

Reclamation Manual

Directives and Standards

Subject:	Emergency Action Planning for Water Impoundment Structures
Purpose:	To establish a program that will address preparedness and response activities to reduce the risk of flooding impacts to populations at risk from water impoundment structures, ensure compliance with Federal dam safety requirements, and preserve Reclamation infrastructure and operations.
Authority:	Reclamation Safety of Dams Act of 1978 (Pub. L. 95-578, 92 Stat. 2471), as amended; Homeland Security Presidential Directive 5 ; Presidential Policy Directive 8: National Preparedness ; National Incident Management System ; Federal Emergency Management Agency (FEMA) 93 – Federal Guidelines for Dam Safety , April 2004; FEMA 64 – Emergency Action Planning for Dams, July 2013; Homeland Security Exercise and Evaluation Program, January 2020; 753 Departmental Manual (DM) 1 and 2; 900 DM; Reclamation Manual (RM) Policy <i>Emergency Management</i> (EMG 01-01).
Approving Official:	Director, Mission Assurance and Protection Organization (MAPO)
Contact:	Emergency Management and Readiness Office (84-52200)

1. Introduction.

This program establishes risk-reducing activities in the Federal Emergency Management Agency (FEMA) mission areas of planning and response to build and maintain preparedness capabilities and preserve Reclamation's operational mission during dam safety and other flood-related emergencies involving water impoundment structures. The elements of this program include Emergency Action Plans (EAPs), testing, training, and exercising, and lessons learned during dam, dike, canal, and levee safety exercises and incidents. This program will ensure timely notifications to affected public safety agencies responsible for warning and evacuating the population at risk (PAR).

2. Applicability.

This Directive and Standard (D&S) applies as follows:

- A. All Reclamation personnel responsible for emergency action planning or response during a dam safety or other water impoundment structure-related incident.
- B. All Reclamation water impoundment structures with a potential for controlled or uncontrolled water releases that pose a threat to the PAR or infrastructure, necessarily including all high and significant-hazard dams, urban canal reaches, and dikes or levees where failure would impact PAR.

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- C. EAP-related requirements herein should be assumed to apply to all structure types (i.e., dams, urban canals, dikes, and levees) except when specified otherwise.
- D. The yearly performance and reporting period for completing the requirements in this D&S will be from October 1 through September 30.

3. **Emergency Action Planning Program Structure.**

The following components make up the Reclamation Emergency Management Program:

A. **Emergency Action Planning Program Manager.**

The EAP program manager will provide oversight and direction of the Emergency Action Planning Program to maintain the EAP directive and standard and support the regions as needed to understand how to interpret and apply requirements.

B. **Regional Offices.**

Regional offices have overall responsibility for the region's EAP programs, including ensuring policy compliance and coordinating with the Emergency Management and Readiness Office.

(1) The regional director will:

- (a) provide oversight of regional EAP programs to ensure that offices and staff comply with this D&S and the emergency management training requirements in RM D&S, Emergency Management (EMG 01-01) Appendix A, and
- (b) support compliance reviews conducted by the program office.

C. **Area/Power Offices.**

Area and power office managers (managers) are responsible for ensuring the implementation of their EAP programs to comply with this D&S, maintaining adequate staffing of EAP personnel, and coordinating with the regional office, stakeholders, and partners.

(1) Managers will:

- (a) appoint a primary EAP coordinator to ensure EAPs are properly developed, maintained, distributed, exercised, and executed during incidents for each applicable water impoundment structure within the jurisdiction of the area/power office,
- (b) ensure that any field offices with delegated responsibility to manage field office specific EAPs have a designated EAP coordinator,

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- (c) approve (via signature) all their respective office's EAPs,
 - (d) ensure implementation of EAP procedures during an EAP activation,
 - (e) identify and communicate to all staff that will or could have a role during an EAP response and ensure those staff members are made aware of their roles and responsibilities related to the EAP,
 - (f) participate in at least one EAP exercise every 2 years and ensure that deputy managers do the same, and
 - (g) ensure interoperability between primary and backup communications systems at all offices, facilities, and locations where EAP response personnel and associated managers will or may need to communicate from/to during an EAP activation.
- (2) EAP coordinators will:
- (a) develop and maintain EAP documents for water impoundment structures per this D&S,
 - (b) oversee planning, tracking, and execution of testing, training, and exercise requirements per this D&S,
 - (c) support EAP activations during incidents involving water impoundment structures to ensure appropriate implementation of EAP procedures, and
 - (d) comply with training requirements per EMG 01-01, Appendix A.
- (3) EAP response personnel will:
- (a) maintain awareness and knowledge of their EAP(s) in which they have a role or responsibility during an EAP incident, and
 - (b) respond during an EAP activation under the direction of area/power/field office leadership and organizational structure established for a given incident.

