DRAFT RECLAMATION MANUAL RELEASE
Comments on this draft release must be submitted to bclaggett@usbr.gov by April 27, 2020.

Background and Purpose of the Following Draft Directive and Standard (D&S)

The goal of preparing this revised D&S document and providing stakeholders with the opportunity to comment on it in draft form is to enhance common understanding of how the emergency management program for high-hazard dams and other water impoundment structures is administered and to enhance working relationships with our project partners. This will make the program more responsive to project sponsors, and more consistent Reclamation-wide and thus more effective.

This revision to the D&S was developed in collaboration with a working group made up of emergency management specialists of all Reclamation’s regional offices through a series of meetings and reviews of the draft document.

The Reclamation Manual is used to clarify program responsibility and authority and to document internal Reclamation-wide methods of doing business. All requirements in the Reclamation Manual are mandatory.

See the following pages for the draft D&S.
Subject: Emergency Management Program for Water Impoundment Structures

Purpose: To establish a program of preparedness and response activities to reduce the risk of catastrophic flooding impacts from water impoundment structures to populations at risk, to ensure compliance with federal dam safety requirements, and preserve Reclamation operations.


Approving Official: Director, Policy and Programs

Contact: Emergency Management and Aviation Office (84-42000)

1. Introduction. Throughout history, in all parts of the world, water impoundment structures have occasionally failed or otherwise discharged stored water inflicting damage to people, lands, and property. This program establishes risk reducing activities in the FEMA mission areas of planning and response in order to build and maintain preparedness capabilities and preserve Reclamation’s operational mission during flood-related emergencies. The outcomes of this program will include a standardized framework of response plans, trained personnel, and a cycle of ongoing improvement, to ultimately provide timely notifications to affected public safety agencies and to preserve Reclamation’s ability to control water-related resources during dam safety and high-flow incidents.

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

A. to all Reclamation personnel with a responsibility for emergency action planning or response;

B. for all Reclamation water impoundment structures (i.e., high-hazard dams, dikes, levees, and urban canal reaches (per FAC 01-12)) with a potential for controlled or uncontrolled water releases that pose a threat to populations at risk (PAR);

C. this D&S does not address emergency planning or response related to continuity of operations (SLE 08-02), hazardous materials (ENV 02-06), site security (SLE 03-02), serious incident reporting (SLE 08-03), or employee safety and health (SAF 01-01). This program does not address standing operating procedures, monitoring, maintenance, inspection, or structural mitigation; and

D. the requirements of this D&S will be implemented as defined below:
Full Implementation Timeline. Implementation of all new requirements (from the previous version of FAC 01-01) must be completed by September 30th in the 5th year after the release date of this D&S.

Continuation of Exercise Frequency. The conduct of exercises on a four-year cycle shall continue to be in effect as previously required.

Exercise Schedule Realignment. Area offices may elect to reset their multi-year exercise schedule (one time) in order to integrate new requirements including urban canal exercises.

Emergency Action Plans (EAP). Area Managers will provide the necessary personnel and resources, including appointing a primary EAP Coordinator (from within the area office), 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 office, as defined below.

A. Plan Development and Maintenance. An EAP document will be developed and maintained for each water impoundment structure with a potential for controlled or uncontrolled water releases that pose a threat to populations at risk (i.e., high-hazard dam, levee, dike) to include urban canal reaches (as defined by FAC 01-12). EAPs for urban canal reaches will be titled, “Canal Emergency Action Plan” (formerly “Emergency Management Plan”), as defined below.

Coordinated Development. EAPs will be developed and implemented in coordination with all applicable stakeholders within the field, area, and regional offices (e.g., facilities, engineering, public affairs, security, dam safety, management, etc.) including dam operations staff, and where applicable with public safety agencies responsible for warning and evacuation of affected PAR.

Uniformity of Plans. Regional offices will develop and provide a standard EAP format to be used within the respective region based on Reclamation Visual Identity standards and EAP guidelines.

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

B. Essential Elements. EAPs will include the following essential elements:

Purpose and scope statement;

Roles and responsibilities;

Response process;
(4) position/office-specific response checklists;
(5) emergency level classification system;
(6) notification chart and protocol;
(7) primary and backup communications systems information;
(8) facility-specific conditions and potential failure modes;
(9) preparedness and facility information; and
(10) inundation maps.

See Appendix A for all detailed EAP content requirements and Appendix D for inundation mapping requirements.

