CESWL-CO-ON

DEPARTMENT OF THE ARMY
Little Rock District, Corps of Engineers
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LRDOM 1145-2- 24

Office Memorandum
No. 1145-2-24

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATION PROCEDURE NO. 1
LOCK OPERATIONS

1. Purpose. The purpose of the memorandum is to establish requirements and procedures for operations in the lock area.

2. Applicability. The provisions herein are applicable to all locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. Reference. Section 207.275 of the Code of Federal Regulations, Title 33.

4. Definitions.

a. Lock area. The "lock area" is considered to be between the upstream and downstream arrival points at each lock.

b. Entering the lock. A vessel or tow is considered to be entering the lock when its bow or head is within 400 feet of the upper or lower ends of the long walls.

c. Leaving the lock. A vessel or tow is considered to have left the lock when its stern has cleared the upper or lower ends of the long walls.

This memorandum replaces LRDR 1145-2-6 dated 13 March 1970.
This memorandum replaces LRDR 1145-2-7 dated 23 April 1971.
This memorandum replaces LRDR 1145-2-10 dated 15 September 1970.
This memorandum replaces LRDR 1145-2-11 dated 23 April 1971
This memorandum replaces LRDR 1145-2-12 dated 15 January 1973.
This memorandum replaces LRDR 1145-2-13 dated 11 April 1978.
This memorandum replaces LRDR 1145-2-14 dated 11 April 1978.
This memorandum replaces LRDR 1145-2-18 dated 25 May 1972.
This memorandum replaces LRDR 1145-2-20 dated 11 September 1981.

5. Responsibilities of Towboat/Tow Owners. In no event will the owner of a tow be relieved of the responsibility for damage to Government property which may be caused by his tow.

6. Lockage of Vessels.

a. Traffic controls. Unless otherwise directed by the lockmaster, tows shall not pass the arrival point under any conditions, as provided in paragraph (c) of the above reference. While in the lock area, towboat pilots with serviceable radios shall stand by on channel 16, unless otherwise instructed by lock personnel to monitor another channel (usually channel 14), for communicating with the lock. Radio communications shall in no way affect the requirements for use of sound signals or display of visual signals as provided in the above-referenced regulations.

(1) Procedures during favorable navigation conditions. Each lockmaster shall supplement these procedures to establish guidance pertinent to each lock.

(a) Any time river traffic approaches the lock, flashing traffic signal lights shall be turned on to supplement the sound signals.

(b) The flashing red light shall be used if the lock is not ready to receive the vessel; i.e., the gates are not fully recessed.

(c) The vessel will be instructed to proceed to a point designated by the lockmaster. If the tow passes the point designated, the lockmaster shall sound five or more short and rapid blasts of a horn to indicate to the vessel to stand clear.

(d) When the lock has been made ready to receive the vessel, the lockmaster shall display one flashing green light and sound one distinct long blast of a horn.

(e) The signal lights will be programmed immediately upon recessing of the miter gates.

(2) Special procedures during periods of potentially hazardous navigation conditions. The lighting and sound signals above shall apply with the following exceptions:

(a) Downbound vessels shall not pass beyond the mooring cells upstream of locks until the chamber has been made ready to receive the vessel and the flashing green light has been turned on.

(b) The flashing green-amber combination (meaning enter with caution) shall only be used when one or both miter gates cannot be fully recessed. The vessel pilot should be notified of this condition by radio if possible.

b. Leaking vessels. A leaking vessel should not be allowed in the lock area if the vessel, in the opinion of the lockmaster, is sinking or may otherwise cause the lock to be placed out of service.

c. Fire hazards. Smoking, open flames, and activities capable of producing a flammable atmosphere, such as painting, should not be permitted in the lock chamber.

d. Speed limit of tows entering locks. While entering locks, the speed of tows shall be limited to 200 feet per minute (the rate of a slow walk). In addition, tows will be required to STOP when their heads are at a point marked by "STOP" signs. Movement of liquids in barges of a tow carrying liquid commodities may cause the tow to run after it has stopped if speed was excessive.

e. Mooring lines, deckhands, and fenders.

(1) Number of lines and deckhand personnel. Tabulated below are the minimum number of lines and deckhand personnel required for handling lines during lockages:

Type of Vessel	No. of Lines	No. of Deckhands
Pleasure craft and commercial vessels	1	1*
Commercial tows with 1 or 2 barges, total length not more than 300 feet, and total width not more than 70 feet.	2	1
Commercial tows with more than 2 barges, total length greater than 300 feet, or total width greater than 70 feet.	2	2

*The above requirement for one deckhand shall be waived for small pleasure craft when the operator is the only person on board.

(2) Mooring lines. All lines shall be properly attended while vessels are moored so they can be cast off quickly and easily in case of emergency. If, in the opinion of the lockmaster, the mooring lines are of such quality, size, or

condition or navigation conditions are such that an additional line or lines are necessary to provide safe lockage, an additional attended line or lines shall be provided by the navigator as required by the lockmaster. If additional lines and deckhand personnel are required, the vessel shall not be locked until they are provided, and the next lock through which the vessel will pass shall be notified of this by the lock personnel. Adequate bow and stern lines will be used when a tow is secured to the lock walls.

(3) Deckhands. One deckhand, or more if the lockmaster so directs, shall be kept at the head of every commercial vessel while entering and leaving the lock. Commercial tows with 1 or 2 barges, a total length not more than 300 feet, and a total width not more than 70 feet may transit a lock with 1 deckhand, provided the bow and stern lines are attended in a manner approved by the lockmaster. One additional deckhand, or more if the lockmaster so directs, shall be kept at the stern of all other tows and commercial vessels that are 65 feet or longer while entering and leaving the lock. When tows 100-feet-wide or wider are entering the lock, the stern deckhand will tend 1 corner of the bow until it clears the open miter gates, at which time he may travel to the stern and prepare to moor the tow in the chamber.

(4) Fenders. Suitable hand-held fenders shall be used by the deckhands to protect the lock walls and gates while entering and leaving the lock. Fenders may be tied in place while the tow is moored, but shall be attended to maintain proper positioning. Fenders not otherwise fireproofed shall be water soaked immediately before lockage. They shall be cylindrical in shape and no less than 6 inches in diameter and 18 inches in length. They shall be manufactured or fabricated for the purpose intended using woven rope, laminated or molded reinforced natural or synthetic rubber, or other suitable material. Neither multiple strands of mooring line, with or without knots, nor old tires will be considered a suitable protective fender.

f. Rearrangement of tows during lockage.

(1) Policy. The rearrangement of tows greater than the length capability of the lock, 595 feet, will normally be allowed for the tows described below:

(a) Knockout. A knockout involves moving only a towboat to reduce the total length of a tow and towboat to not exceed the length capability of the lock.

(b) Setover. A setover involves moving a towboat and barge(s) to reduce the total length of a tow and towboat to not exceed the length capability of the lock.

(c) Double lockage. A double lockage involves two lockages to lock the complete tow.

(2) Procedures.

(a) Upon entering a lock chamber, a towboat shall remain fully made up to a tow until it is properly moored to the floating mooring bitts by at least one bow line and one stern line and the tow shall remain so moored while in the lock chamber. Towboats shall not turn around in the area between the recessed miter gates.

(b) After being lowered or raised and the tow has moved forward to complete the rearrangement, a setover or knockout tow shall be moored by at least one bow line and one stern line while rearranging the tow. One mooring line will be permitted on a three-barge-wide knockout tow, except at Norrell Lock and Lock No. 2 where at least two lines shall be required due to surge conditions. Requests to perform "free barging" will be denied at all locks. Free barging is considered to be the movement of any tow while it is not properly secured to a towboat. Such uncontrolled movement is a hazard to the locks and dams, those performing the act, and other users of the waterway.

(c) The point at which a towboat is made up to a tow should never be adjacent to a miter gate.

(d) The towboat shall be made up to the tow with its port and starboard sides parallel to the lock walls. This procedure is specified to limit pivot movements during lock exit thus reducing the risk of a towboat colliding with closed miter gates.

(e) That part of the tow detached from the towboat during a double lockage shall be securely moored to the lock

longwall or elsewhere as directed by the lockmaster and shall be attended at all times by adequate personnel to insure secure moorings.

(f) A towboat should be completely made up to a tow before mooring lines are cast off and the vessel leaves the lock approach.

g. Tows carrying dangerous cargoes.

(1) Dangerous cargoes defined. Dangerous cargoes are defined in Title 46, Code of Federal Regulations, and through cross reference of Title 49, Code of Federal Regulations. Explosives or other dangerous articles and hazardous materials are classified according to their principal characteristics and properties. These classifications are set out below:

(a) Explosives and blasting agents:

Class A - detonating or otherwise of maximum hazard
Class B - flammable hazard
Class C - minimum hazard

(b) Flammable, combustible, and pyrophoric liquids.

(c) Flammable solids, oxidizers, and organic peroxides.

(d) Corrosive materials.

(e) Gases.

(f) Poisonous materials, irritating materials, and etiologic agents are divided into three groups according to the degree of hazard in transportation:

Poison A - Extremely dangerous poisons, Class A, are poisonous gases or liquids of such nature that a very small amount of the gas or vapor of the liquid mixed with air is dangerous to life.

Poison B - Class B poisons are those substances, liquid or solid (including pastes and semisolids) other than Class A poisons or irritating materials, which are known to be so toxic to man as to afford a hazard to health during transportation.

Irritating Materials - An irritating material is a liquid or solid substance which upon contact with fire or when exposed to air gives off dangerous or intensely irritating fumes, but not including any poisonous material, Class A.

(g) Radioactive materials.

(h) Other regulated material.

(2) Safety rules. The following safety rules are prescribed for all tows containing dangerous cargoes as defined in Title 46, Code of Federal Regulations and through cross reference of Title 49, Code of Federal Regulations. The rules are applicable to both loaded barges and empty barges which have not been cleaned.

(a) All hatches on barges transporting dangerous cargoes shall be closed before the tow enters the lock area. If this is not accomplished, vessels shall be refused lockage and instructed to remain out of the lock area.

(b) If a leaking barge containing dangerous cargo is discovered during a lockage, the tow should be moved downstream from the lock area as safely and as quickly as possible. The towboat operator should be advised of the leaking barge and that he will be refused lockage until the barge is repaired. After the tow is removed from the lock area, the incident should be reported by telephone to the Resident Engineer and the Marine Safety Office (MSO), U.S. Coast Guard, Memphis, Tennessee. The telephone number for MSO during normal working hours is 901-521-3941. At night or on weekends or holidays, the telephone number is 901-521-3912. After these reports have been filed and the barge has been repaired to the satisfaction of lock personnel, the barge may be locked through. Lock personnel at the next lock through which the tow will pass shall be notified of such instances.

