

**Forest Service Handbook
National Headquarters – Washington Office
Washington, DC**

**Forest Service Handbook 7509.11 – Dams Management Handbook
Chapter 70 - Management of Special-Use and Other Non-Forest Service Projects**

Amendment:7509.11-1993-1

Effective date: August 5, 1993

Duration: This amendment is effective until superseded or removed.

Superseded Directive: 1, August 8, 1990; Entire Handbook issued, December 1986

Approved by: Dale Robertson, Chief

Date approved:

Responsible Staff:

Explanation of changes: Following is an explanation of the changes throughout the directive by section.

POSTING NOTICE: Amendments are numbered consecutively by Handbook number and calendar year. Post document in numerical order of chapters (1109.12, sec. 4.32, ex. 01). Remove entire national text of the Handbook and replace with this amendment. DO NOT REMOVE SUPPLEMENTS OR INTERIM DIRECTIVES. Retain this transmittal as the first page of this document.

Revises and updates entire Handbook. Significant changes in direction are as follows:

05: Moves select definitions from FSM 7500. Modifies definitions to agree with Glossary of Terms for Dam Safety, prepared by the Interagency Committee for Dam Safety (ICODS), and Federal Emergency Management Agency (FEMA).

08: Updates reference list and adds names and addresses of agencies, associations, and groups publishing reference materials related to dams and dam safety.

10: Changes chapter title from Project Files to Records and Files.

40: Changes chapter title from Safety Evaluation/Hazard Potential to Safety Inspections and Hazard Assessments. Replaces the term "safety evaluation" with "safety inspection" throughout.

42: Replaces the term "Hazard - Potential Evaluations "with" Hazard Assessment."

42.3: Adds hazard classification examples.

53: Adds direction on location of copies of emergency action plans.

54: Adds direction on testing emergency action plans.

62: Revises direction to exclude Regional dam or water resources engineer from serving on a dam failure investigation team in cases of potential or apparent conflict of interest.

70: Changes title from Dam Inventory to Management of Special Use and Other Non-Forest Service Projects. Previous direction contained in this chapter is moved to FSM 7514; moves direction from previous chapter 80 to chapter 70.

80: Changes title from Management of Special-Use and Other Non-Forest Service Projects to Planning and Design.

Completes previously reserved FSM 7520 and incorporates it into FSH 7509.11.

81: Provides guidance and definitions for four phases in the design schedule.

82: Provides guidance for planning and designing channel layout.

83: Provides guidance for assigning hazard classification.

This Handbook is now available electronically in the National Information Center in the same format as the paper copy. Henceforth, amendments to this Handbook will be issued to Forest Service units electronically on a document basis.

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70.2 - Objective

To ensure that non-Forest Service water storage and transmission projects proposed for construction on National Forest System (NFS) lands and existing facilities authorized by permit, term permit, lease, or easement (special-use authorizations) are safe and comply with technical requirements.

71 - Applicability

Many water storage and transmission facilities on NFS lands are managed by other Federal agencies or under special-use authorizations issued to non-Federal agencies and private parties. Usually the scope and quality of technical design and construction review, the application of accepted standards, and the operation, maintenance, and inspection requirements are equivalent to those for similar Forest Service-owned dams. The Forest Service may not always be directly involved in technical approvals of all aspects of design, construction, and operation.

71.1 - Projects Managed by Other Federal Agencies

The Forest Service does not generally review and approve the technical aspects of resource development structures that are designed, constructed, and operated by other Federal agencies, such as the U.S. Department of Interior, Bureau of Reclamation, and the United States Army Corps of Engineers authorized by law or Executive order (FSM 7512).

In addition, these structures are not included in the Forest Service inspection program if required inspections are made by the managing agency (FSM 7516).

71.2 - Project Design Review and Inspection by State and Other Federal Agencies

When design and review standards of the state or other federal reviewing agency are comparable to Forest Service requirements, work with these agencies to prevent duplication of effort (FSM 7516). Do not include these structures in the Forest Service inspection program if regular inspections are made by those agencies (FSM 7516). However, environmental and management impacts are reviewed by the Forest Service (FSM 7512).

Dams on hydroelectric projects exempted from license by the Federal Energy Regulatory Commission (FERC) are special situations. The FERC may not make a technical review of the design nor include the dam in their inspection schedule as is normally done for dams on a licensed project. In these cases, the Forest Service would review the design and ensure the dam is inspected in accordance with an established schedule.

71.21 - Coordination With the Soil Conservation Service (SCS)

A Memorandum of Understanding with SCS dated April 6, 1977, (FSM 1541) outlines coordination requirements when SCS is involved in the planning, design, and construction of a water storage or transmission structure on NFS lands. SCS assisted structures should be maintained by the owner and inspected by the owner or by a State agency. These inspections should meet Forest Service requirements. If the inspections are made by the permittee, the requirements to do so should be specified in the permit or in another written agreement.

