

Reclamation Manual

Directives and Standards

TEMPORARY RELEASE

(Expires 01/31/2017)

Subject:	Emergency Management
Purpose:	To provide for the safety of the public and protect environmental resources from incidents at Bureau of Reclamation facilities. The benefits of this release are (1) to ensure that necessary reasonable and prudent actions are taken to ensure timely notification to potentially affected jurisdictions of such incidents, so that warning and evacuation of the public can be accomplished; and (2) to define program needs and requirements essential to maintain self-regulation by line managers, be responsive to public safety, and satisfy legal requirements during operations or emergency incidents at our facilities.
Authority:	Reclamation Act of 1902 and Supplementary Acts (32 Stat. 388; 43 U.S.C. § 391), Reclamation Safety of Dams Act of 1978 and Amendments of 1984 (Pub. L. 95-578 et seq.), Department of the Interior – Departmental Manual Part 753 (or subsequent replacement documents), and Reclamation Manual Policy, Emergency Management (FAC P01).
Approving Official:	Director, Security, Safety, and Law Enforcement (SSLE)
Contact:	Program and Emergency Management Office, 84-41000

1. **Introduction.** Emergency management for dams spans the continuum of prevention, planning, preparedness, response, and recovery of all types of hazards and emergencies that impact the public or Reclamation employees, lands, dams, facilities, infrastructure, and resources.
2. **Applicability.** This Directive and Standard applies to all Reclamation regional offices, area offices, and other offices as specified, including regional directors, area office managers, emergency managers, and associated staff.
3. **Definitions.**
 - A. **Emergency Action Plan (EAP).** An EAP is a formal document that identifies potential emergency conditions at a dam and specifies actions to be followed to minimize loss of life and property damage. The EAP describes actions the dam owner will take to moderate or alleviate a problem at the dam, as well as actions the dam owner, in coordination with emergency management authorities, will take to respond to incidents or emergencies related to the dam.

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- B. **Emergency Management Program.** The system or group of actions by which prevention, preparedness, response, recovery, and mitigation activities are undertaken within Reclamation to save lives and protect property from potential or actual incidents.
 - C. **Inundation Map.** Map delineating areas what would be flooded as a result of a dam failure or extraordinary operational release.
4. **Responsibilities.** Regional directors and area office managers will:
- A. ensure EAPs are developed, implemented, and kept current at all significant- and high-hazard dams, as detailed in Paragraph 5;
 - B. develop and maintain inundation maps as detailed in Paragraph 6;
 - C. perform exercises and ensure staff are trained as detailed in Paragraph 7;
 - D. provide notification to local entities as detailed in Paragraph 8; and
 - E. develop, maintain, and provide information databases as detailed in Paragraph 9.
5. **EAPs.** Regional and area offices will:
- A. Ensure EAPs are developed and implemented at all significant and high hazard dams.
 - B. Ensure EAPs are reviewed annually and revised or updated in a timely manner. Reviews will include both the specific procedures contained in the EAPs as well as ensuring that EAPs contain complete descriptions of available communication capabilities and related notification procedures, including verifying the names, telephone numbers, radio frequencies, and organizations contained in the communications directory or emergency notification.
 - C. Ensure that EAPs contain initiating conditions (including hydrologic and nonhydrologic events), emergency response levels, expected actions for each response level (operating personnel and Reclamation offices), and hazard-specific appendices with procedures to follow.
 - D. Ensure that EAPs contain descriptions of potentially affected areas in the flood plain with inundation maps wherever appropriate, and tables showing travel times and other pertinent information that may be needed by local emergency management officials.