C. **Document Production, Distribution, and Control.** EAPs will be produced in both electronic and hard copy forms. Electronic copies will be retained (in both Microsoft Word and Adobe PDF) by the responsible area office (or regional office) as the record copy holder, to ensure availability for future updates. The sensitivity and distribution of EAPs will be determined by the responsible area office in accordance with SLE 02-01. At a minimum, hard copies will be printed, controlled (i.e., numbered copies), and kept at Reclamation facilities where EAP response personnel are located.

D. **System EAPs.** Multiple structures (i.e., dams, levees, dikes) may be combined in a system EAP only when the following criteria can be satisfied:

1. **All included structures are managed under the jurisdiction of a single area office.**
2. All identified public safety agencies would be affected (directly or indirectly) by a failure of any of the structures in the system (e.g., located within the same general geographic region or all within the same inundation zone along a river).

Canal EAPs may be included in a dam EAP as an annex (with a separate cover page) where the above criteria is satisfied. Stand-alone Canal EAP documents will be developed for Urban canal reaches not associated with a dam.

4. **Training and Exercising.** Area office managers will provide their EAP Coordinators and response personnel with the support and resources necessary to conduct preparedness activities, as defined below:

   A. **Training.** Incident response personnel within the area/field offices with essential EAP-related responsibilities will complete the required training listed in Appendix C.
B. **Exercising.** Area office EAP Coordinators will oversee the planning and conduct of exercises to achieve the goals of (1) testing plans and capabilities, (2) preparing essential personnel, (3) identifying opportunities for improvement, and (4) collaborating with affected public safety agencies. The following exercise requirements will be incorporated into area office multi-year training and exercise plans for both high-hazard dams and urban canal reaches, as defined below:

1. **Methodology.** Exercises will be planned and conducted based on HSEEP for each facility according to the exercise types and frequency requirements in this section, to include the:
   
   (a) use of HSEEP terminology (to the extent practical);
   
   (b) use of the “capabilities-based, objectives driven” approach;
   
   (c) use of standard HSEEP document types as applicable (e.g., Situation Manual, Exercise Plan, Master Scenario Events List, etc.); and
   
   (d) use of the general planning process (e.g., initial, midterm, and final planning meetings), as appropriate for the scale of the exercise.

2. **Orientation Seminar.**
   
   (a) **Frequency.** An orientation seminar will be conducted every year (annually) for each high-hazard dam EAP. An orientation seminar will be conducted every two years for each canal EAP.
   
   (b) **Purpose and Scope.** The purpose of the orientation seminar is to ensure that all personnel who have a response role during an EAP activation are familiar with the EAP and related procedures, and to enhance risk communication to public safety officials who would be affected from a resulting flood incident. These events must include a thorough review of the EAP, including the purpose, scope, roles and responsibilities, EAP process, emergency classification system, checklists, tools, and appendices.
   
   (c) **Canal EAP Exercises.** Orientation seminars for canal EAPs will be developed and conducted as exercises with a planning process, objectives, and an after-action report (AAR) and will include invitations to affect public safety agencies responsible for the associated PAR. An orientation seminar for a Canal EAP may be combined with an exercise for a high-hazard dam EAP when both EAPs are combined in a system EAP.
(3) **Communications Drill.**

(a) **Frequency.** A communications drill will be conducted every year (annually) for each area office.

(b) **Purpose and Scope.** The purpose of the communications drill is to test, validate, and improve the capability for communications within the jurisdiction of the area office (including all field offices and dam sites), and will include objectives to, (1) validate the effectiveness of communications systems, equipment, processes, and protocol, (2) test the effectiveness of internal coordination between offices/facilities to share information and maintain situational awareness, (3) test the effectiveness of notifications to external agencies, and (4) test backup communications methods/systems.

(4) **Tabletop Exercise (TTX).**

(a) **Frequency.** A tabletop exercise will be conducted every 4 years (alternating with functional exercises) for each high-hazard dam EAP.

(b) **Purpose and Scope.** The purpose of the TTX is to provide an opportunity for Reclamation, operating partners, and affected public safety agencies to collaboratively meet in person and participate in a discussion-based simulation to evaluate a scenario based on potential hazards described in the EAP. The event will be driven by specific objectives, allow for the practice of roles and responsibilities, and stimulate discussion of issues/needs.

(5) **Functional Exercise (FE).**

(a) **Frequency.** A functional exercise will be conducted every 4 years (alternating with TTXs) for each high-hazard dam EAP.