4. Emergency Action Plans.

To effectively prepare for and respond to dam/canal/dike/levee safety incidents and high flow (flood) events, Reclamation will develop and maintain effective response procedures in the form of a written EAP for every water impoundment structure where a failure would impact PAR. At a minimum, Reclamation EAPs will comply with the following requirements.

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A. **Types of EAPs.**

EAP documents will be developed commensurate with the structure/situation using the following Reclamation EAPs types:

- (1) EAPs for high and significant-hazard dams (dam EAP),
- (2) EAPs for urban canal reaches (canal EAP),
- (3) EAPs for dikes or levees with a PAR,
- (4) EAPs for multiple structures (system or multiple facility EAP),
- (5) temporary EAPs for construction (construction EAP), and
- (6) condensed/external agency EAPs for public safety agencies that do not contain controlled unclassified information (CUI).

B. **EAP Development and Maintenance.**

EAP documents will be developed and maintained according to the following:

(1) **New EAPs.**

New EAPs will be developed (where no EAP exists) for:

- (a) a new water impoundment structure,
- (b) re-classified structure (e.g., low-hazard dam reclassified as significant hazard dam),
- (c) urban canal reaches (due by September 30, 2026), and
- (d) a structure undergoing significant modification that affects operations, the risk of existing potential failure modes, introduces new potential failure modes, increases the potential for an uncontrolled release, or changes to the initiating conditions (requires a temporary construction EAP).

(2) **Uniformity of Plans.**

EAPs for dams will conform to standardized regional dam EAP templates (based on Reclamation-wide EAP guidelines) to ensure consistency within a given region (by September 30, 2025). Urban canal EAPs will conform to standardized regional canal EAP guidelines to ensure consistency within a given region (by September 30, 2026).

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(3) **EAP Format for Transferred Works.**

Area offices will require conformity to the greatest extent possible of EAP formats developed or used by contract operating partners per operations and maintenance contracts and agreements.

(4) **Coordinated Development.**

EAPs will be developed and maintained in coordination with personnel within area/power/field and regional offices, including staff from emergency management, operations, engineering, public affairs, security, dam safety, dam operations (including contract partners), and management. Additionally, EAP initiating conditions will be developed/updated with the affected public safety agencies responsible for warning and evacuation of affected PAR to ensure the timeliness of EAP notifications.

(5) **System EAPs.**

Multiple structures (i.e., dams, urban canal sections, dikes, and levees) may be combined into a single “system” EAP only when the following criteria are met:

- (a) a single area/power/field office manages the included structures,
- (b) all included public safety agencies (per the notification charts) would be affected (directly or indirectly) by a failure of any of the structures in the system (i.e., located within the same general geographic/jurisdictional region or all within the same inundation zone along a river), and
- (c) all the structures included in the EAP can be incorporated into a single emergency management exercise for the system EAP, wherein all affected external agencies can participate, and the scenario can reasonably impact all facilities.

C. **Document Distribution and Control.**

EAP documents will be distributed and controlled according to the following:

- (1) EAPs will be produced and maintained in both electronic and hard-copy formats,
- (2) hard copies of EAPs will be created and distributed as individually numbered (e.g., copy 1 of 10, 2 of 10) copies assigned to specific recipients according to the distribution list in the EAP,
- (3) hard-copies will be stored at all Reclamation facilities where EAP response personnel routinely work and where they would need access to the document

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during an EAP-related emergency, as long as the document can be kept secure when not in use,

- (4) electronic copies of all EAPs must meet the criteria and requirements of records management as defined in the Information Management Handbook, which is incorporated into the RM under a deviation and referenced in D&S, Information Management (RCD 05-01). EAP records shall be stored in the Bureau's approved records repository, Enterprise Content System, and
- (5) dam EAPs (for internal use) will necessarily be considered and labeled CUI due to the type of content that is to be included per Appendix A (e.g., potential failure modes, internal procedures, communications methods). EAPs for other structure types will be evaluated to determine the sensitivity level according to RM D&S, Identifying and Safeguarding Controlled Unclassified Information (CUI) (SLE 02-01).

