United States Department of the Interior

NATIONAL PARK SERVICE
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Washington, D.C. 20240

Director's Order #40: Dam Safety & Security Program

Approved: Jonathan B. Jarvis

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Duration: This Order will remain in effect until amended or rescinded

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I. Background and Purpose

The National Park Service maintains an inventory of NPS owned and non-NPS owned dams that range greatly in size, complexity and potential for failure. History has shown that dams can fail and the stored waters, when discharged, can cause tremendous loss to life and property. The NPS has a responsibility to minimize this risk through actions to improve the safety of its dams, remove unnecessary dams, and conduct emergency planning to prevent catastrophic losses in case of dam failure.

The purpose of this Director's Order is to summarize the NPS's policies and procedures for meeting those responsibilities. Together with Reference Manual 40 (RM-40), it supplements section 9.5 of *Management Policies 2006*. This Order also updates and supersedes other basic guidance documents previously issued by the NPS on the subject of maintenance, operation, and safety of dams and appurtenant works. In particular, this Order and RM-40 supersede:

- NPS Special Directive 87-4, "Dams and Appurtenant Works—Desk Reference Manual for Maintenance, Operation, and Safety," which was first approved October 9, 1987.
- Guideline NPS-40, "Dams and Appurtenant Works—Maintenance, Operation, and Safety," which was first approved February 1983.
- Any other conflicting guidance that is within the discretionary authority of the NPS.

II. Applicability

The policies and procedures contained in this Order are applicable to all parks and regions that have jurisdiction for dams within their boundaries, or have park resources that could be impacted by non-NPS owned dams inside and outside of park boundaries. Application of this Order by NPS employees will be commensurate with each dam's size, complexity, risk, operational importance, hazard potential, and ownership, as detailed in RM-40. Note that the definitions included in this Order apply to the Dam Safety and Security Program and may differ from definitions applicable to other NPS activities.

This Order is intended only to improve the internal management of the NPS and is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officers or employees, or any other person.

III. Authority and Related Guidance

A. The authority to issue this Order is found in the 1916 NPS Organic Act and in delegations of authority found in Parts 245 and 753 of the Department of the Interior Manual.

B. This Order and RM-40 promulgate operational policies and procedures in accordance with the program requirements of Departmental Manual Part 753, Chapter 2, Dam Safety and Security Program.

C. Director's Order #80: Real Property Asset Management promulgates operational policies and procedures for implementing section 4 of Public Law 98-540 (October 24, 1984). In doing so, it supplements the policies articulated in NPS *Management Policies 2006*. PL 98-540 directs the NPS to implement a maintenance management system to support real property maintenance and operations programs of the National Park System.

D. Key provisions of NPS policy emanate from the National Dam Safety Program Act, which is codified at 33 U.S.C. 467.

E. The Federal Guidelines for Dam Safety (FEMA 93), issued by the Interagency Committee on Dam Safety (ICODS), has been a primary source of guidance in interpreting the requirements of the National Dam Safety Program Act. The guidelines were first published in 1979, then reprinted in 2004. The ICODS's Guidelines Development Subcommittee has published the following more detailed guidance:

- Federal Guidelines for Dam Safety (FEMA 64): Emergency Action Planning for Dam Owners
- Federal Guidelines for Dam Safety (FEMA 333): Hazard Potential Classification System for Dams
- Federal Guidelines for Dam Safety (FEMA 65): Earthquake Analyses and Design of Dams
- Federal Guidelines for Dam Safety (FEMA 94): Selecting and Accommodating Inflow Design Floods for Dams

- Federal Guidelines for Dam Safety (FEMA 148): Glossary of Terms

IV. Definitions for Dam Safety and Security Program

The following definitions apply to the Dam Safety and Security Program. As indicated previously, they may differ from definitions applicable to other NPS activities.

Dam—any artificial barrier, including appurtenant works, which impounds or diverts water, and which

(1) is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to the maximum water storage elevation; or

(2) has an impounding capacity at maximum water storage elevation of fifty acre-feet or more.