(c) Special precautions should be made to insure that fenders are water-soaked or otherwise fireproofed.

(d) Smoking, open flames, chipping, or other spark-producing activities shall not be allowed in the lock area during the lockage of flammable cargoes.

(e) Prior to entering the lock area, pilots of towboats pushing dangerous cargoes shall furnish the following:

name of the product
shipment source
company which made the shipment
consignee

If a towboat is not equipped with a radio or the radio is out of service, towboat pilots will furnish this information to lock personnel while the tow is in the lock chamber. Information on

the tow will be relayed by lock personnel to other locks through which the tow will pass. The above information is included in the shipping papers which are required to be carried in the pilothouse of towboats pushing dangerous cargoes. Tows shall be refused lockage if the towboat pilot does not give this information.

(3) Accidents. If an accident occurs or other hazards develop during the lockage of a tow carrying dangerous cargo, the incident should be reported to the Resident Engineer and the Marine Safety Office, U.S. Coast Guard, Memphis, Tennessee. In addition, the Chemical Transportation Emergency Center (CHEMTREC) should be contacted to obtain response/action information for the product or products involved. The toll-free telephone number for CHEMTREC is 800-424-9300, day or night. Lock personnel should be prepared to give the following information to the CHEMTREC communicator:

(a) What happened - when and where.

(b) Product name.

(c) Shipment source.

(d) Company which made shipment.

(e) Name of carrier.

(f) Consignee.

(g) Whether there are any injuries.

(h) Any hazards that might exist.

(i) Whether there are unusual conditions, such as weather or if the accident occurred in a densely populated area.

h. Locking pleasure craft with commercial craft.

(1) Conditions for joint lockages. The following guidelines shall be observed when locking pleasure craft with commercial craft:

(a) Pleasure craft may be locked with a commercial tow if a minimum of 30 feet of width of the lock chamber for its entire length is available for use by the pleasure craft. In such cases, pleasure craft shall enter the lock only after the tow is moored in the lock chamber. Pleasure craft shall be moored to the

opposite wall from the tow and ahead of the tow. The pleasure craft should leave the lock at completion of the lockage before the towboat mooring lines are cast off.

(b) Pleasure craft awaiting lockage in the opposite direction to which a double lockage tow is locking shall be locked between the first and second sections of the tow when conditions are favorable.

(c) Pleasure craft may be placed in the lock behind a commercial tow that occupies the full width of the lock chamber when there is a clear distance of at least 200 feet between the rear of the tow and the lock gate, if it is considered safe and necessary.

(d) Pleasure craft shall not be placed in the lock chamber ahead of a commercial tow that occupies the full width of the lock chamber.

(2) Safety considerations for lockages. Since safety is a prime consideration, pleasure craft shall not be locked with tows carrying dangerous cargoes or with other commercial craft whenever, in the opinion of the lockmaster, such lockage would be dangerous. Factors affecting the safety of combined lockages include adverse river conditions, such as backlash and other currents; weather conditions, such as heavy rain, fog, or strong winds; physical condition of the lock structure, such as repairs in progress, faulty filling or emptying systems, etc.; and inadequate or unsafe mooring lines. Whenever it is intended to lock pleasure craft with commercial craft, the master or pilot on watch of the commercial craft will be informed of the proposed action. Thorough consideration will be given to any objections he may interpose from the standpoint of safety.

(3) Noncompliance with guidelines. In the event a towboat pilot should refuse to enter a lock because a joint lockage is intended or should back out of a lock chamber in order to avoid a joint lockage, and should this cause delay to other commercial craft awaiting lockage, the tow shall be required to clear the lock approach and give lockage precedence to other commercial craft. This action is in accordance with the provisions of subparagraph (g)(6) of the referenced regulations.

i. Statistical information. Lock personnel are responsible for obtaining and reporting vessel and cargo data from vessel operators transiting the locks. Vessel operators may furnish vessel log data by radio to each lock prior to lockage and the

lock operator will complete the ENG Form 3102c. If the radio reporting system is not used, vessel operators will furnish each lock a completed ENG Form 3102c. Upon receipt of the data, lock personnel shall store the data by using a computer and the Performance Monitoring System (PMS) Input/Pre-Edit Program. When requested by the Navigation Section, usually twice each month, lock personnel shall prepare the computer to transmit the PMS data by telephone hookup between the lock computer and the District Office computer. Lock personnel shall maintain a copy of the data on disks for at least two weeks after transmitting to the District Office. Navigation Section personnel are responsible for checking and processing the PMS data and, on a monthly basis, shall transmit the previous month's records of data to the OCE PMS library.

7. Upstream Mooring Cells.

a. Restricted usage. The mooring cells upstream of the locks and dams are for the use of downbound tows awaiting lockage and shall not be used for other purposes, except emergencies. Use of these facilities in emergency situations will be at the discretion of the lockmaster. The restricted usage of these facilities is necessitated by their proximity to the lock, the inherent danger associated with tows passing in the lock approach, and the need to make these facilities available to other downbound tows. These mooring facilities represent the upstream lock arrival point and the reach from this point to the lock is under the direction of the lockmaster.

b. Reporting usage. If a tow is moored to the cells for more than 6 hours, the lockmaster or his supervisor will report the circumstances to the Resident Engineer. The Resident Engineer will report the circumstances to the Chief, Navigation and Maintenance Branch. A record of violations and discussions with the vessel operators should be entered in the lock log.

8. Layover of Tows at Locks. The practice of allowing tows to layover at locks shall not be encouraged. However, tows will be allowed to layover at locks with permission of the lockmaster under the following conditions:

a. The layover is necessitated by extreme weather conditions or emergencies.

b. The layover will not delay other river traffic.

c. The tow does not create hazards to the lock structure or persons in the area.

d. The crew of the towboat remains on board the vessel. Exceptions can be made if deemed advisable by the lockmaster. However, a sufficient number of crew members should be on board at all times to man the marine radio and to handle any emergencies that might arise.

e. The tow is moored on the long walls, not in the lock chamber.

f. The tow is moored with bow and stern lines and any other additional lines deemed necessary by the lockmaster.

9. Relaying Routine Messages From Towboats. Lock personnel shall not relay radio messages or orders for groceries or other services from towboats.

10. Enforcement of Navigation Regulations. Lock personnel should require all vessel operators to strictly comply with the navigation regulations and procedures for locking established by the District Engineer. This policy is necessary to insure that lock operations are safe and efficient and that they are consistent at every lock.

11. Reporting Violations. When navigation regulations and/or the procedures for locking are violated, the violations should be discussed with the vessel operator in an effort to prevent similar recurrences. A record of the violation, including its cause, and the discussion with the vessel operator, should be entered in the lock log. Violations should be reported to the Resident Engineer and the Chief, Navigation and Maintenance Branch, on SWL Form 337, Report of Violations and Improper Operations. When a violation is associated with or causes an accident, SWL Form 337 on the violation should be included with SWL Form 210(c) and SWD Form 832-R, the forms required for all marine accidents. Lock personnel will have the option to refuse lockage to any vessel involved in a violation. The Resident Engineer and the Chief, Navigation and Maintenance Branch, should be notified immediately when lockage is refused.

12. Reporting Incidents Out of Lock Area. It is the responsibility of lock personnel to report any incidents that they become aware of that occur outside the lock area, such as groundings, accidents, uncontrolled barges, mooring of barges to mooring cells upstream of bridges or other improper locations, or

any other activity on the waterway that could adversely affect navigation. Groundings shall be reported on SWL Form 278. All other incidents should be reported to the Resident Engineer and the Chief, Navigation and Maintenance Branch, and so noted in the lock log.

13. Complaints by Waterway Users. If a vessel operator complains about locking procedures or the regulations, lock personnel should attempt to explain their purpose, provided such an explanation will not delay other traffic. If this does not satisfy the operator, he should be instructed to direct his complaint to the Resident Engineer. The Resident Engineer should be notified of such instances.

14. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-25
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Office Memorandum
No. 1145-2-25

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 2
MARINE ACCIDENTS AT LOCKS AND DAMS

1. Purpose. The purpose of this memorandum is to establish procedures to be followed by Little Rock District personnel when a marine accident occurs at a navigation lock and/or dam and results in damage or possible damage to life and/or property.

2. Applicability. The provisions herein are applicable to all accidents that occur at locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. References.

a. ER 1145-2-301, Use of Navigable Waters - Policy, Practice, and Procedure.

b. ER 1145-2-305, Removal of Wrecks and Other Obstructions.

4. Definitions.

a. Marine accidents. All accidents that involve marine vessels are classed as marine accidents.

b. Major marine accidents. Major marine accidents are accidents which result in loss of pool, render the lock inoperable, or otherwise adversely affect navigation. The following list of accidents are some of the types considered major, but it is not intended to be all inclusive.

(1) Loss of pool accidents.

(a) One or more dam gates being hit.

(b) One or more lock gates being hit.

This memorandum supersedes LRDR 1145-2-8 dated 25 January 1977.
This memorandum supersedes LRDR 1145-2-9 dated 3 September 1970.

(2) Fires within or near lock and dam structures.

(3) Sunken barges.

(a) Above or below dam.

(b) Above or below lock.

(c) In lock.

(d) In lock approaches.

5. Plan and procedure. When a marine accident occurs at a lock and dam, the following three-phase plan will be initiated:

a. Phase I, rescue and alert.

(1) Lockmaster or his official representative.

(a) Take all steps possible to prevent loss of life.

(b) Take all steps possible to prevent further damage to the structure and/or vessel.

(c) Request medical and/or firefighting assistance, if needed.

(d) Request the vessel operator to remove any burning vessels, or vessels in a sinking condition, away from the dam, lock, and lock approaches.

(e) Immediately report the accident to the Resident Engineer. The following information should be reported:

Time and date of accident.
Vessel involved.
Company operating vessel.
Type of cargo.
Barge identification.
Brief description of accident.
Apparent or possible damage.
Effect on navigation.
Recommended actions necessary for opening navigation, if applicable.
Names of persons injured or killed, if applicable (names shall not be transmitted by radio until notification of family is completed).

(f) For a major marine accident only, request the lockmasters at the locks immediately upstream and downstream to accomplish the following actions:

Alert all traffic moving toward the lock.
Insure that all lockmasters on the navigation project (including Tulsa District locks) are notified of the accident.
If loss of pool is imminent, immediately notify affected businesses, private individuals, and bridge owners by telephone. A complete list of such persons and their telephone numbers will be kept in a convenient location at each lock.

(g) Unless notified by other lockmasters as specified in (f) above, notify approaching vessels in the area of possible delays in locking through, if any.

(2) Resident Engineer.