D. Annual EAP Review and Update.

EAPs will be reviewed annually and updated as needed to ensure the adequacy of procedures, accuracy of notification information, and to incorporate recent lessons learned from exercises or incidents.

E. Annual EAP Training.

To ensure adequate preparedness for EAP incidents, EAP orientation training will be conducted annually for all EAP response personnel as defined in Appendix B.

5. EAP Communications Capability.

Continual access and availability of Bureau communication and information systems are critical to the success of EAP program objectives during an incident. At a minimum, area, power, and field offices will comply with the following requirements.

A. Equipment.

Equipment and training will be provided at all facilities and locations where EAP response personnel must perform operational communications for internal coordination and external notifications during an EAP activation.

B. Secondary Communications Systems.

Functional secondary (backup/redundant) communications systems (e.g., radio, satellite phone) will be provided at all locations where EAP response personnel work/operate to ensure EAP notifications can occur during extreme weather events, emergencies, or disasters where primary communications systems (e.g., phone, cell phone, email.) may not be available.

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- C. **Maintenance.**
The appropriate Reclamation staff will maintain and keep all communications systems operational at all times.
 - D. **Communications Drills.**
All Reclamation offices and facilities will conduct annual communications drills, as defined in Appendix B, to ensure effective and reliable communications capabilities during EAP incidents.
6. **Exercise Planning and Conduct.**
Reclamation will implement a regular EAP exercise program and all staff with EAP roles must participate. Exercising is critical to the success of the EAP program by validating plans, preparing staff, collaborating with emergency management authorities, and identifying opportunities for improvement. At a minimum, area, power, and field offices will comply with the following requirements.
- A. **Exercise Methodology.**
Reclamation will plan and conduct all EAP exercises based on the Homeland Security Exercise and Evaluation Program (HSEEP) according to the exercise type and complexity, to include, at a minimum, the:
 - (1) use of HSEEP terminology and the “capabilities-based, objectives-driven” approach,
 - (2) use of standard HSEEP document types (e.g., Situation Manual, Exercise Plan, Master Scenario Events List, after-action reports),
 - (3) use of the general HSEEP planning process (e.g., concepts and objectives, initial, midterm, final planning meetings),
 - (4) inclusion of an orientation (before exercise play) that covers the EAP process, the relevant water impoundment structure(s), affected inundation areas, and the rules of the exercise, and
 - (5) development of an after-action report (AAR) and corrective actions after the exercise.
 - B. **Exercise Cycle.**
Exercises will be conducted on a 4-year cycle alternating between a tabletop exercise (TTX) and a functional exercise (FE) for dams. Reclamation urban canal reaches and levees will conduct a seminar exercise every 4 years, as defined in Appendix B of this D&S, to validate EAPs and ensure adequate personnel preparedness during EAP incidents.

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C. Participation in Exercises.

(1) Exercise Planning Team.

Invitations to participate in the development of each TTX or FE as a member of the exercise planning team will, at a minimum, be provided to the following positions/personnel at the beginning of the planning process:

- (a) senior personnel in facilities/engineering and water operations groups within the associated area/field office(s),
- (b) a senior representative for operations/facility personnel,
- (c) the regional emergency manager,
- (d) the associated regional security officer and area office security coordinator, to include the opportunity to integrate any security testing/training requirements into the planning and conduct of the exercise, and
- (e) key officials representing the public safety agencies identified on the EAP notification chart, according to the scope of the exercise to include, at a minimum, the affected county emergency manager(s), and the National Weather Service.

(2) Participants.