(b) **Purpose and Scope.** The purpose of the FE is to provide an opportunity for Reclamation, operating partners, and affected public safety agencies to collaboratively test response capabilities in an operational environment during a simulation based on potential hazards described in the EAP. The event will be driven by specific objectives including practice of roles and responsibilities and testing actual operational communications systems.

(6) **Exercises Involving Multiple Facilities.** Multiple facilities may be included in a single exercise only when the scenario affects all facilities and all invited agencies (per the EAP notifications charts) are invited to participate in the event.

(7) **Invited Personnel.** EAP Coordinators, or designated exercise planners, will notify and invite appropriate personnel as follows:
(a) **Exercise Planning Team (EPT).** Invitations to participate in the development of each TTX and FE exercise as EPT members will be provided, at a minimum, to the following positions/personnel at the beginning of the planning process:

(i) Senior staff in facilities/engineering/water operations group(s) within the area/field offices;

(ii) a senior representative for dam operations staff;

(iii) the regional security officer (RSO) and area office security coordinator (AOSC), to include the opportunity to integrate any security testing/training requirements (per SLE 03-02) into the planning and conduct of the exercise; and

(iv) key officials representing the agencies identified on the EAP notification chart(s), according to the scope of the exercise, to include the affected county emergency managers and national weather service.

(b) **Participants.** Invitations to be participants (i.e., as players, observers, evaluators, etc.) in each TTX and FE exercise will be provided to, at a minimum, the following positions/personnel:

(i) area and deputy area managers;

(ii) area/field facilities/engineering/water operations staff;

(iii) dam operations staff;

(iv) the RSO and AOSC;

(v) public affairs staff;

(vi) members of area office incident management team; and

(vii) all agencies/officials identified on the EAP notification chart(s), according to the scope of the exercise, to include the affected county emergency managers and national weather service.

(8) **Exercise Credit for Actual Incidents.** After the occurrence of an incident, the exercise schedule for the affected facility may be reset (in the fiscal year of the incident) if the following criteria are satisfied:

(a) the EAP for the facility was activated at a Level 1 or greater and official notifications were provided to the agencies on the notification chart;
(b) a review of the response is conducted and an AAR is completed (documenting the incident and incorporating standard questions, (1) what was supposed to happen, (2) what actually happened, (3) what worked and didn’t work, and (4) what should be done differently next time); and

(c) for system EAPs, notifications were made during the incident to all public safety agencies identified in the EAP.

(9) **Exercise Attendance Tracking.** Attendance at exercises will be documented using an attendance record (a.k.a., “sign-in sheet”; signatures not required) attached to the respective exercise AAR.

5. **Corrective Action Program.** Area office EAP Coordinators will ensure a program of ongoing evaluation of capabilities and implementation of corrective actions to ensure review, tracking, documentation, and completion of emergency management related recommendations, as defined below:

A. The structure of AARs will be based on HSEEP guidance, and will include at a minimum:

   (1) a description of the event (e.g., date, location, participants, etc.);

   (2) a summary of capabilities and objectives that were evaluated;

   (3) a description of the scenario;

   (4) an evaluation of the performance related to each exercise objective and associated capability;

   (5) identification of opportunities for improvement and strength/weaknesses of exercise;

   (6) a section for documenting formal recommendations; and

   (7) copy of the exercise attendance record (for Reclamation and operating partner participants).

B. AARs will at a minimum include any identified emergency management related (formal) recommendations using the standard emergency management recommendation categories, as defined below for emergency management related issues:

   (1) Category 1: Emergency action planning Category 1 corrective action recommendations will be made for the correction of significant deficiencies where immediate action is required to ensure protection of the public if an incident were to occur at the dam.
(2) Category 2: Emergency action planning Category 2 corrective action recommendations will be made for a wide range of important matters where action is needed to assist in reduction of risk to the public.

(3) Category 3: Emergency action planning Category 3 corrective action recommendations will be made for less important matters but believed to be sound and beneficial suggestions to improve or enhance the program.

C. Area offices will ensure retention of all electronic final AARs in accordance with approved electronic records management systems.

D. Tracking and updating formal recommendations will be done in accordance with FAC 01-07.

6. **Incident Management Capability Requirements.** In accordance with Reclamation Policy P08 – Emergency Management, Area Managers will provide the necessary personnel, training, and resources to ensure development and maintenance of a standardized area office incident management strategy based on the Incident Command System (ICS). See Appendix B for additional details.

7. **Appendices.**

   A. Emergency Action Plan Content Requirements

   B. Incident Management Capability Requirements

   C. Emergency Management Training Requirements

   D. Inundation Mapping Requirements

8. **Definitions.**

   A. **After-Action Report.** A report documenting a planned event (e.g., exercise) or incident which 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 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 are likely to fail when impacted by extreme weather conditions or other severe situations.