Unless otherwise stated herein, the provisions of this Director's Order do not apply to any such barrier which is not in excess of six feet in height regardless of storage capacity, or which has a storage capacity at maximum water storage elevation not in excess of fifteen acre-feet regardless of height. However, this lower size limitation should be waived if there is a potentially significant downstream hazard. For further information, refer to the FEMA Federal Guidelines for Dam Safety, Glossary of Terms (143) and DM 753.

Dam Failure—means the catastrophic breakdown characterized by the sudden, rapid, and uncontrolled release of impounded water. Dam failures can include smaller volume releases that could lead up to a potential catastrophic failure if not address in time.

Deactivation—means modification of a dam to prevent impoundment of water.

Declassification—means the change of hazard classification from high, significant, or low to non-jurisdictional. The structure will remain listed in the database inventory as declassified for documentation purposes only. It will not be considered active for dam safety program activities such as inspections or emergency action planning.

Emergency Action Plan (EAP)—means a formal written document, specific to a given dam, which identifies emergency conditions at a high or significant hazard dam with preplanned actions to follow to minimize loss of life and damage to property. The EAP is developed, coordinated and communicated with community stakeholders.

Emergency Operations Plan (EOP)—means a formal written document produced by the park unit that utilizes the All Hazards concept under the Incident Command System of the National Incident Management System. It articulates how the park will deal with emergency situations, addressing those hazards that can be reasonably expected. The EOP covers topics such as operations, assignment of responsibilities, administration, logistics, plans, and authorities.

Hazard Potential Classification—refers to a system that categorizes dams as either "high," "significant," or "low," according to the degree of adverse incremental consequences of a failure

or mis-operation of a dam. The hazard potential classification does not reflect in any way the current condition of the dam (e.g. risk of failure, flood routing capacity, structural integrity, safety, etc.).

- High Hazard – probable loss of one (1) or more lives.
- Significant Hazard – no probable loss of life, but expected economic, environmental, or lifeline losses.
- Low Hazard – no probable loss of life, and minimal economic, environmental, or lifeline losses generally limited to the owner's property.

(Reference FEMA 333: Hazard Potential Classification System for Dams for additional information.)

Non-jurisdictional—means a structure which does not meet the minimum criteria, as listed in the Federal Guidelines for Dam Safety, to be included in dam safety programs. The non-jurisdictional structure does not receive a hazard classification and is not considered for any further requirements or activities under the NPS dam safety program.

Permitted Dams—means dams not owned by the NPS that are located on NPS property. The use of the word "permitted" does not imply or deny that a permit has been granted by Federal, State and/or local officials, nor does this Directors Order supersede any legal agreement governing inspection, operation and maintenance activities between the NPS and the owner of dams located on NPS property.

Removal—means the water retaining structure and all appurtenances are removed, restoring the area to natural conditions prior to dam installation.

Stream flow Control Structure—refers to a structure that regulates the flow of water associated with a river or stream, including locks, gates, and canal plugs.

V. Management Policies

A. Section 9.5 of the *NPS Management Policies 2006* addresses the topic of dams and reservoirs as follows:

9.5 Dams and Reservoirs

Dams and reservoirs will not be constructed in parks. The National Park Service will not seek to acquire and operate dams and will seek to deactivate existing structures unless they contribute to the cultural, natural, or recreational resource bases of the area or are a necessary part of a park's water supply system.

All dams will be subject to annual safety inspections. Each park with a dam or reservoir will prepare an emergency action plan. The emergency action plan will also address potential hazards posed by dams outside the park and beyond the Service's control. The National Park Service inventory of dams will be used to record all NPS and non-NPS dams

and reservoirs, and any other type of stream flow control structures affecting units of the national park system, including those that are proposed or have been deactivated.

Other sections of *Management Policies 2006* relating to dam asset management, safety and security include sections 1.6, Cooperative Conservation Beyond Park Boundaries, 8.2.5.2, Emergency Preparedness and Emergency Operations, 8.3 Law Enforcement, and 9.0 Park Facilities.