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6. **Inundation Mapping.** Reclamation prepares dam failure inundation studies and maps for several purposes. The following directives will apply when the purpose is emergency action planning where the maps and information will be used in Reclamation's EAPs and local warning and evacuation plans. Conditions that warrant reviewing, revising, or developing new inundation studies and maps include: implementation of safety of dams corrective actions, revision or preparation of EAPs, requests from downstream jurisdictions for more inundation information for their warning and evacuation plans, or identification of significant deficiencies in current inundation studies or maps. When it becomes necessary to prepare or revise an inundation study, the following criteria will apply:
- A. Mapped flood boundaries representing the dam failure condition will reflect a failure assumed to occur with the water surface at the crest of the dam or at the maximum water surface elevation reached while routing the most recent probable maximum flood, whichever is less.
 - B. Mapped flood boundaries representing a life-threatening operational release condition, will be prepared to indicate flooding that would result from spillways and/or other appurtenant structures operating at design capacity. Managers and staff will use their discretion in determining whether local conditions warrant mapping boundaries for other levels of flooding smaller than the design capacity flood. Mapping of operational release flood boundaries will generally only be done in reaches where dam-failure floods are mapped.
 - C. Inundation studies and associated descriptions of flooded areas will be terminated only when the point of adequate floodwater disposal is reached and the flood no longer poses a significant risk to life.
 - D. Mapped flood boundaries will be completed for populated areas (as opposed to rural areas having very sparse or no homesites) within the lesser of (1) a dam-failure flood travel time of about 48-hours after the initial dam failure or (2) the point of adequate floodwater disposal. Downstream jurisdictions beyond the point where mapping is discontinued need only be provided Reclamation's estimates of flood depths and flood travel times for use in their warning and evacuation plans.
 - E. Any maps prepared will be at a scale and quality that enables a person familiar with the area to clearly comprehend an aerial view of the extent of flooding. In most cases, U.S. Geological Survey 7.5-minute topographical quadrangles are adequate to use as a base for the inundation maps.
 - F. Because certain technical information may need interpretation by Reclamation staff to make it usable by local jurisdictions, a table will accompany the inundation maps providing information on river miles from the dam, travel times for arrival of the leading

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edge of the dam failure flood wave, travel times for arrival of the crest of the dam failure flood, and maximum flood depths and flows for the events mapped, including any operational release conditions.

- G. The results of the inundation study are generally depicted on maps and associated tables. For various reasons, including the ability to convey the extent of flooding to people that are not adept at using maps or do not have access to maps, the inundation area will be described in generalized sentence form. This type of description is also valuable in preparing warning and evacuation messages issued by the downstream jurisdictions and the National Weather Service.

7. **Exercising/Personnel Training.** Regional and area offices will provide:

A. **Emergency Management Training.**

- (1) **Dam Operator Training.** At a minimum, two personnel at each high-and significant-hazard dam are required to have dam operator training. Both the onsite and classroom training must include emergency management modules.¹ The emergency management module will include familiarization with the dam's EAP.
- (2) **Participation in Exercises.** In addition to the other benefits of exercises, an EAP exercise trains personnel in emergency management duties.² Personnel participation in tabletop exercises (TTXs) and functional exercises (FXs) must be documented in an after action report for the participating employee to receive training credit for the exercise.

- B. **Tracking of Training.** Attendance at dam operator training and participation in EAP exercises by Reclamation employees shall be tracked in DOI Learn or subsequent versions of the employee training record management program. Using the listing of Reclamation employees contained on the participation roster in an after action report for a TTX or FX, the names of each employee will be documented in DOI Learn. For dams operated by other entities (e.g., transferred works), the records associated with dam operator training and the listing of non-Reclamation personnel in the after action report who participated in exercises will be the documentation used to officially record the training of non-Reclamation personnel who operate transferred works dams.

¹ Reclamation Manual Directive and Standard, *Operating Practices and Procedures for High- and Significant-Hazard Dams (and other facilities, as applicable)* (FAC 02-01).

² Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners (FEMA 64).