   C. **Drill.** A drill is a coordinated, supervised activity usually employed to validate a specific function or capability in a single agency or organization. Drills are commonly used to provide training on new equipment, validate procedures, or practice and
maintain current skills. For every drill, clearly defined plans, procedures, and protocols need to be in place. (HSEE)

D. **Emergency Action Plan.** The written plan containing response procedures for a dam owner to quickly respond to a dam safety incident or high-flow situation, initiate intervention actions, and notify public safety officials of any situation at the dam that causes a threat of flooding to populations at risk.

E. **Emergency Level Classification System.** A systematic approach of evaluating and qualifying the status of EAP-related incidents, comprised of initiating conditions and emergency levels.

F. **Incident.** Any unexpected situation or condition that creates an elevated risk of damage to human life, the environment, infrastructure, essential functions, or normal operations, and where a response is needed to investigate and intervene for the protection of resources and mission sustainability.

G. **Initiating Conditions.** Descriptive summaries (a.k.a., triggers) of various unusual situations (i.e. hazards) occurring at or affecting a water-impoundment structure (e.g., dam) that are related to threatening high/uncontrolled releases of water, that are developed across an increasing range of severity, correlated to distinct severity levels, as part of the EAP Emergency Level Classification System.

H. **Intervention.** Actions taken by the dam owner/operator to initiate emergency repairs, maintain control of the facility, preserve structural integrity, or otherwise attempt to delay and prevent further downstream flood damage (within the operating parameters of the structure). In EAP documents this can range from instructions for gathering information, to referencing external processes (e.g., decisions made by dam safety experts, development of an incident action plan via a separate plan, etc.), or if applicable, specific instructions in an appendix on how to address specific hazards.

I. **Preparedness.** A state of adequate readiness to respond to a variety of potential hazards, emergencies, or disasters to intervene in the preservation of lives, infrastructure, and organizational functions by activating incident response plans (e.g., EAPs), forming an incident organization, and executing a tactical response to stabilize the incident, manage information and resources, and effectively collaborate with other involved organizations.

J. **Emergency Levels.** An emergency classification framework that indicates incident severity as it related to populations at risk as part of the Emergency Level Classification System (in an EAP) to support situational awareness and risk communication.

K. **Orientation Seminar.** Seminars generally orient participants to, or provide an overview of, authorities, strategies, plans, policies, procedures, protocols, resources, concepts, and ideas. As a discussion-based exercise, seminars can be valuable for
entities that are developing or making major changes to existing plans or procedures. Seminars can be similarly helpful when attempting to assess or gain awareness of the capabilities of interagency or inter-jurisdictional operations (HSEEP).

L. **Situational Awareness.** Situational awareness is the ability to identify, process, and comprehend the critical information about an incident, requiring continuous monitoring of relevant sources of information regarding actual incidents and developing hazards.

M. **Tabletop Exercise (TTX).** A TTX is intended to generate discussion of various issues regarding a hypothetical, simulated emergency. Generally, TTXs are aimed at facilitating conceptual understanding, identifying strengths and areas for improvement, and/or achieving changes in perceptions. During a TTX, players are encouraged to discuss issues in-depth, collaboratively examining areas of concern, and solve problems. The effectiveness of a TTX is derived from the energetic involvement of participants and their assessment of recommended revisions to current policies, procedures, and plans. TTXs can range from basic to complex. (HSEEP)

N. **Urban Canal Reach (per 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 to be 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.

O. **Functional Exercise (FE).** FEs are designed to validate and evaluate capabilities, multiple functions and/or sub-functions, or interdependent groups of functions. FEs are typically focused on exercising plans, policies, procedures, and staff members involved in management, direction, command, and control functions. In FEs, events are projected through an exercise scenario with event updates that drive activity typically at the management level. An FE is conducted in a realistic, real-time environment; however, movement of personnel and equipment is simulated. (HSEEP)

P. **Water Impoundment Structure.** An engineered and constructed element within the jurisdiction and control of Reclamation that is a component of an authorized Project with a specific purpose related the control and management of water or a reservoir boundary such as a dam, levee, dike, or canal.

9. **Review Period.** The originating office will review this release every 4 years.
Emergency Action Plan Content Requirements

This appendix provides specific requirements for the content of Emergency Action Plans (EAPs) to ensure a foundational level of uniformity across Reclamation.