(a) Based on conversation with the lockmaster, determine the seriousness of the accident.

(b) If necessary, dispatch personnel and/or equipment to the lock to minimize damage or hazards and restrictions to navigation.

(c) For a major marine accident or if the accident is considered serious, report it to the Chief, Construction-Operations Division, immediately. Otherwise, report it at the beginning of the next regular workday.

(d) If flows and/or gates are affected or special operations are required, notify Chief, Hydraulics Branch, or Chief, Reservoir Control Section, immediately.

(3) Chief, Construction-Operations Division.

(a) If warranted by the nature of the accident, immediately notify the District Engineer; Chief, Engineering Division; District Counsel; Chief, Safety Office; and Chief, Public Affairs Office; and report the information obtained from the Resident Engineer. Notify the Chief, Construction-Operations Division; SWD; and the Chief, Operations Division, Tulsa District; if damage is appreciable or adversely affects navigation.

(b) If the lock is closed by the accident, immediately request the U.S. Coast Guard, Aids to Navigation Branch, Memphis, Tennessee, to broadcast a report that the lock is closed and to include a report on the accident in their next "Notice to Mariners." Immediately issue a "Notice to Navigation Interests" to advise waterway users of the lock closure.

(c) For a major marine accident, notify the Chief, Operations Branch, OCE, by telephone during normal working hours on the day of the occurrence, and prepare a teletype to the Chief of Engineers within 24 hours of the accident, reporting pertinent details and developments. Any interference or danger to navigation with estimated duration of obstruction should be reported.

(4) District Counsel.

(a) If damage is significant, send a telegram to the vessel owner allegedly causing damage to the lock and dam structure, advising him of the accident and his financial responsiblity for repairs.

(b) Send a letter to the vessel owner, giving him the 3 alternatives for effecting the repairs to the lock and dam structure and 10 days in which to reply. (For minor accidents, this will be done in Phase II upon receipt of SWL Form 210(C), SWD Form 832-R, and a cost estimate of the damage from the Chief, Construction-Operations Division.)

b. Phase II, reconnaissance.

(1) Lockmaster or his designated representative.

(a) Complete SWL Form 210(C) and forward it to the Resident Engineer within 24 hours of the accident.

(b) Request the operator of the vessel involved in the accident to complete SWD Form 832-R and forward it to the Resident Engineer with SWL Form 210(C). If the vessel operator refuses to complete the form, the lock operator shall complete the form, note that the vessel pilot refused to sign it, and detain the vessel in the lock until its release is authorized by the Resident Engineer.

(c) Furnish assistance to the damage survey team as requested.

(2) Resident Engineer.

(a) For a major marine accident, request the Chief, Construction-Operations Division, to dispatch the damage survey team shown on exhibit A; and furnish a written report of the damage survey team's findings and recommendations for remedial action to the Chief, Construction-Operations Division, as soon as possible. The report should include a complete description of damages to the lock and dam structure and vessels involved, with photographs, if possible; a statement of whether or not the resident office has capabilities for performing the necessary repair work; and the estimated time and cost for doing the work by hired labor.

(b) Forward SWL Form 210 (C) and SWD Form 832-R to the Chief, Construction-Operations Division, the same day they are received from the lockmaster.

(c) Forward a request for an alignment check of the lock and dam structure, if considered necessary, to the Chief, Construction-Operations Division.

(d) Request technical assistance and personnel from the Chief, Construction-Operations Division, as needed.

(e) For accidents involving personal injury, death, or property damage in excess of $700, forward ENG Form 3394 in quadruplicate to the Chief, Safety Office. Furnish one copy to the Chief, Construction-Operations Division.

(3) Chief, Construction-Operations Division.

(a) When requested by the Resident Engineer (usually for major marine accidents only), dispatch the damage survey team shown on appendix A to the scene of the accident, and assemble the District Office support staff shown on appendix B while the damage survey team is en route to the scene of the accident. The support staff will stand by in the District Office and furnish assistance as required by the damage survey and recovery teams during Phase II and III operations.

(b) Request the Chief, Engineering Division, to perform an alignment check of the lock and dam structure, if it is considered necessary.

(c) For accidents not requiring the damage survey team, designate a representative from the Navigation and Maintenance Branch to investigate the accident and prepare a cost estimate of the damage.

(d) Furnish technical assistance and personnel as requested. Request the Chief, Engineering Division, to furnish additional technical assistance and personnel as needed.

(e) Forward SWL Form 210(C) and SWD Form 832-R to District Counsel by DF when received from the Resident Engineer recommending action to be taken against the vessel owner.

(f) Forward the Resident Engineer's survey of damage report to District Counsel, if one is prepared.

(4) District Counsel. Upon notification of the method chosen by the vessel owner to effect repairs, forward this information to the Chief, Construction-Operations Division.

(5) Chief, Engineering Division.

(a) Perform an alignment check of the lock and dam structure immediately upon request from the Chief, Construction-Operations Division.

(b) Furnish technical assistance and personnel as requested by the Chief, Construction-Operations Division.

c. Phase III, recovery.

(1) Chief, Construction-Operations Division.

(a) If required by the nature of the accident, assemble the recovery team shown on appendix C. This team will remain onsite as needed for the duration of the repairs and will be in addition to inspection personnel provided by the Resident Engineer.

(b) If emergency repair work is necessary to insure the integrity of the lock and dam structure, to prevent or minimize loss of pool, and/or to reopen the lock to navigation, request the District Engineer's approval to proceed with repair work. Upon receipt of approval from the District Engineer for the emergency repair work, initiate action to proceed with the work. Notify District Counsel of this action.

(c) Notify the Resident Engineer of the method chosen by the vessel owner to effect repairs.

(d) If repairs are to be accomplished by the Government, forward a project work order, ENG Form 3013, to the Chief, Resource Management Office, listing the applicable project and cost features, and describing work to be done.

(e) If repairs are to be accomplished by the Government and part or all of the work must be done by contract, request the Chief, Engineering Division, to prepare plans and specifications.

(f) Coordinate repair activities within the District based upon the repair method chosen by the vessel owner.

(g) Complete SWL Form 215 for all Construction-Operations Division personnel in the District Office who work on any phase of the repair work.

(h) Check the completed SWL Forms 215, 216, and 217 when received from other divisions and offices. Forward them to District Counsel when repairs are completed.

(i) If the vessel owner chooses to have the Government repair damages but the repairs cannot be accomplished within a reasonable length of time, request District Counsel to bill the vessel owner based on the estimate prepared by the damage survey team or the representative from the Navigation and Maintenance Branch.

(j) Notify District Counsel when repairs are completed.

(k) Furnish the Chief, Resource Management Branch, a work order completion report when repairs are completed.

(l) Maintain a list of contractors, salvage companies, divers, explosive experts, equipment suppliers, material suppliers, and Government plant that could possibly be available for emergency repair work.

(2) Resident Engineer.

(a) Provide necessary personnel and equipment if repairs are to be accomplished by hired labor.

(b) Provide knowledgeable inspection personnel if repairs are accomplished by other than hired labor.

(c) If repairs are accomplished by the vessel owner, furnish the Chief, Construction-Operations Division, a statement that the repair work has been satisfactorily completed. If repairs are accomplished by the Government, notify the Chief, Construction-Operations Division, by DF when the repairs are completed.

(d) Forward the completed SWL Forms 215, 216, and 217 to the Chief, Construction-Operations Division, when repairs are completed.

(3) District Counsel.

(a) If repairs are accomplished by the Government, send a letter of demand to the vessel owner for payment; and when payment is received, prepare a "receipt for payment for damage to or loss of Government property" and forward it to the vessel owner.

(b) If repairs are accomplished by the vessel owner, furnish him a statement showing complete satisfaction of the Government's claim when satisfactory completion of the repair work has been done, and upon receipt of a statement from the contractor who performed the repairs that payment for the work has been received.

(c) If repair work will be performed by the Government under emergency conditions, as described in subparagraph 5.c.(1)(b), notify the vessel owner.

(4) Chief, Resource Management Office.

(a) Upon approval of the work order by the Executive Office, set up special accounts that will be used to prepare the Bill for Collection. The cost of indirect labor performed in connection with the repair work will not be charged directly to the work order accounts. This cost will be added to the Bill for Collection in the form of overhead.

(b) Insure that repairs are financed in accordance with ER 37-2-10.

(5) Chief, Engineering Division.

(a) Prepare plans and specifications for repair work when requested to do so by the Chief, Construction-Operations Division.

(b) Forward the completed SWL Forms 215 to the Chief, Construction-Operations Division, upon completion of work.

6. Advertisement of requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

3 Encls
1. Appendix A
2. Appendix B
3. Appendix C

DISTRIBUTION F

APPENDIX A

DAMAGE SURVEY TEAM

Chief - Assistant Chief, Construction-Operations Division

Members - Resident Engineer

Assistant Resident Engineer

Chief, Navigation and Maintenance Branch

Mechanical Engineer, Navigation and Maintenance Branch

Hydraulic Engineer, Hydraulics Branch

Structural Engineer, Design Branch

Public Affairs Specialist, Public Affairs Office

District Photographer

NOTE: Depending on the nature of the accident, Engineering Division may be required to furnish a survey party to assist this team.

APPENDIX B

DISTRICT OFFICE SUPPORT STAFF FOR RECONNAISSANCE AND RECOVERY

Chief - Chief, Construction-Operations Division

Members - Chief, Navigation and Maintenance Branch

- Chief, Contracting Division

- District Counsel

- Assistant Chief, Engineering Division

- Chief, Resource Management Office

- Chief, Public Affairs Office

APPENDIX C

RECOVERY TEAM

Chief - Assistant Chief, Construction-Operations Division

Members - Resident Engineer

- Assistant Resident Engineer

- Chief, Navigation and Maintenance Branch

- Chief, Safety Office

- Technical Team from Engineering Division

NOTE: Depending on the nature of the accident, Engineering Division may be required to furnish a survey party to assist this team.

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-26
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-26

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 3
SECURITY AND FIREFIGHTING AT LOCKS AND DAMS

1. Purpose. The purpose of this memorandum is to establish guidelines for security and firefighting at the locks and dams.

2. Applicability. The provisions herein are applicable to all locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. References.

a. Section 207.275 of the Code of Federal Regulations, Title 33.

b. OCE Supplement 1 to AR 190-13.

c. LRD Supplement 1 to AR 190-13.

d. EM 385--1-1.

4. Security. The following security measures shall be enforced by lock and dam personnel:

a. Doors. Outside doors to the control shelters and fence gates providing access to the lock walls shall be kept locked. The doors to the control houses shall be kept locked except during the day shift on weekdays.

b. Lock walls. The public shall not be allowed on the lock walls or in the buildings except in extreme emergencies or during supervised tours. Towboat personnel waiting for a towboat shall wait outside the lock and security areas.