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- C. **Emergency Exercise Program.** Development and execution of an emergency exercise program to evaluate emergency response capabilities of those Reclamation employees that would be involved in the emergency operations at Reclamation dams or facilities. Guidance on developing and implementing an emergency exercise program may be found in Reclamation's *Emergency Planning and Exercise Guidelines*.
- D. **Types of Exercises.** The following types of exercises will be utilized for dams. They are based on Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners (FEMA 64) and Homeland Security Exercise and Evaluation Program (HSEEP). FEMA's and HSEEP's definitions of those exercises have been revised to reflect Reclamation's needs and are as follows:
- (1) **EAP Orientation Seminar.** This seminar will orient participants with the facility and EAP, and will introduce, discuss, and update Reclamation and operating entity employees with a role in the EAP with the emergency procedures and their responsibilities. This will be accomplished in person or through electronic communications, whichever is appropriate to the training conditions. This seminar is required for Reclamation and operating entity employees with potential roles when an EAP is activated and recommended for other employees at dams. Emergency management agencies and public safety agencies will be encouraged to attend EAP orientation seminars.
 - (2) **EAP Communication Drill.** This drill will be conducted to ensure information is up-to-date in the Communications Directory, or related notification contacts, associated with each dam's EAP. During this drill, Reclamation will ask if the emergency management agency (EMA) contact understands its roles and responsibilities if the EMA is contacted by Reclamation during an incident or event.
 - (3) **TTX.** A TTX is an informal activity involving discussions of actions to be taken based on described emergency situations, and will be done without time constraints. It will allow the participants to practice emergency situation problem solving, evaluate plans and procedures, and resolve questions of coordination and assignment of responsibilities. A TTX will include issuing a series of injects to participants in the exercise, and allowing them to respond verbally to the simulated incident in a nonstressful atmosphere. This exercise will involve management, key agency staff, and personnel from outside organizations as appropriate.
 - (4) **FX.** In an FX, participants will respond in a coordinated manner to a timed, simulated incident that parallels a real operational event as closely as possible. This exercise will generally be conducted in an emergency operations center or

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incident command post, and messages are passed to the participants in written form by telephone, radio, facsimile, computer, or other method of communication. The FX will use information such as emergency plans, maps, charts, and other information available in a real event, and will create stress by increasing the frequency of messages, intensity of activity, and complexity of decisions and/or requirements for coordination. It will not involve actual mobilization of emergency response forces in the field. Participants will include management, key agency staff, and personnel from outside organizations as appropriate.

- (5) **Full-Scale Exercise.** In a full-scale exercise, emergency preparedness officials will respond in a coordinated manner to a timed, simulated incident that includes actual mobilization of field personnel and resources and actual movement of emergency workers, equipment, and resources required to demonstrate coordination and response capability. This exercise is intended to evaluate the entire emergency organization or its major parts in an interactive manner over a substantial period of time. It will mobilize emergency officials in an emergency operations center and will activate one or more emergency functions outside of the center. Reclamation will not generally conduct this level of exercise, but will participate in exercises conducted by others when our facilities are involved.
- E. **Local Jurisdictions.** Reclamation will participate as appropriate in full-scale exercises conducted by local jurisdictions or others which include implementation of field elements of a plan. This level of exercise will be considered an optional emergency exercise activity where Reclamation would participate if others were to conduct the exercise.
- F. **Exercise Type and Frequency.** Exercise type and frequency will be determined on the basis of site-specific conditions. As a minimum:
- (1) **EAP Communications Drill.** Once annually.
 - (2) **EAP Orientation Seminar.** Once annually. An EAP orientation seminar will be included in a TTX or FX at the regional or area office's discretion. An EAP orientation seminar is not required for employees who have completed the dam operator training within the same fiscal year.
 - (3) **TTX and FX.** Once every 4 years a TTX or FX is required on an alternating basis for high-hazard dams (i.e., TTX followed by a FX, followed by a TTX, etc.). A TTX is required every 4 years for significant-hazard dams. When possible, exercises will coincide with the downstream jurisdiction's frequency of exercising their dam-specific plans, e.g., emergency operation plans (EOPs).