1. **Purpose and Scope.** Reclamation EAPs will contain the following mandatory purpose and scope statement in the preface of the document:

   “Purpose. The primary purpose of Reclamation emergency action plans is to plan for effective and timely risk communication to the public safety agencies responsible for warning and evacuation of populations at risk (PAR) downstream of Reclamation water impoundment structures to reduce potential loss of life during situations of elevated flood risk.

   Additionally, the EAP serves the purposes of providing, (1) response procedures to Reclamation and facility operations personnel, (2) an administrative record of programmatic intent, and (3) the primary basis for training and exercises.

   **Scope.** The scope of this EAP includes:

   (1) Identification of all unusual conditions (e.g., probable failure modes, natural disasters, operational failure, security breach, etc.) provided as a hazard-based matrix of descriptive initiating conditions (a.k.a., triggers) that may lead to (water) releases from the structure that could threaten PAR.

   (2) Procedures and tools (e.g., checklists, emergency level decision matrix, notification charts) intended for use by Reclamation personnel and dam operations partners to provide a consistent process of detection, activation, classification, intervention actions, notification, and termination.

   (3) Facility reference information (e.g., structural data, emergency classification definitions, inundation maps, etc.) to support flood response actions of public safety agencies responsible for warning and evacuation in the inundation zone.

   (4) Directions and information that support actions conducted by Reclamation personnel to intervene at the facility (e.g., preserve the structure).

   This EAP does not include information related to occupant emergency planning, continuity of operations, hazardous materials spills, security response, or hazard-specific emergencies not impacting the potential for flood releases from the structure. Reference the following plans for incidents outside the scope of this EAP:

   - [insert list of area/field office incident response plans other than EAP]
   - [references must include any site security plan(s) for associated facility(ies)]
The scope of this EAP does not include instructions to public safety agencies not involved in dam operations and assumes that EAP notifications of emergency level declarations and incident information will be used by downstream agencies in accordance with local flood response/evacuation plans related to protecting the public and environment (outside the jurisdiction of Reclamation). It is assumed that the public will receive and understand official information related to warning, evacuation, and will act in its own best interest to evacuate dangerous areas or follow other instructions when advised to do so by local, state, and/or federal authorities.”

2. **Roles and Responsibilities.** EAPs will include a roles and responsibility section that includes:

   A. a general description of the EAP-related roles and responsibilities for each Reclamation office/facility in the area office jurisdiction;

   B. a summary of the authority and responsibility for incident management and decision-making during dam safety incidents and operational control of the facility during high water level/releases (e.g., Reclamation vs operating partner for transferred works);

   C. a general description of the associated roles of local, state, and federal public safety agencies; and

   D. identification of the positions within the area/field office (or operating partner where applicable) with authorization to formally activate the EAP (e.g., area manager, facilities chief, area office incident commander, etc).

3. **Response Process.** EAPs will include a standardized EAP process based on the concepts of, 1) detection, 2) activation, 3) classification, 4) notification, 5) intervention, (6) re-evaluation, and (7) termination.

4. **Response Checklists.** In addition, all detailed incident response instructions and specific tasks for Reclamation (and operating partner) personnel will be consolidated into role/office-specific checklists to provide an efficient and user-friendly response document.

5. **Emergency Level Classification System.** All EAPs will incorporate and follow the standardized system of emergency level classification comprised of, (A) Emergency Levels, and (B) initiating conditions, as defined below:

   A. **Emergency Levels.** EAP incidents will be classified as defined below:

      (1) The “Emergency Level” will be a combination of a numerical indicator of severity of either 1, 2, or 3 and one of the categories, “high flow”, “non-failure”,


“potential failure”, or “imminent failure”\(^1\), corresponding to hazard types and initiating conditions (see Figure 1 below).

(2) Severity Levels (i.e., 1, 2, and 3), as defined below, provide an overall framework for EAP related emergencies (including high flow and dam safety related categories) and trigger external notifications per the Notification Chart:

(a) Level 1 – Threat corresponding to need to notify downstream public safety agencies to be on standby;

(b) Level 2 – Threat corresponding to need to notify downstream public safety agencies to consider public warning (and possibly evacuation of most vulnerable PAR); and

(c) Level 3 – Threat corresponding to need to notify downstream public safety agencies to consider evacuation of PAR.

(3) The high-flow category is to be used for releases (or elevated risk of releases) from the structure severe enough to warrant notifications to downstream public safety agencies due to flooding impact on the river system.

