

**UPPER MISSISSIPPI RIVER RESTORATION**  
**LAKE ODESSA**  
**HABITAT REHABILITATION AND ENHANCEMENT PROJECT**

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**OPERATION AND MAINTENANCE MANUAL**

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**APPENDIX D**  
**PROJECT REFERENCES AND REGULATIONS**



**Engineering Regulation (ER) 500-1-1, *Natural Disaster Procedures*.** US Army Corps of Engineers (Corps), CECW-OE, 30 September 2001. This regulation prescribes policies for the Corps' Civil Emergency Management Program under the authorities of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act; 42 U.S.C. 5121 et seq.); Army Regulation 500-60, *Disaster Relief*; and Engineer Regulation (ER) 1130-2-530, *Flood Control Operation and Maintenance Policies*. ER 500-1-1 can be found online at the following address:

[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_500-1-1.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_500-1-1.pdf)

**Engineering Pamphlet (EP) 500-1-1, *Civil Emergency Management Program Procedure*.** US Army Corps of Engineers, CECW-OE, 30 September 2001. This pamphlet prescribes processes and procedures for the management and execution of the Corps' Civil Emergency Management Program under the authorities of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act; 42 U.S.C. 5121 et seq.); Army Regulation 500-60, *Disaster Relief*; ER 1130-2-530, *Flood Control Operations and Maintenance Policies*; and ER 500-1-1, *Natural Disaster Procedures*. EP 500-1-1 is a companion document to, and must be used in conjunction with, ER 500-1-1. In case of a discrepancy between this pamphlet and ER 500-1-1, ER 500-1-1 governs. EP 500-1-1 can be found online at the following address:

[http://www.publications.usace.army.mil/portals/76/publications/engineerpamphlets/ep\\_500-1-1.pdf](http://www.publications.usace.army.mil/portals/76/publications/engineerpamphlets/ep_500-1-1.pdf)

**33 USC 408 Section 408. *March 3, 1899.*** It shall not be lawful for any person or persons to take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States, or any piece of plant, floating or otherwise, used in the construction of such work under the control of the United States, in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods, or as boundary marks, tide gauges, surveying stations, buoys, or other established marks, nor remove for ballast or other purposes any stone or other material composing such works:

*Provided, That the Secretary of the Army may, on the recommendation of the Chief of Engineers, grant permission for the temporary occupation or use of any of the aforementioned public works when in his judgment such occupation or use will not be injurious to the public interest: Provided further, That the Secretary may, on the recommendation of the Chief of Engineers, grant permission for the alteration or permanent occupation or use of any of the aforementioned public works when in the judgment of the Secretary such occupation or use will not be injurious to the public interest and will not impair the usefulness of such work.*

**Definite Project Report.** *Upper Mississippi River System Environmental Management Program, Definite Project Report with Integrated Environmental Assessment (R-14F), Lake Odessa Habitat Rehabilitation and Enhancement*, U.S. Army Corps of Engineers, Rock Island District. April 2005.

**Manufacturer's Shop Drawings/Instructions.** These drawings and documents provide specific details of federally installed equipment and provide manufacturer recommended operation and maintenance instructions. The Corps provided these documents to the USFWS at an earlier date.

**Flood Fighting and Emergency Measures.** Developed by the Rock Island District, this guidance describes techniques and procedures necessary to operate an environmental management project when threatened by a flood event. See Appendix F.

Section 107, Water Resources Development Act of 1992

PUBLIC LAW 102-580—OCT. 31, 1992

106 STAT. 4815

**SEC. 107. UPPER MISSISSIPPI RIVER PLAN.**

(a) **EXTENSION OF AUTHORIZATION.**—Section 1103(e) of the Water Resources Development Act of 1986 (33 U.S.C. 652(e)) is amended—

(1) in paragraph (2) by striking “ten” each place it appears and inserting “15”;

(2) by redesignating paragraphs (6) and (7) as paragraphs (7) and (8), respectively; and

(3) by inserting after paragraph (5) the following new paragraph:

“(6) **TRANSFER OF AMOUNTS.**—

“(A) **GENERAL RULE.**—Subject to subparagraph (B), for each fiscal year beginning after September 30, 1992, the Secretary, in consultation with the Secretary of the Interior, and the States of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, may transfer not to exceed 20 percent of the amount appropriated to carry out each of subparagraphs (A), (B), and (C) of paragraph (1) to carry out any other of such subparagraphs.