Invitations to participate (e.g., as players, observers, evaluators) in exercises will, at a minimum, be provided to the following positions/personnel:

- (a) area and deputy area (or power office) managers,
- (b) area/power/field engineering and water operations personnel,
- (c) operations/facility personnel (including primary and alternate facility operators),
- (d) the regional emergency manager,
- (e) area/power public affairs personnel,
- (f) the regional security officer and area office security coordinator,
- (g) other appropriate regional personnel who may be involved in an EAP response or who are listed on the EAP notification chart(s) (e.g., dam safety coordinator, public affairs personnel), and

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- (h) all agencies/officials identified on the notification chart(s) of the exercised EAP(s), according to the scope of the exercise, to include any affected county and town/city emergency managers, tribes, and the National Weather Service.

D. Exercise Credit for Actual Incidents.

Exercise credit may be given for a scheduled EAP exercise (of any type) if an actual incident has occurred in the same fiscal year and the following criteria have been met:

- (1) the EAP for the affected facility(ies) is activated at a Level 1 or greater, and official notifications are provided to all the public safety agencies responsible for warning and evacuation of PAR identified on the EAP notification chart(s),
- (2) an after-action meeting is conducted, and a review of the response is documented in an AAR (including feedback from affected public safety agencies), and
- (3) the AAR is submitted to the Regional Emergency Manager and the Reclamation EAP Program Manager for verification.

7. Corrective Action Planning.

Corrective action planning will be conducted to ensure the review, tracking, documentation, and completion of emergency management-related recommendations resulting from exercises and incidents, as defined below:

A. AARs will be completed within 120 days of any exercise (i.e., seminar, TTX, or FE) or EAP incident (activated at an emergency level 2 or above) and transmitted according to the respective area and/or regional recordkeeping procedures for emergency management records.

B. AARs will include, at a minimum:

- (1) an overall description of the exercise event or incident (e.g., date, location, participants),
- (2) a description of the scenario/incident details,
- (3) an evaluation of the accomplishment or performance of each capability and objective,
- (4) a section for defining and documenting formal recommendations,

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- (5) copy of the exercise attendance record or, for an incident, the attendance record for the after-action meeting, and
- (6) recommendations identifying specific and measurable corrective actions, based on the category levels defined below:
 - (a) Category 1: Corrective action recommendations for the remediation of significant deficiencies where immediate action is required to ensure public protection if an incident occurs at the structure.
 - (b) Category 2: Corrective action recommendations for a wide range of essential matters where action is needed to ensure compliance with D&Ss, implement specific guidelines, or reduce risk to the public.
 - (c) Category 3: Corrective action recommendations for less essential matters believed to be sound and beneficial suggestions to improve or enhance the program.
- C. Category 1, 2, and 3 emergency management recommendations will be entered/updated into the official bureau-wide corrective action tracking and reporting system (i.e., Dam Safety Information System or future replacement). Recommendations will be entered and/or updated in the corrective action tracking system at least annually, no later than October 30 each year.

8. Inundation Maps

- A. Reclamation regional and area offices are responsible for ensuring the development, management, and sharing of inundation studies and maps in support of emergency action planning and risk communication for all Reclamation high and significant-hazard dams.
- B. Non-sensitive emergency management-based inundation maps will be Reclamation's primary "inundation map" product for distribution to operating partners, emergency management authorities, and the National Inventory of Dams (NID) website and will be included in Reclamation emergency action plans for all significant and high-hazard dams.
- C. Inundation maps will be developed in accordance with the Technical Service Center's Manuals and Standards document on Flood Inundation Mapping.
- D. Area offices will retain, control, and manage copies of inundation maps for all dams in their jurisdiction.

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- E. Copies of sensitive/controlled inundation maps will be stored and distributed in accordance with SLE 02-01, to prevent unauthorized access.
- F. Regional offices will ensure that copies of non-sensitive inundation maps are distributed to the NID once developed/updated.
- G. Only regional directors may seek an exemption for sharing non-sensitive inundation maps through the NID if security concerns outweigh the benefits of public sharing for a given facility. To request an exemption, they must follow the process outlined in Request for Deviation from a Reclamation Manual Requirement and Approval or Disapproval of the Request (RCD 03-03).