(4) The dam safety related categories of “non-failure”, “potential failure”, or “imminent failure” (defined below) are to be aligned under the respective severity levels (i.e., 1, 2, 3) for all dam safety related hazard types.

(a) Non-Failure – Condition at the structure is of elevated risk or concerning, requires intervention, and remediation is plausible.

(b) Potential Failure – Condition at the structure is more serious (i.e., increasing risk), requires extraordinary intervention, and where likelihood of remediation is uncertain.

(c) Imminent Failure – Condition at the structure is of very high risk or severe, and where remediated is not likely.

\(^1\) Per FEMA 64.
Emergency Level Decision Matrix

<table>
<thead>
<tr>
<th>HAZARD TYPES</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External Notifications</td>
<td>High Flow (1)</td>
<td>High Flow (2)</td>
</tr>
<tr>
<td>Hydrologic/Releases</td>
<td>initiating condition</td>
<td>initiating condition</td>
<td>initiating condition</td>
</tr>
<tr>
<td></td>
<td>Non-Failure</td>
<td>Potential Failure</td>
<td>Imminent Failure</td>
</tr>
<tr>
<td>Structural</td>
<td>initiating condition</td>
<td>initiating condition</td>
<td>initiating condition</td>
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<td>Internal Erosion</td>
<td>initiating condition</td>
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<tr>
<td>Security</td>
<td>initiating condition</td>
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<td>initiating condition</td>
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<tr>
<td>Others as needed</td>
<td>initiating condition</td>
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<td>initiating condition</td>
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Figure 1 – Example Emergency Levels Table Format.


(6) Where appropriate, the additional level “Internal Alert”, may be used to indicate incidents that require heightened awareness or immediate investigation but have not yet risen to the level where downstream public safety agencies need to be notified, providing the Reclamation area office and dam operator the opportunity to organize before hazards escalate to the level requiring downstream notifications.

(7) Where appropriate, the additional level, “Level 4 - Failure”, may be used to indicate the occurrence of dam failure (with an associated catastrophic release of the reservoir), thus indicating a lack water impoundment capacity and urgent threat to PAR and first responders in the inundation zone according to flood wave travel time.

B. Initiating Conditions. The classification of EAP-related incidents will be based on visual descriptions (associated with various hazard types), providing a framework to determine distinct Emergency Levels for timely notification to affected public safety agencies at various progressive levels of severity, according to the following:

(1) Alignment. Development of the initiating conditions will align with the Emergency Level definitions for notifying downstream public safety agencies and will be refined in collaboration with those agencies.

(2) Hazard Types. All applicable hazard types in which there is a risk of life-threatening flood waters occurring from the structure will be identified and used to organize the initiating condition descriptions, to include at a minimum:

(a) likely potential failure modes (per the latest Comprehensive Review);
Reclamation Manual
Directives and Standards

(b) hydrologic events (potential for high reservoir inflow/outflow);

c) security threats affecting the integrity of the structure or operational control (i.e., initiating conditions based on threat to structure).

(3) **Potential Failure Modes.** For high-hazard dams, potential failure modes (per the latest Comprehensive Review) will be incorporated into the initiating conditions.

6. **Notification Requirements.** EAPs will include, (1) notification instructions and communications systems protocol, (2) notification charts, and (3) prescribed messages, to support accurate, consistent, and timely risk communication to downstream public safety agencies, according to the requirements below:

A. **Notification Instructions.** A narrative description of all necessary information needed to ensure effective and timely notifications can occur will be included in the EAP and will incorporate the related requirements of this D&S, including:

(a) External notifications will be made at each Emergency Level declaration according to the EAP Notification Chart(s).

(b) Internal notifications will be made at each Emergency Level (1 and above) declaration according to area and regional reporting requirements, and will include at a minimum:

   (i) necessary regional/area/field/dam personnel to ensure adequate situational awareness and collaboration between operational personnel;

   (ii) the Regional Duty Officer (in accordance with SLE 08-03); and

   (iii) the Regional Security Officer and the Area Office Security Coordinator.

(c) Internal procedures will include messaging protocol and the identification and use of communications equipment and systems for all offices/locations, including backup systems and methods.

(d) EAPs will contain a contingency for on-site dam operation staff to report an imminent life-threatening condition to downstream public safety officials (e.g., immediately calling 911 and/or the local emergency management officials).

B. **Notification Charts.** Notifications charts will include:

   (1) the list of responsible local public safety agencies that would be affected or are otherwise responsible for warning and evacuation of PAR with the associated facility inundation zones;
(2) the responsible National Weather Service forecast office and any other affected federal agencies/bureaus;

(3) all affected American Indian Tribes;

(4) other individual emergency response organizations in the inundation zone; and

(5) an order of contact priority (as applicable).