B. Policy Clarifications for Section 9.6 of Management Policies

The following clarifications are effective immediately and will be included in NPS *Management Policies* when that document is next updated:

- **Deactivation and Removal**
  To clarify the policy expressed in section 9.5 of *Management Policies 2006* concerning deactivation of existing structures, the NPS will regularly re-evaluate existing structures and seek to deactivate and, preferably, remove them unless they contribute to the cultural, natural, or recreational resource bases of the area or are a necessary part of a park's infrastructure.
- **Consistency with Departmental Policy**
  All NPS owned dams will be evaluated by the NPS Dam Safety Office to determine their hazard classification and physical characteristics. Those structures found to meet the jurisdictional criteria of the Federal Dam Safety Guidelines will be included in the NPS Dam Safety Program and subject to all requirements of DOI Departmental Manual Part 753.
- **Emergency Action Plans**
  Parks will prepare emergency action plans only for those dams or reservoirs that are identified as "high or significant hazard." The emergency action plans will be incorporated into park emergency operations plans, which will also address potential hazards posed by dams outside the park and beyond the Service's control.
- **Dam Inventory**
  The NPS inventory of dams will be used to record all NPS and non-NPS dams and reservoirs, and any other type of stream flow control structures with potential impact on units of the national park system, including those that are proposed or have been deactivated.

VI. OPERATIONAL POLICIES FOR NPS-OWNED AND OPERATED DAMS

To further meet Federal and Department of the Interior requirements as outlined under the authorities above for dam safety and security, the NPS adopts the policies listed below, which will be accompanied by additional guidance in RM-40.

A. Hazard Potential Classification

Although the NPS will not seek to acquire structures that impound waters, if a structure should be acquired, it will be evaluated by the Washington Dam Safety Program (DSP) to determine if it meets the definition of a "dam." If the structure meets the definition of a dam and is owned by the NPS, the structure will be assessed using current Federal guidelines to determine its hazard potential classification. The hazard potential classification will identify the probable impacts to

property and probable loss of life in the event of a dam failure. The hazard classification process used will identify the dam as high, significant, or low hazard. Hazard classifications for all high, significant, and low hazard dams will be reassessed every five years, or sooner if downstream conditions change.

B. Dam Safety Inventory

The NPS will maintain a database of all high hazard, significant hazard, low hazard, deactivated, declassified, non-jurisdictional, and removed dams it owns. The database will also include—

- permitted dams,
- non-NPS-owned dams upstream from NPS boundaries that would have a potential impact on NPS resources, and
- other stream flow control structures.

The database will be maintained by the Dam Safety Office in WASO. Field personnel will provide updates as identified in RM-40 for annual updates, when structural or downstream conditions change or when new dams become part of park/regional real property inventories. This information will be used to update the National Inventory of Dams (NID) as required per 753 DM 2.

Only NPS-owned dams and stream flow control structures will be entered in the Facility Management Software System (FMSS). These assets will be maintained in FMSS per the requirements set forth in Director's Order #80: Real Property Asset Management, and related guidance.

C. Inspections

Inspections will be completed for all high, significant, and low hazard dams owned by the NPS. The responsible party, reporting requirements, and inspection frequency will be based on the hazard potential classification as described in RM-40. In situations where a non-NPS-owned dam is located downstream from a park's boundary, but impounds waters within a park's boundary, the NPS may request information about the currency of the dam's safety inspection.

D. Emergency Action Plans (EAPs)

EAPs will be developed for NPS-owned high and significant hazard dams. The EAPs will be incorporated in the EOPs. The EAPs will be reviewed and updated by parks annually. The plans will be tested every five (5) years as required by DM 753 and be made available for review by inspectors acting on behalf of the Dam Safety Program. The EAPs will be prepared in accordance with *FEMA 64 - Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners* and DM 753.

Parks will incorporate response plans for non-NPS owned dams within or upstream from park boundaries that would impact park visitors, employees, resources, and assets in their EOP for the park in accordance with NPS *Management Policies* Section 8.2.5.2, Emergency Preparedness and Emergency Operations.

Dams that are structurally modified will have an EAP in place before first filling in accordance with DM 753.2.10.B.

E. Operation and Maintenance of Dams
High and significant hazard dams will have written standard operating procedures (SOPs). The SOPs should include at a minimum the annual maintenance requirements, such as grass cutting, tree removal, log removal, etc. Specific maintenance and inspection requirements may be identified during inspections and should be incorporated into the SOP. Parks will maintain a dam operation logbook for documentation of maintenance and repairs, along with tracking changing conditions such as seepage. The logbook may be in paper or electronic format (i.e. FMSS), so long as it is accessible to the dam operators and inspectors.