This memorandum supersedes LRDR 1145-2-17, dated 12 October 1972.
This memorandum supersedes LRDR 1145-2-19, dated 3 December 1970.

c. Tours. During supervised tours no packages, brief cases, or suitcases shall be allowed on the lock walls or in the buildings unless they have been inspected by lock personnel and found to be safe. No weapons shall be permitted on the lock walls or in the buildings.

d. Telephones. The public, including towboat crews, shall not be allowed to use the lock telephone except during an extreme emergency and unless a public telephone is not installed at the lock.

5. Firefighting.

a. Fire alarm signals. When a fire is observed in the lock area, the danger signal (five or more short, rapid blasts) will be immediately given on the lock horn if it is necessary to alert other lock personnel or vessels in the lock area.

b. Organization. The firefighting organization will be the same as that normally used at the locks; i.e., lockmaster, equipment repairer, and lock operator.

c. Procedures when more than one man is on duty at the lock.

(1) Sound alarm signal if necessary.

(2) Take all steps possible to prevent loss of life and to minimize damage to the lock and dam structure or vessels. Any action taken by lock personnel should not cause undue risk to personal safety. See subparagraph 5.e. for additional information.

(3) Summon outside assistance and off-duty lock personnel if necessary.

(4) Notify the Resident Engineer.

(5) Block road to the lock.

(6) If fire is uncontrollable, evacuate the lock.

d. Procedures when only one man is on duty at the lock.

(1) Take all steps possible to prevent loss of life and to minimize damage to the lock and dam structure or vessels. Any action taken by the lock operator should not cause undue risk to personal safety. See subparagraph 5.e. for additional information.

(2) Notify the lockmaster who will notify necessary off-duty lock personnel and the Resident Engineer.

(3) Summon outside assistance if necessary.

(4) Block road to the lock.

(5) If fire is uncontrollable, evacuate the lock.

e. Fire in lock chamber. If fire breaks out on board a vessel in the lock chamber, the lock operator should request the towboat operator to move the vessel downstream out of the lock chamber while the fire is being brought under control. If the vessel cannot be moved under its own power, lock personnel should flush the tow downstream by opening the downstream miter gate, closing the downstream tainter valves, and opening the upstream tainter valves. If the lockage has reached a point where the above cannot be accomplished, the lock chamber should be filled to protect as much of the miter gates as possible.

f. Drills. All lock and dam personnel shall be trained in the firefighting procedures described in subparagraphs 5.c., 5.d., and 5.e. They should also be trained in the use and limitations of the portable fire extinguishers at the locks and dams (the water hoses at the locks are for washing the walks, etc., and are not intended for firefighting).

g. General.

(1) All fire extinguishers shall be inspected monthly by the lockmaster.

(2) The Resident Engineer shall contact local fire departments to ascertain their willingness to furnish assistance when fires occur at the locks. If the fire departments agree to furnish assistance, a definite written arrangment shall be made and forwarded to the Chief, Construction-Operations Division, for approval. Upon approval, the document should be executed and a copy kept on file at the Resident Office and the lock.

6. Advertisement of requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-27
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-27

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 4
PROVIDING ASSISTANCE TO THE PUBLIC AT LOCKS AND DAMS

1. Purpose. The purpose of this memorandum is to establish a policy for providing assistance to the public.

2. Applicability. The provisions herein are applicable to all locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. References.

a. OCE Supplement 1 to AR 190-13.

b. LRD Supplement 1 to AR 190-13.

c. LRDR 1145-2-16.

d. EM 385-1-1.

4. General. When emergencies or other incidents occur in the lock area, the lock operator has a moral obligation to render assistance and must rely on his own judgment to determine the proper course of action to take. If possible he should render assistance from the lock and dam structure. However, it is conceivable that extreme conditions can arise that require him to furnish aid by use of the safety skiff. If only one operator is on duty when such an incident occurs, he should notify approaching tows and the nearest lock before leaving the lock in the safety skiff. The lock area is considered to be the area between the

This memorandum replaces LRDR 1145-2-15, dated 3 December 1970.

arrival points. Requests for assistance outside the lock area should be referred to the Resident Engineer.

5. Man Overboard.

a. Alert. When a person is observed overboard in the lock area, the danger signal (five or more short, rapid blasts) will be given on the lock horn if it is necessary to alert other lock personnel or vessels in the lock area.

b. Training. All lock and dam personnel shall be fully trained in the proper methods of rescue and the correct use of lifesaving equipment. All lock personnel shall participate in man overboard drills conducted by the lockmaster at least once every 12 months. A report of these drills shall be entered in the lock log.

6. Body Recovery.

a. Policy. When a drowning occurs or a body is observed floating at a lock and dam, District personnel will assist local law enforcement officers in recovery of the body.

b. Notification. In the event a body is observed floating or a drowning is reported, it should be reported to the Resident Engineer. If any delay is encountered in notifying the Resident Engineer, employees should notify local law enforcement officials directly, then notify the Resident Engineer as soon as possible. The Resident Engineer shall notify local law enforcement officials and the Chief, Navigation and Maintenance Branch. The Chief, Navigation and Maintenance Branch, shall notify the Chief, Construction-Operations Division; District Engineer; Deputy District Engineer; Chief, Safety Office; Chief, Emergency Management Division; other appropriate District Staff Officers; and the Marine Safety Office, U.S. Coast Guard, Memphis, Tennessee.

c. Recovery operations. Recovery of bodies is the responsibility of local law enforcement officials. Normally, Corps personnel should not attempt to secure or remove bodies from the water until these officials arrive at the site. If there is danger of a floating body disappearing because of current or other adverse conditions, Corps personnel may secure it, but they should not remove it from the water. All recovery operations shall be under the direction of local officials. The responsibilities of District personnel in furnishing assistance to local authorities are given below:

(1) Resident Engineer.

(a) Furnish emergency onsite assistance considered to be necessary and within the capability of the Resident Office.

(b) When local officials request outside Federal assistance, such as a Navy diving team, advise them to channel their requests through the State of Arkansas Office of Emergency Services, telephone (501) 374-1201. If recovery operations are beyond the State's capabilities, the Governor may request additional Federal assistance from the District.

(c) Serve as liaison with onsite personnel of other Federal offices when they are assisting in recovery operations.

(2) Chief, Construction-Operations Division.

(a) Serve as liaison with the office of the Governor of Arkansas.

(b) Screen requests from the Governor to insure that the State does not have needed capabilities and has tried unsuccessfully to secure such capabilities from commercial sources.

(c) Forward requests from the Governor to the District Engineer with recommendations for action by the District.

d. Reports. The Resident Engineer shall furnish an ENG Form 3394, Mishap Report, within 4 days after alleged drowning occurs.

7. Lifesaving Equipment and Location. The following equipment shall be maintained in good condition at the locations shown:

a. One safety skiff shall be kept near each of the two jib cranes on the lock wall and shall be ready for quick launching at all times. These boats shall be fully equipped in accordance with the "Motorboat Operators Manual" published by the Little Rock and Tulsa Districts.

b. Ring buoys shall be kept at not more than 200-foot intervals on the lock walls and the spillway bridge. At least one buoy and every third one thereafter shall have an approved water light attached. All ring buoys shall be provided with an adequate amount of line.

c. Work vests shall be maintained at the following locations:

(1) Three vests in each control shelter for use on the safety skiffs. If the safety skiffs are not stored near the control shelters, three work vests shall be stored in watertight cans near the skiffs.

(2) Three at the entrance to the spillway bridge.

(3) Six in the control house.

d. Four lifesaving blocks with sufficient length of line to reach from the top of the lock parapet wall to lower pool elevation shall be kept on each lock chamber wall at points approximately 200 feet from the miter gates.

8. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-28
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-28

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 5
SPECIAL PROCEDURES DURING COLD WEATHER AT LOCKS AND DAMS

1. Purpose. The purpose of this memorandum is to establish procedures for:

a. Manning and operating the locks and dams when ice or snow creates hazardous walking conditions.

b. Operating the locks and dams when ice may inhibit the operation of the miter gates or mooring bitts.

2. Applicability. The provisions herein are applicable to all locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. Reference. EM 1110-2-1612, Ice Engineering, 1982.

4. Ice or Snow Working Conditions. When walking conditions become hazardous at a lock and dam, the Lockmaster will be responsible for notifying and consulting with the Resident Engineer of the need for having two people on each shift for safety. If the Resident Engineer decides there is a need to furnish the additional personnel, he will make them available as he deems necessary by using personnel from other occupations and/or work locations to work their shifts at the locks, rescheduling work hours, and/or using overtime. A trained and qualified lock operator will be responsible for the operation of each lock and will be accompanied for reasons of personal safety by other lock personnel or other employees as may be available.

5. Ice in the Lock Chamber or Approaches.

a. When ice is forming on the water in the lock area, the upstream and downstream miter gates should be checked hourly and opened and closed as needed to maintain the operation of the lock.

This memorandum supersedes LRDOM 1145-2-22, dated 10 July 1984.

b. The air bubbling system should be used to prevent formation of ice in the miter gate recesses and to move floating ice from the recesses.

c. Ice in the lock or upstream of the upstream miter gates should be locked through when practical to prevent ice accumulation in the lock area.

d. When the floating mooring bitts begin freezing to the rails, the water level in the lock chamber should be varied to keep the bitts free if possible.

e. If ice prevents the complete recessing of the miter gates, the lock operator should advise the pilots accordingly. The miter gates shall not be forced into the recessed position by towboats or barges.

f. If the above methods fail to keep the miter gates operational, lock personnel should investigate the possibility of manipulating the navigation pool in order to break up the ice. Pool manipulation should be coordinated with the Resident Office, District Office, and local interests (docks, etc.).

g. If ice stops the operation of the lock, lock personnel shall immediately notify the Resident Engineer, who will notify the Chief, Construction-Operations Division.

6. Prediction of Icing Conditions. The U.S. Army Cold Regions Research and Engineering Laboratory has documented some relationships between air temperatures and ice formation. The main factor is the number of "freezing degree-days" which involves the difference between 32 degrees F and the average daily temperature. For example, if the air temperature averages 22 degrees F each day for 10 days, then the total freezing degree-days is 100. Experience on the navigation system has revealed that icing problems begin when the freezing degree-days exceed 130.

7. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-ON DEPARTMENT OF THE ARMY LRDOM 1145-2-29
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-29

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 6
UNIFORM FOR DESIGNATED LOCK AND DAM PERSONNEL

1. Purpose. The purpose of this memorandum is to specify policy on the uniform for designated lock and dam personnel.

2. Applicability. The provisions herein are applicable to all lockmaster superintendents, lockmasters, equipment repairers, and lock and dam operators at locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. References.

a. ER 670-2-2, Uniform and Insignia, Uniforms for Civilian Lock Operations and Maintenance Personnel.

b. ER 670-2-3, Uniform and Insignia, Uniforms for Floating Plant Personnel.

c. SWDR 670-2-1, Uniform and Insignia, Uniforms for Civil Works Employees.

d. Multiple memorandum, CESWD-CO, 1 June 1988, subject: Uniforms for Civilian Lock Operations and Maintenance Personnel.

4. Policy. It is the policy in the Southwestern Division to require designated civilian lock and dam personnel to wear the uniform cap with insignia attached and an identification plate.

5. Designated Personnel to Wear Uniform. The only personnel who shall wear the prescribed uniform are lockmaster superintendents, lockmasters, equipment repairers, and lock and dam operators. These personnel shall wear the uniform only when on duty at the lock. Other personnel shall not wear the uniform or otherwise display the insignia in any manner.

6. Prescribed Uniform. The prescribed uniform consists of a cap, insignia, and identification plate as described below. The cap, insignia, and identification plate will be items of issue and recovered at such time that a person is no longer authorized to wear the uniform; however, such items will not be accounted for in the regular property account.

a. Uniform cap. There are two types of uniform caps acceptable in the Southwestern Division for identification of designated lock and dam personnel. They are a blue baseball type cap and a blue electrical worker's hard hat. Either cap may be worn as the official headgear, but the hard hat will be worn any time the area is declared a hard hat area.

b. Cap insignia. The cap insignia is illustrated in Appendix C of ER 670-2-3, Photo No. 4. The insignia is a gold anchor supporting a silver eagle, wings displayed, on a red Engineer castle. The castle (adapted from the branch insignia of the Corps of Engineers) is for identification of that branch. The anchor represents the maritime functions of floating plant personnel and the eagle, Federal service. The insignia for the baseball type cap will be of an embroidered type and will be sewn to the front of the cap. The insignia for the blue electrical worker's hard hat will be a decal or other approved non-metallic-type insignia and will be placed on the front of the hard hat. Central procurement of insignias is the responsibility of Navigation and Maintenance Branch, Construction-Operations Division, and requisitions for insignias will be submitted as needed. Insignias should be requested from the Navigation and Maintenance Branch as needed.

c. Identification plate. The identification plate will be 1 inch by 3 inches, black material, white lettering, and worn at an appropriate location on the outside of coat or shirt. Only the name and position of the employee will appear on the plate as shown below:

A. B. RIVERS
EQUIPMENT REPAIRER

7. Conduct and Appearance. Supervisory personnel will ensure that:

a. The conduct and general appearance of lock and dam personnel are in a manner that is appropriate for the authority and responsibilities encompassed by the duties of the position.

b. Employees required to wear the uniform are appropriately attired to perform required duties. Protective work clothes or coveralls which may be worn when designated personnel are engaged in activities harmful to the uniform or clothing, such as painting and machinery repair, generally should not be worn when performing lockage duties.

c. Uniforms meet minimum standards prescribed in this memorandum.

d. Uniforms are kept neat and clean and replaced as needed.

8. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2- 30
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-30

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 7
RELIEF OF LOCK AND DAM OPERATORS

1. Purpose. The purpose of this memorandum is to establish a policy for transferring operational control of a lock and dam from an onduty operator to a relieving operator.

2. Applicability. The provisions herein are applicable to all locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. Reference. LRDR 690-1-735.

4. Physical and Mental Condition of Employees Reporting for Duty. All Government employees are expected to report promptly for work in a condition, i.e., in appropriate clothing and physically and mentally alert, which will permit them to perform assigned duties in a safe manner. LRDR 690-1-735, Appendix B, paragraph 5, states that, "all employees are expected to report potential accident and fire hazards to the proper officials and to cooperate fully to assure that the safety of person or property is not endangered."

5. Relief of Lock and Dam Operators. Because of the special circumstances concerning the relief of a lock and dam operator by another in the absence of direct supervision and the peculiar hazards associated with the operation of a lock and dam, lock and dam operators have the peculiar responsibility of reporting potential hazards to the safety of the locks and dams. A lock and dam operator under the influence of alcohol, narcotics, or otherwise mentally or physically incapable of performing his duty, is considered a hazard to the safety of himself, others, and property. An onduty lock and dam operator being relieved by another operator in the absence of the lockmaster, shall not yield the operation of the project to a relief operator who is obviously incapable of safely fulfilling his duties. If the condition of the relief operator is questionable, the operator on duty shall

contact his supervisor and request a determination of the relief operator's condition before relinquishing the operation of the lock and dam.

6. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2- 31
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2- 31

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 8
CHANNEL RECONNAISSANCE SURVEYS

1. Purpose. The purpose of this memorandum is to establish procedures and a policy for making reconnaissance hydrographic surveys of the navigation channel.

2. Applicability. The provisions herein are applicable to the Little Rock District portion of the McClellan-Kerr Arkansas River Navigation System.

3. References.

a. ER 1130-2-307, 31 October 1968.

b. Working agreement between U.S. Coast Guard and Little Rock District for joint publication of channel reports.

4. Policy. It is the policy of the Little Rock District to monitor the capability of the navigation system to serve navigation requirements. Reconnaissance hydrographic surveys are conducted to determine the widths and depths of the navigation channel and to check the condition of navigation aids.

5. Procedures. The following procedures apply only to reconnaissance hydrographic surveys. Detailed hydrographic surveys will be made as needed.

a. Each navigation pool shall be surveyed a minimum of 1 time during a 2-week period when flows are less than 70,000 cubic feet per second (c.f.s.) and conditions shall be reported on the "Below 70,000 c.f.s." channel report forms. When flows on the Arkansas River are above 70,000 c.f.s., surveys will be made as

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This memorandum supersedes LRDOM 1145-2-23 dated 24 February 1984.

needed and conditions shall be reported on the "Above 70,000 c.f.s." channel report forms. It may be necessary to survey some of the navigation pools weekly during adverse navigation conditions. The White River Entrance Channel shall be surveyed a minimum of 1 time during a 2-week period. At times it is necessary to survey the White River Entrance Channel daily.

b. The Resident Engineer of the applicable Resident Office shall notify the Chief, Construction-Operations Division, when Resident Office personnel and/or equipment are not available to perform the required surveys. The Chief, Construction-Operations Division, will arrange for the surveys to be made when resources are not available at a Resident Office.

c. Deficiencies in navigation aids shall be noted on the channel report forms and reported to the U.S. Coast Guard the same day. Particular attention shall be given to off-station or missing buoys.

d. When reconnaissance surveys are conducted, survey personnel shall furnish the locks and dams copies of the channel reports. The channel report for a navigation pool shall be furnished to the upstream and downstream lock and dam for distribution to towboat pilots. The lock operators shall furnish a copy of the channel report for the upstream pool to upbound tows and a copy of the channel report for the downstream pool to downbound tows. Four copies of all channel reports shall be mailed to Navigation and Maintenance Branch on the day of the survey.

e. A supply of the "Above 70,000 c.f.s." channel report forms (without channel depth data) shall be maintained at each lock and dam for distribution to towboat pilots when flows exceed 70,000 c.f.s. The sailing instructions on the "Above 70,000 c.f.s." channel reports are usable with or without the channel depth data. When survey personnel furnish the locks and dams copies of the "Above 70,000 c.f.s." channel reports with channel depth data, these reports shall be distributed to towboat pilots. When the channel depth data on these reports are no longer accurate, distribution of the "Above 70,000 c.f.s." channel report forms (without channel depth data) shall resume.

f. Survey personnel shall maintain master copies of both types of forms and use the form that matches the flow. Revised masters shall be obtained from the Coast Guard "Aids to Navigation Office" in Memphis, Tennessee.

6. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-32
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-32

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 9
LOW FLOW MONITORING AND NOTIFICATION PROCEDURES

1. Purpose. The purpose of this memorandum is to specify procedures for monitoring navigation conditions during low flow periods on the McClellan-Kerr Arkansas River Navigation System in Arkansas and for notifying navigation interests of any navigation restrictions that occur during low flow.

2. Applicability. The provisions herein are applicable to the Little Rock District portion of the McClellan-Kerr Arkansas River Navigation System during low flow conditions. These provisions are considered to be a minimum level of monitoring and notification and are not intended to replace more detailed procedures that may have been established by the Resident Engineers to address specific conditions or circumstances.

3. Reference. Standing Operating Procedure No. 8 for the McClellan-Kerr Arkansas River Navigation System, Office Memorandum No. 1145-2-31 , dated 10 August 1989 , subject: Channel Reconnaissance Surveys.

4. Definitions. The following definitions apply to this memorandum.

a. Channel reconnaissance. A channel reconnaissance is a survey of water surface elevations and water depths taken at locations along each side and in the navigation channel as prescribed in the referenced Standing Operating Procedure No. 8.

b. Detailed survey. A detailed survey is a series of recorded river cross sections that are at intervals of approximately 100 to 200 feet. Survey data are plotted on survey sheets and key contours are drawn to indicate depth relative to the navigation pool level.

c. Potential problem area. A potential problem area is a section of channel that will not provide authorized dimensions when the water surface at the area recedes to the navigation pool level.

d. Problem area. A problem area is a section of channel that does not provide authorized dimensions under existing conditions.

5. Policy. It is the policy of the Little Rock District to monitor navigation conditions and to provide timely information to navigation interests concerning navigation conditions that may affect their operations and use of the McClellan-Kerr Arkansas River Navigation System. Notifying navigation interests of channel conditions that restrict draft and/or size of tows or block navigation during low flows is one method of providing information that is vital to the towing industry.

6. Monitoring Procedures. During periods of low flows on the Arkansas River and/or low stages on the White River Entrance Channel, the following procedures shall be followed to monitor navigation channel conditions.

a. The Hydraulics Branch will coordinate with Tulsa District, Southwestern Division, Lower Mississippi Valley Division, and others as needed to develop long-range forecasts and daily flow sheets for the Arkansas and White Rivers as required. Flow and stage predictions shall be monitored by the Hydraulics Branch and the Navigation Section using the long-range forecasts and daily flow sheets. When flows and/or stages are predicted to fall following a period of high discharges, the Navigation Section shall notify the Resident Engineer Offices and keep them informed on the predicted flows and stages.

b. Channel conditions shall be monitored by the Resident Engineer Offices and the Navigation Section using channel reconnaissance surveys and reports from navigation interests. When a channel reconnaissance survey or a report from navigation interests indicates a problem area may exist, the appropriate Resident Engineer Office shall notify the Navigation Section by telephone, conduct an onsite investigation of the area, and run a channel reconnaissance survey or detailed survey as necessary to determine the extent of the problem. These results should be telephoned to the Navigation Section as soon as possible, followed by the survey results.

c. Once a potential problem area has been indentified, the appropriate Resident Engineer Office shall periodically check the conditions of the area to detect any change in the river bottom, make detailed surveys as required, and provide survey findings to the Navigation Section. Lock personnel shall be kept informed of potential problem areas and shall notify all traffic moving through the areas.