C. Prescribed Messages. EAPs will include a prescribed message (or other similar job aid) aligned with the emergency level classifications to support consistent and accurate notifications to external agencies.

D. Notification of Release Changes. In addition to notifications at each Emergency Level, additional similar notifications will be conducted to appropriate agencies on the Notification Chart before/when significant gate changes (i.e., release flow rates) occur.

7. Primary and Backup Communications Systems Information. EAPs will describe and contain instructions for the use of primary and backup means of communication at all facilities/locations necessary to ensure sustainability of internal coordination and external notifications, unless such information is documented elsewhere, in which case the EAP may refer to this information.

8. Facility-Specific Conditions and Potential Failure Modes. EAPs will consider, incorporate, and describe as appropriate likely potential failure modes from the most recent facility Comprehensive Review, as well as any pertinent facility-specific conditions, limitations, or issues.

9. Preparedness and Facility Information. EAPs will include a general description of the facility(ies) covered by the EAP and other useful information as appropriate (e.g., photos, maps, drawings, studies, reports, MOUs, emergency communication directory, etc.). In accordance with FEMA 64, EAPs will include facility/office specific information covering the following topics (except where already covered in another plan/document, in which case it can be referenced and/or summarized):

- Training and exercising
- Surveillance and monitoring
- Evaluation of detection methods and limitations
- Access to the site
- Response during periods of darkness
- Response during weekends and holidays
- Response during periods of adverse weather
- Alternative sources of power
- Emergency supplies and information
• Alternative systems of communication
• Communication strategies to the public and media
• Facility shutdown procedures (e.g., for canal EAPs)

10. **Canal EAP Content.**

A. Canal EAP content and format will generally mirror that of dam EAPs but may be scaled to a more limited scope of information based on complexity and consequences.

B. Canal EAPs may refer to common information already contained in any associated dam EAP.

C. Inundation maps are not required for canal EAPs.
Incident Management Capability Requirements

Incident Management Plan. Each area office will develop and maintain an all-hazards incident management plan (separate from the EAP) documenting an area office strategy for planning and implementing the Incident Command System (ICS) during EAP activations, to include the following elements:

A. **Core Capabilities.** Identification of Core Capabilities\(^2\) including at a minimum, Planning, Operational Coordination, Infrastructure Systems, Operational Communications, and Situational Assessment.

B. **Concept of Operations.** An overall ICS-based concept of operations for operational incident response within the jurisdiction of the area office to address all hazards activation of the area/field office incident management team (IMT), and collaborative strategies for working with external agencies.

C. **Incident Organization.** An ICS-based incident response organization protocol and structure for activation and performance of the area/field office IMT, using the standardized position titles and definitions (e.g., incident commander, liaison officer, planning section chief, etc.). At a minimum the area manager will be identified as the “agency administrator”, while other positions may be assigned at the discretion of the area manager or the delegated incident commander.

D. **Planning Framework.** An ICS-based incident action planning process that the area office IMT will use for incident management, decision-making, and development of written incident-specific incident action plans.

\(^2\) FEMA Core Capabilities are identified in the National Preparedness Goal.
Emergency Management Training Requirements

1. **EAP-Related Personnel.** Reclamation personnel who would likely be assigned response actions during an EAP activation will be provided and will participate in the training, per group assignment, as defined below.

   **A. All Response Personnel.** Area office personnel with responsibilities during an EAP activation (e.g., dam operator, facilities operations, dispatch staff, etc.).
   - IS-100 – Introduction to the Incident Command System, ICS 100;
   - IS-700 – Introduction to the National Incident Management System; and
   - Participation in annual EAP familiarization training (i.e., orientation seminar, dam operators training, tabletop/functional exercise).

   **B. EAP Coordinators.** EAP Coordinators (regional/area offices) and personnel who lead the planning and conduct of exercises.
   - Foundational background (free online short courses from FEMA; one-time requirement):
     - IS-100 – Introduction to the Incident Command System, ICS 100
     - IS-139 – Exercise Design and Development
     - IS-200 – Basic Incident Command System for Initial Response
     - IS-235 – Emergency Planning
     - IS-700 – Introduction to the National Incident Management System
     - IS-800 – National Response Framework, an Introduction;
   - K/L0146 – Homeland Security Exercise and Evaluation Program (classroom); and
   - Involvement in and performing a leadership role during at least one EAP exercise every year (annually).