“(B) **LIMITATION.**—The aggregate amounts obligated in fiscal years 1988 through 2002—

“(i) to carry out paragraph (1)(A) may not exceed \$189,600,000;

“(ii) to carry out paragraph (1)(B) may not exceed \$78,800,000; and

“(iii) to carry out paragraph (1)(C) may not exceed \$12,040,000.”.

33 USC 652.

(b) **FISH AND WILDLIFE HABITAT REHABILITATION AND ENHANCEMENT PROJECTS.**—Section 1103(e) of such Act is amended by striking paragraph (7)(A), as redesignated by subsection (a)(2), and inserting the following new paragraph:

“(7)(A) Notwithstanding the provisions of subsection (a)(2) of this section, the costs of each project carried out pursuant to paragraph (1)(A) of this subsection shall be allocated between the Secretary and the appropriate non-Federal sponsor in accordance with the provisions of section 906(e) of this Act; except that the costs of operation and maintenance of projects located on Federal lands or lands owned or operated by a State or local government shall be borne by the Federal, State, or local agency that is responsible for management activities for fish and wildlife on such lands.”.

# ER 1110-2-101 - Reporting Evidence of Distress of Civil Works Structures.

CECW-E

Regulation  
No. 1110-2-101

DEPARTMENT OF THE ARMY  
US Army Corps of Engineers  
Washington, DC 20314-1000

ER 1110-2-101

15 March 1996

## Engineering and Design REPORTING OF EVIDENCE OF DISTRESS OF CIVIL WORKS STRUCTURES

### 1. Purpose

This regulation prescribes the responsibilities and procedures for the immediate notification to higher authority of evidence of distress or potential failure of civil works projects. These procedures apply to projects under construction or in operation.

### 2. Applicability

This regulation applies to all HQUSACE/OCE element, major subordinate commands (MSC), districts, and field operating activities (FOA) having civil works responsibilities.

### 3. References

- a. ER 1110-2-100, Periodic Inspection and Continuing Evaluation of Completed Civil Works Structures.
- b. ER 1110-2-1802, Reporting Earthquake Effects.
- c. ER 1130-2-320, Equipment Failure and Generation Interruptions, Multiple-Purpose Projects with Power.

### 4. Discussion

The intent of this regulation is to keep the USACE chain of command informed by ensuring the immediate reporting, inspection, and followup evaluation of conditions that demonstrate evidence of distress or conditions that could result in a potential hazard at civil works projects. Initial reporting should be via telephone with a followup written summary with appropriate photographs.

### 5. Procedures

Evidence of distress at Corps projects, including

those listed in paragraph 6, will be immediately reported to the District Office. The district Dam Safety Officer will confirm the situation and determine if an engineering evaluation of the condition is required and if remedial measures will be required, and will immediately report the conditions, through command channels, to the HQUSACE Dam Safety Officer. If the HQUSACE Dam Safety Officer cannot be contacted, the reporting MSC or field office will follow the notification sequence as outlined in Appendix A. Each USACE Command will also establish procedures for notification of the Division and District Dam Safety Officers and coordination of all information with their counterparts in the Emergency Management element. The HQUSACE Dam Safety Officer will notify the Director of Civil Works and the Commander, USACE.