F. Construction Project Funding and Prioritization
The Dam Safety Office funds construction projects to correct safety deficiencies for NPS dams, and funds removal projects and evaluations of newly acquired dams. The NPS will utilize a risk-based process for prioritizing dam safety and security projects to obtain maximum risk reduction benefits. Risk encompasses natural and manmade (accidental or intentional) events, the response of the dam to those events, and the consequences of an adverse response to the event(s).

Due to the limited funds for the dam safety program, parks and regions should explore other funding sources as well as partnerships with state, county, city or private stakeholders for dam repair, modification or removal projects.

G. Corrective Action for High Risk Dams
Dams found through a risk evaluation or from a developing safety condition in the field to pose unacceptably high risks must be deactivated or have their reservoirs drained to safe levels pending further corrective action or the removal of the dam, depending on the specific nature of the dam and the hazard posed by its failure.

Parks and regional offices are responsible for communicating emerging dam safety deficiencies to the WASO Dam Safety Program in a timely manner. Communication and cooperation at all levels in the NPS is required to address safety issues at dams, as articulated below in section VII: Responsibilities, and in RM-40.

Modifications to a dam will be completed in accordance with DM 753.2.10, FEMA guidelines and industry standards.

H. Records Management
Parks, regions and WASO are responsible for documentation of the inspections, assessments, monitoring data, evaluations, and analyses for dam safety records, which will be appropriately preserved per Director's Order #19: Records Management.

Documentation for the Critical Infrastructure Protection program and related information will ensure that data and information on mission-essential infrastructure and vulnerabilities are protected from harmful and/or unauthorized disclosure. Information not associated with critical infrastructure will be evaluated to determine the appropriate protective measures to prevent unauthorized disclosure.

I. Facility Security Plans
Park program personnel responsible for dam safety at high and significant hazard dams will

cooperate with NPS law enforcement personnel in developing Facility Security Plans (FSPs). An FSP is a written plan of procedures to address the physical, technical and procedural systems for reducing security risks and protecting NPS employees, the public, buildings, and physical infrastructure. Each FSP will be developed in consultation and cooperation with appropriate bureau or office security officials, and with Federal, State, tribal and local agencies responsible for security and law enforcement for high and significant hazard dams only. The FSP will be reviewed and updated annually per DM 753.2.13.C. For NPS roles and responsibilities, see *Management Policies 2006,* 8.3 Law Enforcement.

VII. ROLES AND RESPONSIBLITIES

Director

- Responsible for establishing policy, priorities, and procedures for the safe design, construction, operation and inspection of NPS dams as delineated in *Federal Guidelines for Dam Safety* (as reprinted April 2004, or any subsequent version).

Deputy Director, Operations

- Coordinates closely with the Associate Director, Park Planning, Facilities, and Lands on safety matters relating to dams.
- Coordinates closely with the Associate Director, Visitor and Resource Protection on security matters relating to dams.
- Coordinates closely with the Commissioner, United States Bureau of Reclamation on dam safety matters.

Associate Director, Visitor and Resource Protection

- Responsible for overall program oversight for the NPS Dam Security Program.
- Responsible for the dam security program functions and duties as delineated in 753 DM 1.6.B.
- Identifies for the regional offices and parks a security coordination point of contact within the WASO Law Enforcement, Security, and Emergency Services Division (LESES).
- Communicates dam security issues from the LESES to the NPS Director and deputy directors.
- Coordinates closely with the Deputy Director, Operations, on security matters that may affect dam safety and security.

Associate Director, Park Planning Facilities and Lands

- Responsible for overall program oversight and management of the NPS Dam Safety Program.
- Responsible for the dam safety program functions and duties as delineated in 753 DM 1.6.B.
- Identifies for regional offices and parks a program coordination and project funding point of contact in the WASO Dam Safety Program.
- Communicates dam safety issues from the WASO Dam Safety Program to the NPS Director and deputy directors.
- Coordinates closely with the Deputy Director, Operations, on dam safety matters.

- Issues RM-40 to provide field staff with additional guidance regarding dam safety.