   **C. Area Office Incident Management Personnel.** Personnel within the area office who would likely serve on the area office incident management team (i.e., incident commander, public information officer, liaison officer, operations section chief, planning section chief, logistics section chief, and finance section chief).
   - Basic Incident Command System (ICS) training (one-time requirement).
     - IS-100 – Introduction to the Incident Command System, ICS 100
     - IS-200 – Basic Incident Command System for Initial Response
     - ICS 300 – Intermediate ICS for Expanding Incidents
     - ICS 400 – Advanced ICS
     - IS-700 – Introduction to the National Incident Management System
     - IS-800 – National Response Framework, an Introduction
   - Participate and practice ICS roles and process during an IMT focused training/drill or during an exercise with an incident management specific objective, a minimum of every 4 years.
Inundation Mapping Requirements

1. **Bureau of Reclamation Inundation Studies and Maps.** Inundation maps will be reviewed and subsequently revised (if needed) if significant deficiencies in current inundation studies or maps are identified by the Program and Emergency Management Office (PEMO), in coordination with the Dam Safety Office (84-44000) and the regional dam safety coordinator. When it becomes necessary to prepare or revise an inundation map, the following criteria will apply in addition to those contained in FEMA 64 and FEMA P-946: *Federal Guidelines for Inundation Mapping of Flood Risks Associated with Dam Incidents and Failures.*

   A. Mapped flood boundaries, representing the dam failure condition will be based on sunny day failure at the top of active conservation and a hydrologic loading condition that may be as large as the probable maximum flood, or other plausible worst case scenario identified via risk analysis process.

   B. Mapped flood boundaries, representing a life-threatening operational release condition, will also be prepared to indicate inundation that would result from spillways and/or other appurtenant structures operating at design capacity. Local conditions may warrant mapping boundaries for other levels of flooding smaller than the design-capacity flood. Mapping of operational release flood boundaries would generally only be done in reaches where dam-failure floods are mapped.

   C. Mapping of flood boundaries will be continuous and will extend from the dam through downstream areas until the flood reaches the point of adequate floodwater dispersal, where the flood no longer poses a significant risk to life. Adequate floodwater dispersal can be achieved through attenuation down to safe channel capacity, or by the absorption of dam failure flood volumes into a downstream reservoir which is not required to make flood stage releases due to inflows.

   D. Maps will be prepared at a scale and quality that enables a person familiar with the area to clearly comprehend an aerial view of the extent of flooding.

   E. Minimum requirements for information to be included on published inundation maps are:

      (1) a description of the inundation scenario (e.g., sunny day failure, hydrologic inflow based failure, maximum operational release) and a summary of the inundation modeling assumptions;

      (2) initial reservoir level;

      (3) leading edge flood wave travel times;

      (4) assumed dam breach parameters;

      (5) dam breach peak discharge and total volume released by flood event;
(6) hydraulic model used for the analysis;

(7) map scale and scale bar; and

(8) a map title block that adequately describes the facility and its location.

F. Mapping of inundation studies using one-dimensional hydraulic modeling will include details of the modeling output at the selected cross section locations (e.g., cities, towns, bridge crossings, recreational area, significant physical changes in the flood plain geometry), maximum water surface elevation, maximum depth, time to leading edge flood wave arrival, maximum discharge, and time to arrival of maximum flooding.

G. Mapping of inundation studies using two-dimensional hydraulic modeling will include maximum inundation color-coded by ranges of water depth and leading-edge flood wave lines or total inundation “snapshots in time.”

H. All final electronic data used for the inundation map and studies (e.g., inundation maps, inundation report) will be provided to regional or area offices.

2. Interim Inundation Maps.

A. Many Reclamation dams have inundation maps that were developed in the 1990’s or before. As new technologies become available, PEMO, the Dam Safety Office, or regional dam safety coordinator may determine that some of these inundation maps do not meet the requirements in Paragraph 1. Due to the time and cost associated with producing new inundation maps that meet the requirements described in Paragraph 1, existing maps that do not meet these requirements will be considered “interim” inundation maps and used until the maps meet the requirements of Paragraph 1.

B. PEMO, the Dam Safety Office, or regional dam safety coordinator will determine the timeframe required for the interim inundation map to be updated to meet the requirements of Paragraph 1 on a dam-by-dam basis. The timeframe will be determined only after consultation with the applicable area and regional offices, and will be based on severity of deficiencies, availability of resources, timing of planned special projects that require new inundation maps (e.g., addition of gates), and other considerations.