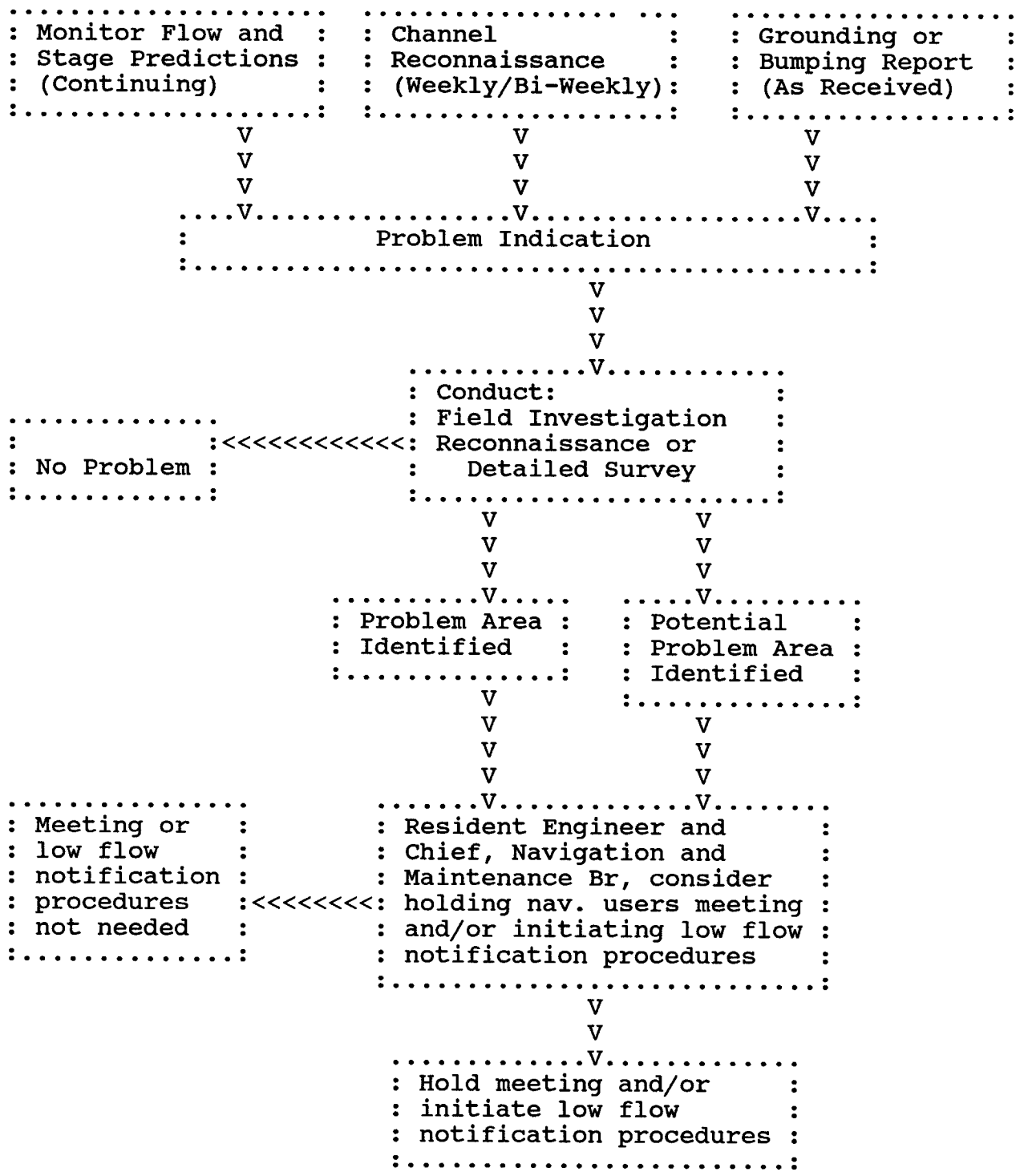
d. An evaluation shall be made by the Navigation Section and Resident Engineer Offices to determine the discharge and headwater combinations at dams on the Arkansas River, or stages on the White River Entrance Channel, which will result in navigation problems at potential problem areas. The flow and stage forecasts from Hydraulics Branch will be used to estimate the date that a problem is likely to begin to occur.

e. When navigation depth and/or width are predicted to be less than the authorized dimensions at a potential problem area, the Resident Engineer and the Chief, Navigation and Maintenance Branch, shall recommend to the Chief, Construction-Operations Division whether or not notification procedures should be initiated.

f. When navigation depth and/or width less than the authorized dimensions occur suddenly and unexpectedly, such as caused by a grounding that results in a shoal or channel blockage, personnel of the appropriate Resident Engineer Office shall request the lockmasters immediately upstream and downstream to notify all traffic moving toward the problem area. The Resident Engineer shall notify the Chief, Navigation and Maintenance Branch, and together they shall decide if notification procedures should be recommended.

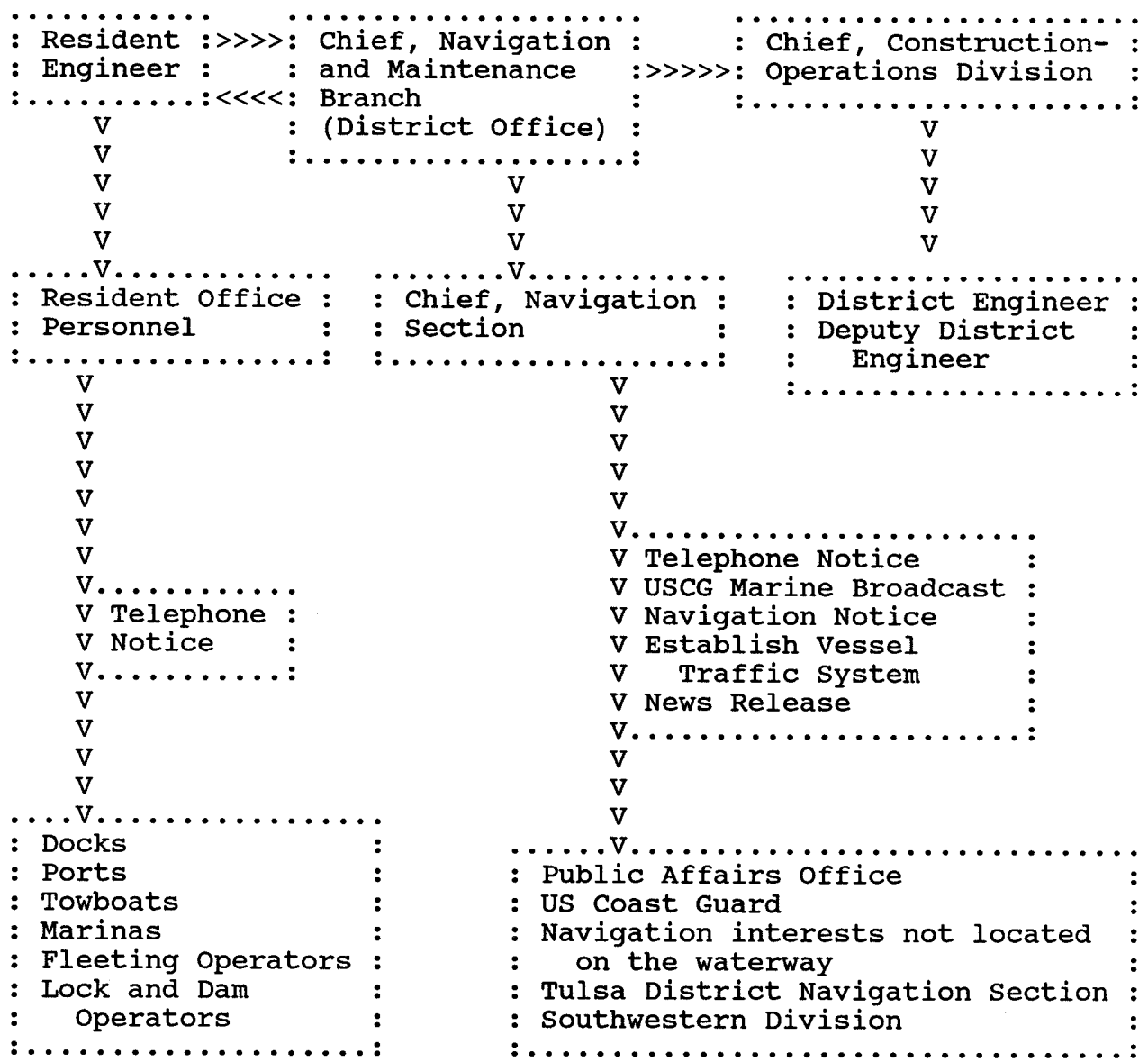
g. In deciding if notification procedures should be initiated, the Chief, Navigation and Maintenance Branch, will also consider recommending holding a navigation users meeting if considered appropriate for the conditions. A meeting would be held to determine the desires of navigation interests when there are alternatives available for maintaining navigation for the specific situation. The situation may be a sudden channel blockage or a forecast for major navigation restrictions in the near term. If it is decided to hold a meeting, it would be desirable, and efforts shall be made, to have representatives of towing companies, the Arkansas Waterways Commission, ports, the Arkansas-Oklahoma Port Operators Association, shippers, the U.S. Coast Guard, Tulsa District, and Resident Engineer's staff attend the meeting.

h. The low flow monitoring procedures described above are shown in the chart below:



7. Notification procedures.

a. After the decision to initiate low flow notification procedures is made, the lines of notification shall be as shown in the chart below:



b. Resident Office personnel should begin notifying the waterway users located on the waterway within their area after receiving the approval of the Resident Engineer. The Resident Engineer may authorize notification within the Resident Office area. Navigation Section personnel will begin notifying other navigation interests upon notification by the Chief, Navigation and Maintenance Branch. The Chief, Navigation and Maintenance Branch, will be notified of all actions initiated.

c. The waterway users or general public should be furnished factual information by the Resident Office and Construction-Operations Division personnel. Unless predictions are furnished by the Navigation Section, notifying personnel should only state existing conditions, such as channel depth and width, draft restrictions, tow size restrictions, escort service, one-way traffic, day navigation only, etc.

d. The Resident Engineers shall be responsible for maintaining an Emergency Notification Call List of telephone numbers and points of contact of commercial ports, docks, marinas, and fleeting areas located on the waterway within their area of responsibility and designate people to initiate notification procedures. An attempt shall be made to contact all on the list. Memorandums shall be prepared showing names of individuals contacted and those called but not contacted.

e. The Navigation Section shall maintain an Emergency Notification Call List of agencies and navigation interests located off the waterway and shall initiate notification when conditions warrant. Written navigation notices shall also be prepared and distributed if conditions warrant.

8. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER;

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-33
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-33

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 10
HIGH FLOW ALERT AND NOTIFICATION PROCEDURES

1. Purpose. The purpose of this memorandum is to specify procedures for notifying waterway users of potentially damaging flows on the McClellan-Kerr Arkansas River Navigation System in Arkansas. This memorandum will normally be used prior to a flood alert issued by the Emergency Operations Center (EOC), but it is also applicable if flooding increases. The following procedures are intended to supplement the procedures in LRD Supplement A to ER 500-1-1, which has four phases for flood emergencies: alert, mobilization, flood fighting, and recession.

2. Applicability. The provisions herein are applicable to all locks and dams on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District. These provisions are considered to be a minimum level of alert and notification and are not intended to replace more detailed procedures that may have been established by the Resident Engineers to address specific conditions or circumstances.

3. Reference. LRD Supplement A to ER 500-1-1.

4. Definitions. The following definitions apply to this memorandum:

a. Alert. An alert is a communication within the Corps organization to advise of conditions and to recommend notification if conditions warrant.

b. Notification. Process of communicating rapidly rising flow conditions to commercial navigation interests.

This memorandum supersedes LRDOM 1145-2-21, dated 25 May 1984.

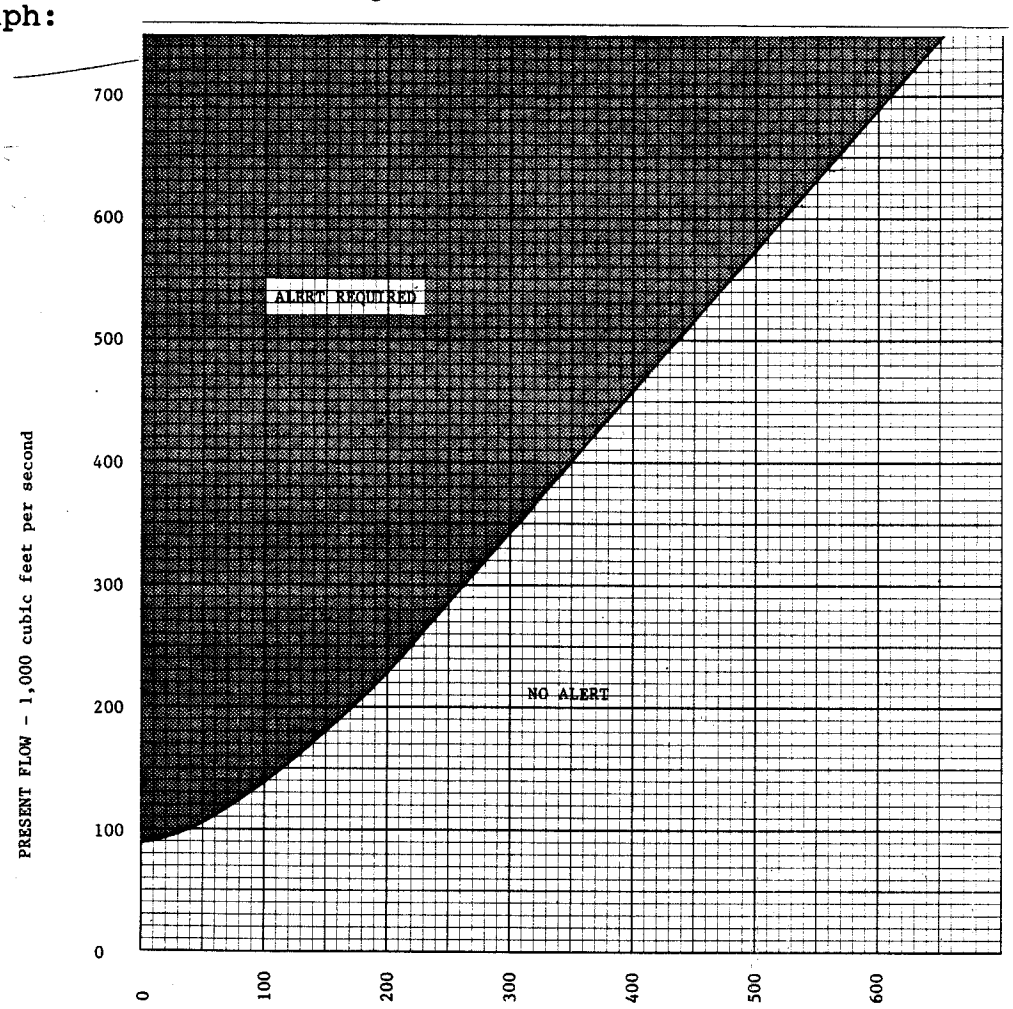
c. Waterway users. Waterway users include operators of boat docks, marinas, ports, terminals, towboats, and fleeting areas located on the waterway, and towing companies, shippers, and other users of the McClellan-Kerr Arkansas River Navigation System that are located off the waterway.

d. Navigation interests. Navigation interests include state and Federal agencies associated with commercial navigation on the McClellan-Kerr Arkansas River Navigation System and waterway users as defined above.

5. Policy. It is the policy of the Little Rock District to provide assistance within its resources to prevent loss of life and to minimize damages that may result from high flows. The District will supplement notices provided by the National Weather Service and other agencies by notifying waterway users of rapidly changing flow conditions.

6. Procedures.

a. When a rise occurs on the Arkansas River that may create flooding or affect the use of the navigation system, lock personnel shall alert the Resident Office personnel. The alert shall be made when the point of intersection of the present flow and the flow 8 hours ago falls in the shaded area on the following graph:



USE OF GRAPH

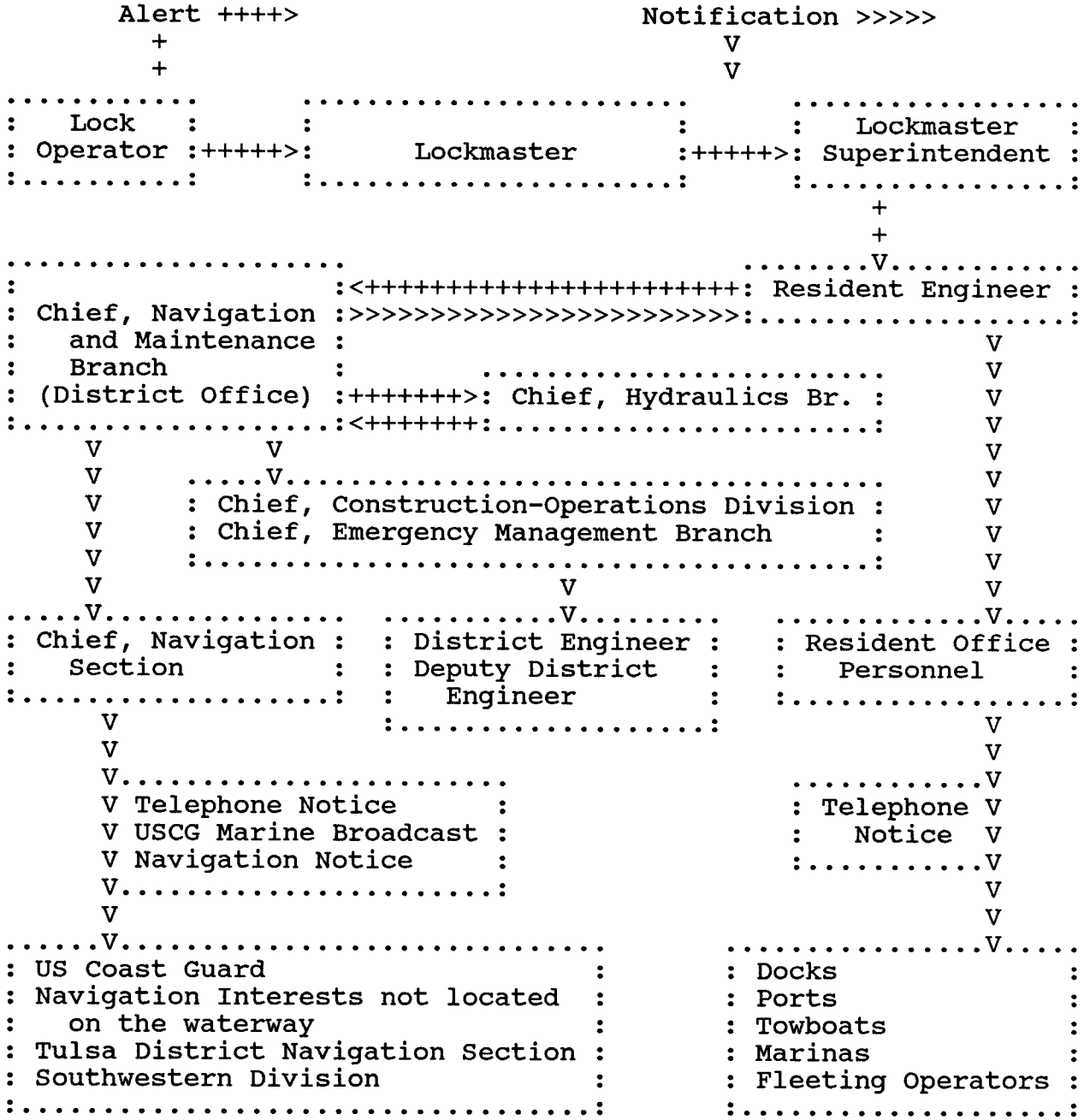
1. Read present flow on left side of graph and draw line horizontally to right.