### 6. Distress Signals

Typical evidence of distress to be reported is as follows:

- a. Sloughs, settlement, or slides in embankments such as earth or rockfill dams, urban levees, and bridge abutments or slopes of spillway, channels, and lock and dam abutments.
- b. Evidence of piping, muddy water boils in the areas of a structure such as embankments, abutments, dam monoliths, lock walls, or cofferdams.
- c. Abnormal increase or decrease of flow from foundation drains, structural joints, or face drains of concrete dams.
- d. Any increase in seepage quantities through or under embankments or in abutments.
- e. Any significant change in pore-water

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This regulation supersedes ER 1110-2-101, dated 31 January 1993.

ER 1110-2-101  
15 Mar 96

pressure in either embankments or their foundations or abutments.

- f. Any significant change in uplift pressures under concrete structures.
- g. Unusual vertical or horizontal movement or cracking of embankments or abutments.
- h. Significant cracking of mass concrete structures, either during construction or after completion.
- i. Sinkholes or localized subsidence in the foundation of or adjacent to embankments or other pertinent structures critical to the safe operation of the project.
- j. Excessive deflection, displacement, or vibration of concrete structures (e.g., tilting or sliding of intake towers, bridge piers, lock walls, or floodwalls).
- k. Erratic movement, binding, excessive deflection, or vibration of outlet and spillway gates and large flow control valves.
- l. Significant damage to any structure (e.g., barge damage to bridge piers or lock walls or ice flow damage to intake towers and access bridge piers).
- m. Significant damage to, or changes in, structures, foundations, reservoir levels, groundwater conditions, and adjacent terrain as a result of seismic events. Special inspections for damages should be made immediately following the events as described in ER 1110-2-1802.
- n. Any other indications of distress or potential failure that could inhibit the operation of a project

FOR THE COMMANDER:

1 Appendix  
APP A - HQUASACE Notification Plan

or endanger life and property.


- o. Excessive vibration, binding, unusual noises, movements, or deflections of gate hoist operating equipment.
- p. Actual hydraulic equipment operating pressure in excess of 125 percent of the normal operating pressure. Electric motor operating equipment overheating or stalling.
- q. Erratic movement or unusual sounds such as bumping, jumping, or popping of lock miter gates.
- r. Wire rope lifting cables or lifting chains having broken strands or deformed, worn, or severely corroded links.
- s. Frequent power interruptions.
- t. Excess movement of penstock flexible couplings.
- u. Penstocks or turbine spiral cases that show signs of distress such as deformation or cracking.
- v. Failure of major mechanical or electrical equipment at local flood protection projects.

#### 7. Inspections

Special inspections to evaluate damages or changes should be made immediately following any of the events outlined in paragraph 6. This is particularly important in the case of earthquake damage.

#### 8. Reporting Requirements

The requirements for reporting evidence of distress or potential failure as set forth above does not alter the requirements of regulations referenced in paragraph 3.

  
ROBERT H. GRIFFIN  
Colonel, Corps of Engineers  
Chief of Staff

APPENDIX A  
HOUSACE Notification Plan

1. Steven L. Stockton, P.E. HQUASCE Dam Safety Officer  
Chairman of the Dam Safety  
Committee  
Chief, Engineering Division  
CECW-E  
Office: (202) 761-4536  
Home: (202) 775-8421
2. Arthur H. Walz, P.E. Chief, Geotechnical and  
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CECW-EG  
Office: (202) 761-8681  
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3. Donald Dressler, P.E. Chief, Structures Branch  
CECW-ED  
Office: (202) 761-0220  
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4. Robert Kinsel, P.E. Chief, Electrical & Mechanical  
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CECW-EE  
Office: (202) 761-8616  
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5. Earl E. Eiker, P.E. Chief, Hydraulics and  
Hydrology Branch  
CECW-EH  
Office: (202) 761-8500  
Home: (410) 465-2120
6. Daniel R. Burns, P.E. Chief, Operations and  
Readiness Division  
CECW-O  
Office: (202) 761-0196  
Home: (703) 313-7660
7. Allen Hurlocker, P.E. (Acting) Chief, Construction Branch  
CECW-OC  
Office: (202) 761-8831  
Home: (703) 878-0704

Listed personnel are also members of the HOUSACE Dam Safety Committee