9. Appendices.

- A. **Emergency Action Plan Content Requirements.**
- B. **Testing, Training, and Exercise Requirements.**

10. Definitions.

- A. **After-Action Report.**
A report documenting an exercise or incident that explains why and how the EAP was exercised or activated; describes the event or incident and actions taken; and identifies strengths, deficiencies, and recommended corrective actions.
- B. **Backup (or Secondary) Communications.**
Secondary methods, technology, systems, equipment, processes, and protocols that provide a means of communicating between essential points of contact during situations where more vulnerable day-to-day (primary) communications systems (e.g., landline phone, cell phone) are likely to fail when impacted by extreme weather conditions or other emergencies.
- C. **Construction EAP.**
An emergency action plan developed and used temporarily while a dam or other water impoundment structure is being constructed or modified.
- D. **Drill.**
An operations-based activity often employed to test and validate a single operation, function, or capability.
- E. **Emergency Action Plan.**
A written plan containing response procedures that guides personnel to quickly respond to an incident at a dam or other water impoundment structure to initiate

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intervention actions and notify public safety agencies of any threat of flooding to populations at risk.

F. EAP Orientation.

An awareness-level training session designed to enhance and maintain emergency preparedness by familiarizing response personnel with an emergency action plan and the associated process, roles, and responsibilities.

G. Emergency Levels.

An emergency classification framework that indicates incident severity and the hazard category at a water impoundment structure related to the population at risk as part of the Emergency Level Classification System (in an EAP) to support situational awareness and risk communication.

H. Emergency Level Classification System.

A systematic approach to identifying and designating the status of EAP-related incidents comprised of variable initiating conditions and pre-defined emergency levels based on standardized indicators of severity and the emergency categories provided by FEMA 64.

I. Functional Exercise.

An operations-based exercise is designed to test and evaluate capabilities and functions in a realistic, real-time environment; however, the movement of resources is usually simulated.

J. Homeland Security Exercise and Evaluation Program (HSEEP).

A set of guiding principles developed by FEMA for exercise programs, as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. Exercises are a key component of national preparedness—they provide senior leaders and stakeholders from across the whole community with the opportunity to shape planning, assess and validate capabilities, and address areas for improvement.

K. Initiating Conditions.

Descriptive summaries (triggers) of various unusual situations or hazards affecting a water-impoundment structure that could or would likely result in threatening releases of water from the structure. Initiating conditions are developed across an increasing range of severity correlated to distinct severity levels and are a component of the EAP Emergency Level Classification System.

L. Intervention.

Actions taken by the dam/structure owner/operator to initiate emergency repairs, maintain control of the facility, preserve structural integrity, or otherwise attempt to

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delay and prevent further downstream flood damage (within the operating parameters of the structure).

M. Interoperability.

The ability of systems, personnel, and equipment to provide and receive functionality, data, information, and/or services to and from other systems, personnel, and equipment in a manner enabling them to operate effectively together.

N. Population at Risk (PAR).

Those people present in the inundation flood zone prior to dam failure. The PAR may include permanent residents and transient individuals such as recreationists, or travelers in autos, buses, etc.

O. Seminar.

A discussion-based exercise that orients participants to or provides an overview of authorities, strategies, plans, policies, procedures, protocols, resources, concepts, and ideas.

P. Tabletop Exercise.

A discussion-based exercise in response to a scenario, intended to generate a dialogue of various issues to facilitate a conceptual understanding, identify strengths and areas for improvement, and/or achieve changes in perceptions about plans, policies, or procedures.

Q. Urban Canal Reach (as defined by RM D&S, Canal Hazard Program (FAC 01-12)).

An urban canal reach is delineated by the water contained between two structures including, checks, wasteways, diversion dams, etc., where the structures may be used to control or limit the amount of water lost in the event of a failure. An urban canal reach is defined as either of the following:

(1) **Criteria-Defined.**

A canal reach where failure would result in an estimated PAR greater than 100 and/or an estimated property damage of greater than \$5,000,000.

(2) **Defined by Engineering Judgment.**

A canal reach determined by the responsible regional/area office to be classified as an urban canal reach based on sound engineering judgment factors.

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R. Water Impoundment Structure.

An engineered and constructed element designed to create a structural boundary (i.e., dam, canal, dike, or levee) for the purposes of storing, controlling, and managing a body of water.

11. Review Period.

The originating office will review this release every four years.