2. Determine flow 8 hours ago. Draw vertical line upwards from this flow shown on bottom of graph.

3. Observe where these two lines cross. If lines cross in the shaded portion, initiate alert.

NOTE: The alert and notification procedures may be used more than once during a rise if conditions change substantially.

b. Regardless of the time of day or day of the week, lock personnel shall notify the Resident Office personnel who will notify the District Office personnel if an alert is warranted. The Resident Engineer and Chief, Navigation and Maintenance Branch, shall decide if notification procedures should be initiated and areas of notification. The lines of alert and notification shall be in accordance with the following chart:



c. Resident Office personnel should begin notifying waterway users within their area after receiving the approval of the Resident Engineer. The Resident Engineer may authorize notification within the Resident Office area when conditions are so severe as to warrant immediate notification. The Chief of the Navigation and Maintenance Branch will be notified of all actions initiated. If a supervisor on the alert/notification chart is not available, then the next higher level supervisor should be contacted (i.e., keep going up the chain of command). In the event an "early warning" is issued by Hydraulics Branch, the Chief of Navigation and Maintenance Branch will advise the Resident Engineers and Chief, Navigation Section.

d. The waterway users or general public should be furnished factual information by the Resident Office and Construction-Operations Division personnel. Unless predictions are furnished by Hydraulics Branch, notifying personnel should only state how high the flows are and the rate of rise.

e. The Resident Engineers shall be responsible for maintaining an Emergency Notification Call List of telephone numbers and points of contact of commercial ports, docks, marinas, and fleeting areas within their area of responsibility and designate people to initiate notification procedures. An attempt shall be made to contact all on the list. Memorandums shall be prepared showing names of individuals contacted and those called but not contacted.

f. The Navigation Section shall maintain an Emergency Notification Call List of agencies and navigation interests located off the waterway and shall initiate notification when conditions warrant. Written Navigation Notices shall also be prepared and distributed if conditions warrant.

7. Advertisement of requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O DEPARTMENT OF THE ARMY LRDOM 1145-2-34
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

Office Memorandum
No. 1145-2-34

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 11
VESSEL ADVISORY SYSTEMS

1. Purpose. The purpose of this memorandum is to specify procedures for implementing and canceling vessel advisory systems.

2. Applicability. The provisions herein are applicable to the Little Rock District portion of the McClellan-Kerr Arkansas River Navigation System.

3. Reference. None.

4. Policy. It is the policy of the Little Rock District to monitor navigation conditions and to provide timely information to navigation interests concerning navigation conditions that may affect their operations and use of the McClellan-Kerr Arkansas River Navigation System. Notifying navigation interests of vessel advisories that are in effect is one method of providing this service.

5. Small Craft Advisory.

a. Description. The small craft advisory is issued whenever flows exceed 70,000 cubic feet per second on the Arkansas River to advise operators of small craft to exercise caution in navigating the river.

b. Monitoring. The Reservoir Control Section is responsible for monitoring the discharge on the Arkansas River to determine when and where the advisory should be implemented and canceled. The Reservoir Control Section is also responsible for notifying the Public Affairs Office of the need to implement or cancel the advisory.

c. Implementation. Upon notification from the Reservoir Control Section, Public Affairs Office is responsible for notifying the public that the small craft advisory is implemented or canceled.

6. Little Rock VTS.

a. Description. The Little Rock Advisory Vessel Traffic Service, commonly referred to as VTS, requires special procedures for tows navigating through the 3 vertical lift railroad bridges at miles 118.2, 118.7, and 119.6 when flows on the Arkansas River exceed 70,000 cubic feet per second at Murray Lock and Dam.

b. Monitoring. Lock personnel at Murray Lock and Dam are responsible for monitoring the discharge to determine when the VTS should be implemented or canceled.

c. Implementation. When flows at Murray Lock and Dam increase (or decrease) to 70,000 cubic feet per second, Murray Lock personnel will notify the U.S. Coast Guard, Aids to Navigation Branch, Memphis, Tennessee, by telephone to implement (or cancel) the VTS at Little Rock. Lock personnel will notify the Navigation Section of the action taken as soon as practical.

8. Advertisement of requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

CESWL-CO-O

DEPARTMENT OF THE ARMY
Little Rock District, Corps of Engineers
P.O. Box 867
Little Rock, Arkansas 72203-0867

LRDOM 1145-2-35

Office Memorandum
No. 1145-2-35

10 August 1989

Civil Regulatory Functions
McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
STANDING OPERATING PROCEDURE NO. 12
MITER GATE OPERATIONS

1. Purpose. The purpose of this memorandum is to establish procedures to be followed by lock personnel to insure that the miter gates are properly mitered before changing the water level in the lock chamber.

2. Applicability. The provisions herein are applicable to all locks on the McClellan-Kerr Arkansas River Navigation System in the Little Rock District.

3. References.

a. Multiple memorandum, CESWD-SO/CO-O, 6 June 1988, subject: Board of Investigation for Locking Procedures.

b. Letter, SWDSO, 15 September 1986, subject: Board of Investigation Recommendations for Locking Procedure, and enclosures and endorsements thereto.

c. Operation and Maintenance Manual, Norrell Lock and Dam.

d. Operation and Maintenance Manual, Lock and Dam No. 2.

e. Operation and Maintenance Manual, Locks and Dams Nos. 3, 4, 5, and David D. Terry Lock and Dam.

f. Operation and Maintenance Manual, Murray and Toad Suck Ferry Locks and Dams and Locks and Dams Nos. 9 and 13.

g. Operation and Maintenance Manual, Dardanelle Lock and Dam.

h. Operation and Maintenance Manual, Ozark Lock and Dam.

4. Policy. It is the policy in the Southwestern Division to visually inspect the miter gates for proper miter before changing

the water level of a lock chamber and to utilize the miter gate interlock system. Furthermore, a 2-foot minimum differential head on the miter gates will be maintained between lockages at any time the interlock system is inactive (reference 3.a.).

5. General Procedure for Operating Lock Controls and Machinery. This SOP is an addition to the procedures for lock operation contained in the Operation and Maintenance Manuals, references 3.c. through 3.h.

6. Procedure for Visual Inspection. The lock operators will inspect the miter gates as follows:

a. The upstream miter gate will be inspected for proper miter immediately before going to the downstream control shelter to lower the water level of the lock chamber.

b. The downstream miter gate will be inspected for proper miter immediately before going to the upstream control shelter to raise the water level of the lock chamber.

c. During the visual inspection, the lock operator will stop at the miter contact blocks and look at the top of the miter contact blocks and as far down the miter as can be seen to the water surface.

(1) If the gate is properly mitered, proceed immediately with the lockage.

(2) If the gate is not properly mitered, the lock operator will open and close the miter gate to obtain a proper miter.

(3) If a proper miter cannot be obtained, the operator should notify the lockmaster or the lockmaster superintendent of the problem.

7. Procedure for Interlock System Utilization. The miter gate interlock system will be activated and fully operational as a normal condition. All incidents of INTERLOCK SYSTEM OVERRIDE will be reported to the lockmaster superintendent and entered in the operator's daily log (ENG Form 2198).

a. At the beginning of each shift, the OPERATOR IN CHARGE will insure that the interlock system is activated and not in OVERRIDE.

b. To flush the lock chamber (flush burning vessels, drift, ice, etc.) requires an operation with INTERLOCK SYSTEM IN OVERRIDE and the following procedures:

(1) Insure that the downstream miter gates are fully recessed and the downstream miter gate operating levers are in CENTER position before opening the upstream tainter valves.

(2) Immediately following any lock chamber flushing operation insure that the interlock system is reactivated and not in OVERRIDE.

c. If other conditions exist that require an INTERLOCK SYSTEM OVERRIDE, the following procedures should be followed:

(1) Determine the source of the problem (interlock system malfunction, miter switch opens persistently due to wind or wave action, etc.) to insure that an INTERLOCK SYSTEM OVERRIDE is warranted. Notify the lockmaster or lockmaster superintendent if there is any doubt of the cause of the problem.

(2) Prepare interlock system controls for override.

(3) Visually check again for proper miter immediately before changing the water level in the lock chamber.

(4) By manipulating one tainter valve, slowly change the water level in the lock chamber approximately 0.3 foot then close the tainter valve in such a manner that it is closed by the time the water surface has been changed a total of 0.5 foot. Perform a visual inspection of the miter.

(a) If the 0.5-foot change in water surface elevation brings the gate into a proper miter, proceed with the lockage.

(b) If a proper miter does not exist, start over by changing the lock chamber water surface to the original condition then open and close the miter gate to obtain a proper miter.

(5) Immediately after any lock operation with INTERLOCK SYSTEM IN OVERRIDE, take the following action:

(a) If the OVERRIDE was caused by a temporary condition or if the problem has been resolved, reactivate the interlock system (turn the OVERRIDE off).

(b) If the condition that caused the use of OVERRIDE persists, initiate the use of the 2-foot minimum differential head on the miter gates between lockages.

8. Procedure for Maintaining a 2-Foot Minimum Differential Head on the Miter Gates Between Lockages. Any time that the interlock system is not activated, a 2-foot minimum differential head on the miter gates will be maintained between lockages.

a. Since conditions vary, each project should determine the valve opening, opening and closing rates, and the amount of differential head that creates the least evident stress or vibration of the equipment.

(1) Nominal values for the low head projects are an opening of 2 feet on one tainter valve opened in slow or intermediate slow delivery and a differential head of from 4 feet to a lock chamber half full.

(2) Nominal values for the high head projects are an opening of 2 feet on one tainter valve opened in intermediate fast or fast delivery and a differential head of from 6 feet to a lock chamber half full.

b. Upon the completion of a lockage downstream:

(1) Verify that the emptying valves are closed.

(2) Verify a proper miter at the downstream gate by a visual inspection. Then proceed immediately to the upstream shelter.

(3) By manipulating one filling tainter valve, slowly raise the water level in the lock chamber approximately 0.3 foot then close the tainter valve in such a manner that it is closed by the time the water surface has been raised a total of 0.5 foot. Perform a visual inspection of the downstream miter.

(a) If the 0.5-foot rise in water surface elevation results in a proper miter, open one filling tainter valve 2 feet, nominal, to raise the water surface in the lock chamber, then close the tainter valve when the desired differential head is reached.

(b) If a proper miter does not exist, start over by lowering the lock chamber water surface to the original condition, then open and close the downstream miter gate to obtain a proper miter.

c. Upon the completion of a lockage upstream:

(1) Verify that the filling valves are closed.

(2) Verify a proper miter at the upstream gate by a visual inspection. Then proceed immediately to the downstream shelter.

(3) By manipulating one emptying tainter valve, slowly lower the water level in the lock chamber approximately 0.3 foot then close the tainter valve in such a manner that it is closed by the time the water surface has been lowered a total of 0.5 foot. Perform a visual inspection of the upstream miter.

(a) If the 0.5-foot drop in water surface elevation results in a proper miter, open one emptying tainter valve 2 feet, nominal, to lower the water surface in the lock chamber, then close the tainter valve when the desired differential head is reached.

(b) If a proper miter does not exist, start over by raising the lock chamber water surface to the original condition, then open and close the upstream miter gate to obtain a proper miter.

9. Advertisement of Requirements. No advertisement to industry required.

FOR THE DISTRICT ENGINEER:

DOUGLAS C. EATON
LTC, Corps of Engineers
Deputy District Engineer

DISTRIBUTION F

STANDING OPERATING PROCEDURES
FOR THE McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM
IN THE LITTLE ROCK DISTRICT
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