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- (4) **Actual Incident or Event.** Depending on the extent of involvement with affected parties, an actual emergency incident will satisfy the FX requirement for a high hazard dam and TTX requirement for a significant hazard dam when the following criteria are met:
- (a) The EAP plan is activated or implemented and outside agencies are notified. For EAPs, a declared response level must be reported to Reclamation's Duty Officer.³
 - (b) A post-incident or event discussion (e.g., "hotwash") is conducted with involved parties.
 - (c) The incident or event is documented in a Final Incident Report identifying any lessons learned and corrective actions.
 - (d) Any approved recommendations identified in the Final Incident Report for corrective action are included in Dam Safety Information System (DSIS).
 - (e) If the actual incident or event meets the above criteria, the dam's EAP exercise schedule will be reestablished to include a TTX within 4 years following the actual incident or event.
- (5) **Exercise Schedule Tracking.** DSIS shall be used to capture and track exercise schedules. The area/power/regional office will update DSIS with the following information by April 15, September 15, or as needed to complete the Annual Dam Safety Report:
- (a) last date of EAP orientation seminar, communication drill, TTX, and FX; and
 - (b) scheduled dates of next EAP TTX and FX.
- G. To attain the greatest economic efficiency, at the discretion of the appropriate Reclamation office, several dams will be covered by a single seminar, drill, or exercise where it is determined to be geographically and functionally feasible.
- H. Key personnel from State and local emergency management agencies will be invited to participate in any training and exercise. Reclamation and/or the operating entity personnel will participate in exercises conducted by the downstream jurisdictions, or others, when Reclamation facilities are involved.

³ Reclamation Manual Directive and Standard, *Emergency Notification System (SLE 07-01)*.

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- I. Each exercise conducted or participated in will be documented with identified strengths, deficiencies, and recommended corrective actions, including a planned course of action to implement and track the recommended actions. Guidance is provided in the *Emergency Planning and Exercise Guidelines* as to the suggested content and format of such documentation.
8. **Downstream Warning and Evacuation.** Regional and area offices will work with the dam operating entity to:
 - A. maintain a redundant means to timely communicate (e.g., primary telephone with backup radio) with emergency management officials;
 - B. provide inundation maps and other appropriate information and offer technical assistance, specifically staff support for interpretation of technical information, to local emergency management officials for their development of or revisions to their dam-specific EOPs; and
 - C. coordinate annually with appropriate Federal, State, and/or local emergency management officials to:
 - (1) support local efforts to attain and maintain the capability to effectively warn and evacuate persons placed at risk by operational releases or dam failure;
 - (2) encourage that local dam-specific EOP response procedures are properly linked to the corresponding notification procedures in Reclamation's EAPs;
 - (3) encourage and participate in joint exercises involving Reclamation dams, when such occur;
 - (4) document all coordination efforts with emergency management officials for future reference purposes; and
 - (5) ensure that responsible operating entities carry out these activities similar to other delegated operation and maintenance activities.
 9. **Information Database.** Each regional and area office will provide SSLE with an annual update of the coordination activities performed with all of the jurisdictions downstream from Reclamation dams. To minimize the reporting effort, this will be done using the Reclamation computer network. The information will be stored in Dam Safety Information System.

RECLAMATION MANUAL TRANSMITTAL SHEET

Effective Date: _____

Release No. _____

Ensure all employees needing this information are provided a copy of this release.

Reclamation Manual Release Number and Subject

Summary of Changes

NOTE: This Reclamation Manual release applies to all Reclamation employees. When an exclusive bargaining unit exists, changes to this release may be subject to the provisions of collective bargaining agreements.

Filing instructions

Remove Sheets

Insert Sheets

All Reclamation Manual releases are available at <http://www.usbr.gov/recman/>

Filed by: _____

Date: _____