72 - Intra-agency Coordination

Ensure close coordination and liaison with other Forest Service staff during both the technical review of a proposed project and the administration of the technical clauses in the special-use authorization for a constructed project. This coordination will reduce misunderstanding and ensure that Forest Service interests are protected. Be familiar with FSH 2709.11, FSM 2720, and FSM 2780 and have a working knowledge of the application procedures for special-use authorizations and of the policies for administering them.

73 - Review of Proposed Projects

The process for providing adequate technical review of a proposed project can be divided into the following steps. Some of these steps may be performed by agencies other than the Forest Service such as consultants, States, and other Federal agencies (FSM 7512).

1. Initial Meeting With Proponent. This meeting will normally set the tone for the entire application processing. Ensure that the proponent is fully briefed on Forest Service technical requirements. The Forest and/or District staff members who will be processing the application should attend. Depending on the type and size of the proposed project, staff member(s) in charge of the environmental review, the Regional Office water resources development engineer, and the State dam engineer may also be asked to attend.

The following technical areas should be discussed:

- a. Administrative and hazard-potential classification (FSM 7511).
- b. Technical review and approval levels (FSM 7512).
- c. Specific analyses requiring Forest Service review (such as those for determining hazard potential and spillway capacity).
- d. Scheduling and time frames for the technical review and approval process.
- e. Liaison between the Forest Service and the proponent.

f. Minimum design standards such as prepared handouts or applicable sections of FSM 7520, FSM 7530, and this handbook with reference to the use of accepted engineering design procedures including those outlined in the Department of the Interior, Bureau of Reclamation, "Design of Small Dams" text.

g. Requirements for engineering inspection during construction.

h. Requirements for periodic operation and maintenance inspections and safety evaluations during the life of the project, and minimum qualifications for the inspector who will make these inspections.

i. Requirements for emergency action plans and operation and maintenance plans, as applicable.

2. Feasibility Report Review. (FSM 7522). A formal report may not have been prepared for a small structure. Obtain sufficient information to decide on project feasibility from the application and through discussion with the proponent at the initial meeting.

3. Design Data Review. Perform this review only to the extent judged necessary to determine that data collected are sufficiently accurate to provide a sound basis for design of the structure. In most cases, review hydrologic data and assumptions, methods used to establish spillway capacity, and subsurface investigation data and assumptions should be reviewed for acceptability.

4. Preliminary Design Review. The preliminary design review is often made in conjunction with the design data review. The purpose of this step is to ensure that the general features and layout of the project fall within the Forest Service management and technical parameters for the project.

5. Preparation of Special-Use Authorization Clauses. Ensure that clauses are included in the special-use authorization to adequately provide for protection of the public and National Forest System lands and resources during project construction and operation. Once the authorization is issued, changing or adding clauses during the term of the authorization may be difficult without the agreement of the holder.

Be familiar with the mandatory and optional clauses (FSH 2709.11, ch. 53) applicable to water development projects. Modify these clauses, or write new ones as needed, to adequately cover the requirements for a specific project (FSM 2780). The following is a checklist of areas that should be considered for inclusion:

a. Construction inspection requirements.

b. Approvals required for design changes.

- c. Operation and maintenance inspection and safety evaluation requirements, including schedules and minimum qualifications for the inspector.
- d. Instrumentation requirements.
- e. Preparation and support of operation, maintenance, and emergency action plans.
- f. Approvals required prior to beginning construction.

6. Final Design Review. Complete this review to the extent needed to ensure that minimum design criteria have been incorporated into the plans and specifications, as well as to judge that the design is adequate to minimize the risk of failure to a degree consistent with the hazard involved (FSM 7512).

7. Construction Monitoring. Forest Service personnel should not directly inspect project construction. Require the owner through the provisions of the special-use authorization, to provide for inspection commensurate with project size and complexity (FSM 7513).

Monitoring of project construction by qualified Forest Service personnel is required, however, to the extent needed to ensure the following (FSM 7513):

- a. Inspection personnel are qualified and sufficient in number to ensure adequate coverage of work being performed.
- b. The inspection will determine whether construction conforms to the plans and specifications.
- c. Daily diaries and necessary records are maintained (FSM 7515).

Several steps may be combined for simple projects. Conversely, the process may be divided further for a complex project. In any case, all phases of the technical review must be coordinated with other aspects of the application review and decision process.

74 - Administration of Constructed Projects

The clauses in the special-use authorization provide a framework for ensuring that projects are operated properly and maintained in a safe condition. If possible, perform technical monitoring of compliance with operation, maintenance, and safety requirements in conjunction with the administrative review of other aspects of the project. Inform the line officer responsible for administering the authorization, usually the District Ranger, of monitoring schedules. If the situation is such that a direct inspection of the structure must be made by the engineer, also notify the holder of the special-use authorization. Prepare letters informing the holder of inspection results, including deficiencies found, for the signature of the appropriate line officer, normally the District Ranger.

Except as limited in section 71, a qualified engineer (FSM 7505) should review inspection reports, and inspect the dam if necessary, to determine that:

1. Operation and maintenance inspections and safety evaluations are being performed adequately and as scheduled;
2. Required operation, maintenance, and emergency action plans are prepared and currently maintained; and
3. Deficiencies noted in previous inspections have been corrected or are scheduled for correction.