Dam Safety Officer (DSO), WASO

- Responsible for program oversight and funding management for the Dam Safety Program.
- Maintains the dam safety policies, standards, and reference manuals for the program and reviews these documents for currency, accuracy, and applicability.
- Maintains the NPS inventory of dams.
- Funds dam safety design and corrective action construction projects (including deactivation and removal), interim and formal inspections, and EAPs.
- Ensures dam safety projects, inspections, and emergency action plans are prepared and completed by technically qualified personnel and coordinated with all stakeholders.
- Represents the NPS at intra/inter-agency coordination efforts and at national meetings with internal and external stakeholders with regard to dam safety (e.g., DOI Dam Safety Work Group, Interagency Committee on Dam Safety, etc).
- Advises, via an annual report, NPS senior management of risks associated with dams owned by the NPS.
- Provides to the parks/regions, via the regional dam safety coordinators, program and technical assistance, and training for dam safety and EAPs.
- Submits internal and external reports related to the dam safety program, as required.

Regional Director

- Responsible for the safety and security of NPS-owned dams, and collaboration and coordination with the appropriate land owners and stakeholders on safety matters for non-NPS owned dams which impact park resources.
- Assigns one individual as the regional dam safety coordinator to carry out the day to day activities for the dam safety program at the regional level.
- Supports dam safety initiatives identified by the NPS Director (e.g., *Management Policies* Section 9.5 and this Order).
- Provides resource priorities to the parks for daily maintenance, operation, and maintenance and testing of emergency action plans for dams owned by the NPS.
- Provides funding priorities to support staffing for dam maintenance, operation, safety, and emergency management activities.
- Provides funding priorities for staff training on dam safety activities in conjunction with the Associate Director, PPFL.
- Ensures that park All Hazards EOPs within their region also incorporate dam-specific EAPs for NPS-owned dams and flood hazard response measures for non-NPS owned dams.

Regional Dam Safety Coordinator

- Acts as the liaison between the region, parks and WASO Dam Safety Program.
- Point of contact for maintenance, operation, dam safety funding, corrective action plans and EAPs for NPS dams.
- Ensures that the regional director remains fully informed on dam related risks and dam safety activities, to include maintaining and updating, as required, park EAPs for NPS-owned dams, and park EOPs for flood events related to non-NPS owned dams.

- Coordinates, monitors and reviews dam safety activities and technical services for park dams to include, but not limited to, dam safety database approvals, inspection reports, construction drawings, and EOPs/EAPs.
- Participates in scheduled dam safety meetings.
- Ensures that FMSS inventory and condition information and NPS Dam Safety Database for park/regional dams are up-to-date.
- Coordinates with regional resource management staff on removal and restoration opportunities for unnecessary dams.

Park Superintendent

- Responsible for the day to day maintenance, operation, safety and security of dams owned by the park.
- Reports to the regional director, through the regional dam safety coordinator, any changes to the status of a dam or affected areas downstream from the dam, updates the inventory of dams (e.g., declassification or removal) and on operation and maintenance activities.
- Provides staff with training for operation and maintenance of dam and streamflow control assets owned by the park.
- Develops, maintains, and tests EAPs specific for each NPS owned high and significant hazard dam; collaborates and coordinates emergency response activities with local, state, and tribal stakeholders; and incorporates the EAP into the park's EOP.
- Collaborates and coordinates with community stakeholders and non-NPS dam owners to facilitate park EOPs related to flood events for non NPS owned dams when failure or mis-operation would impact park resources, employees, and visitors.
- Completes inspections of dams with a hazard classification of high, significant, or low in accordance with Federal, departmental, and bureau guidelines for Dam Safety.
- Maintains and updates the FMSS inventory and condition asset information and the NPS Dam Safety Database for dams and streamflow control structures.
- Includes required dam safety activities and corrective action projects in the Facilities Maintenance priority list (including PAMP) for funding.
- Exhausts all financial avenues for developing projects and funding for required dam safety activities and corrective actions projects for their parks.
- Encourages coordination with regional resource management staff on removal and restoration opportunities for unnecessary dams.
- Provides for dam security, as appropriate.

----------*End of Director's Order*----------