Halfway	53	48	Halfway
11-20	Repeat sequences 1-10, opening gates fully		54	35	Halfway
			55	29	Halfway
21	38	Halfway	56	23	Halfway
22	18	Halfway	57	17	Halfway
23	2	Halfway	58	11	Halfway
24	30	Halfway	59	5	Halfway
25	10	Halfway	60	58	Halfway
26	34	Halfway	61	52	Halfway
27	26	Halfway	62	46	Halfway
28	22	Halfway	63	39	Halfway
29	14	Halfway	64	33	Halfway
30	6	Halfway	65	27	Halfway
31	36	Halfway	66	21	Halfway
32	32	Halfway	67	15	Halfway
33	28	Halfway	68	9	Halfway
34	24	Halfway	69	3	Halfway
35	20	Halfway	70-119	Repeat sequences 21-69, opening gates fully	
36	16	Halfway			
37	12	Halfway	120	40	Halfway
38	8	Halfway	121	41	Halfway
39	4	Halfway	122	42	Halfway
40	62	Halfway	123	40	Full open
41	56	Halfway	124	41	Full open
42	50	Halfway	125	42	Full open
43	44	Halfway			

NOTE: The South Crane will open Bay 61 before the North Crane opens Bay 69.

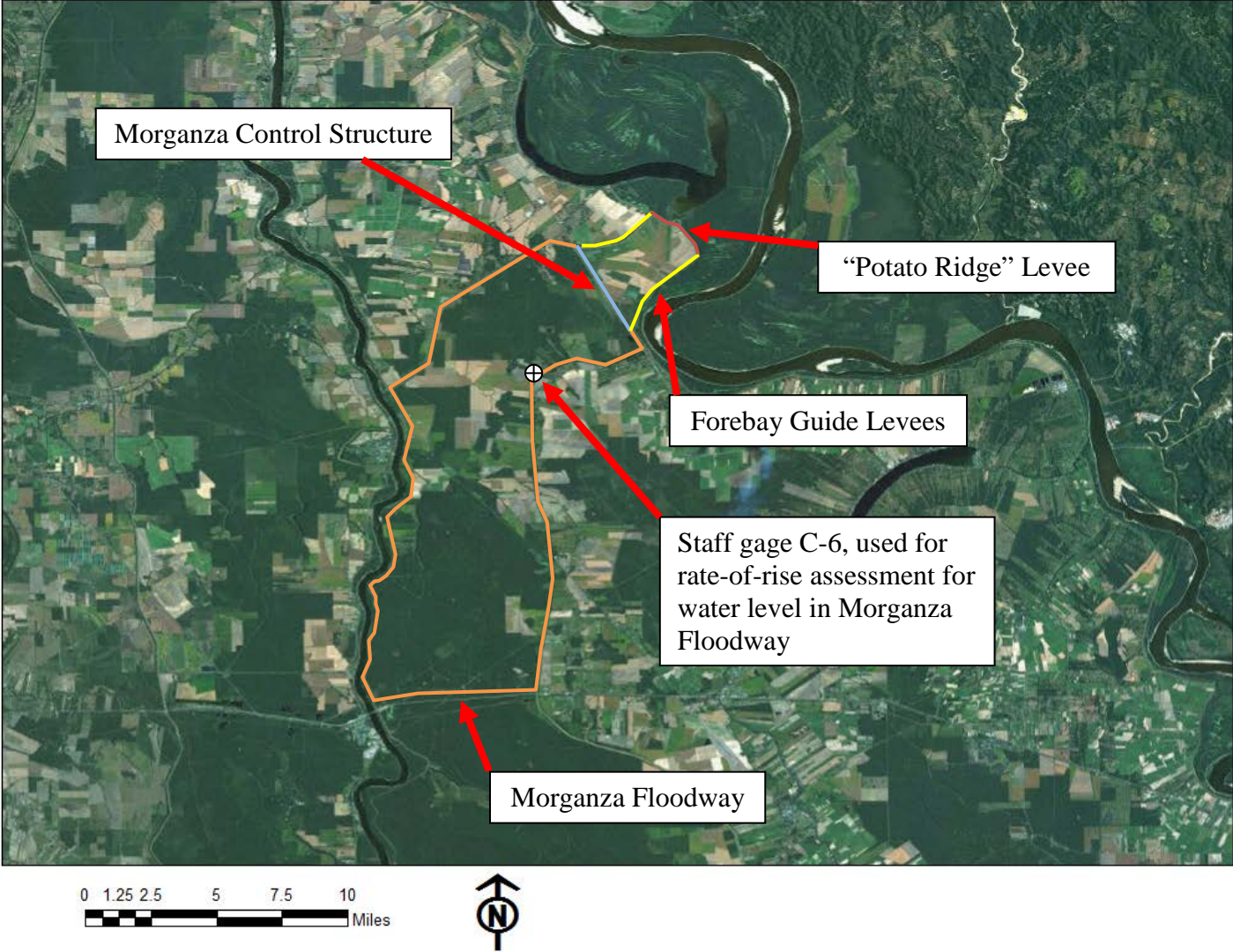


Figure 1



EMERGENCY REGULATION ASSISTANCE PROCEDURES

In the event that unusual conditions arise during nonduty hours, communication can be achieved by contacting, in the order listed, one of the following personnel.

Russell Beauvais Old River Project Manager (night)	225-492-2169 225-202-3851
Julie Leblanc, P.E. Chief, Hydraulics and Hydrologic Branch (night)	504-862-1597 504-858-8125
Mark Hoague, P.E. Chief, Engineering Division (night)	504-862-2240 504-206-8609
Chris Accardo, P.E. Chief, Operations Division (night)	504-862-1417 504-715-7300
Mike Stack, P.E. Chief, Emergency Management (night)	504-862-1159 314-809-7036
LTC Austin Appleton Deputy District Engineer (night)	504-862-1914 504-343-9385
COL Richard Hansen District Engineer (night)	504-862-2077 504-234-9801