

**Forest Service Manual
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Forest Service Manual 7500 – Water Storage and Transmission

Chapter 7530 - Construction

Amendment: 7500-2011-4

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Duration: This amendment is effective until superseded or removed.

Approved by: James M. Pena, Associate Deputy Chief, NFS

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Responsible Staff:

Last Change: 7520, Amendment 7500-2011-3

Superseded Document(s): 7530, Amendment 7500-2000-1, September 11, 2011

Posting Instructions: Amendments are numbered consecutively by title and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this title was 7500-2011-3 to FSM 7520.

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

7530: Changes classification system for dams from A, B, C, and D and low, medium, and high hazard to low, significant, and high hazard potential classification. Makes minor technical and editorial changes throughout the document.

7530.2: Updates objective statements on dam construction.

7530.5: Removes the obsolete definition for “certificate of completion” and adds definition for “letter of acceptance.”

7531: Reorganizes direction in this section for clarity, specifically:

7531.1: Removes caption and direction. Establishes caption and sets forth direction on “Supervision of Dam Construction.”

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7531.11: Removes code, caption, and obsolete direction.

7531.2: Removes caption and direction and recodes to 7531.4. Revises and updates direction that requires qualified engineers for oversight of site investigations; initiation of contract modifications for dams; inspection of construction; and oversight and administration of safety inspections, emergency action plans, and operation and maintenance plans.

7531.3: Removes caption and direction and recodes to 7531.5. Establishes caption and sets forth direction for “Design Changes.”

7531.4 thru 7531.42: Establishes codes, captions, and sets forth direction or “Records and Reports.”

7531.5: Establishes code, and recodes to this section caption and direction previously set out in section 7531.3. Removes direction on ensuring compliance with terms of special use authorizations, as it duplicates direction found elsewhere, as well as the provisions of the authorizations.

7532 & 7532.1: Removes codes, captions, and obsolete direction.

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7530.1 - Objectives

1. To determine that the intent of dam designs is met.
2. To ensure that new information acquired on site during construction is addressed, as appropriate, in the design.

7530.2 - Policy

1. Construction inspection personnel shall closely coordinate with design personnel, especially for design changes, throughout construction of a dam.
2. Do not allow water to be stored in or transmitted from a dam until all the requirements in FSM 7531.5 are met.

7530.5 - Definitions

Continuous Inspection. The continuous presence of an inspector at a dam construction site while work is in progress.

Letter of Acceptance. A letter stating that a completed dam conforms to applicable specifications and other requirements.

Periodic Inspection. The intermittent presence of an inspector at a dam construction site while work is in progress.

7531 - Construction Management

7531.1 - Supervision of Dam Construction

Maintain close coordination among personnel concerned with project planning, design, construction, and operation of all dam construction projects on National Forest System lands. Individuals from each of those disciplines must know and understand the relevant activities of the others to determine technical adequacy. Critical elements of supervision of dam construction include responsibility for project scheduling, maintaining daily contract diaries, contract modifications, and critical milestones, such as outlet installation and compaction, materials verification, and filter placement.

The following must be performed by a qualified engineer, or by an individual working under the supervision of a qualified engineer, using procedures and criteria established by the qualified engineer:

1. Oversight of site investigations for dam construction projects.
2. Initiation of contract modifications for all dam construction projects.

3. Inspection of dam construction activities.
4. Oversight and administration of safety inspections, emergency action plans, and operation and maintenance plans.

7531.2 - Inspections

7531.21 - Inspection of Dams Operated by the Forest Service

Contracting officer representatives (CORs) and construction inspectors for dam projects must have specialized training and must have documented experience working on dam construction projects. The regional director of Engineering shall recommend individuals who are qualified for those roles to the contracting officer (CO). See FSH 7109.17 for qualifications of CORs and construction inspectors.

Ensure that continuous and periodic inspections are appropriate for the construction work being conducted.

1. Continuous Inspections. Continuous inspections are required when the quality of work cannot be determined accurately by periodic inspection or the work cannot readily be removed and replaced if rejected. Examples include:
 - a. Foundation excavation where the depth must be determined during the course of the work or the foundation is under water.
 - b. Placing compacted earth fill and filters.
 - c. Placing and bedding pipe.
 - d. Mixing and placing concrete and pneumatically applied mortar.
2. Periodic Inspections. Periodic inspections may be suitable for certain other types of work depending on the circumstances at the site, the construction schedule, or the contractor's level of ability. Examples include:
 - a. Clearing and grubbing.
 - b. Stripping or structure removal.
 - c. Constructing forms.
 - d. Placing steel reinforcement.

Where an independent design review team has been established for a project, the team shall be given the latitude for direct contact with construction inspection personnel and for inspecting the project at the team's discretion.

7531.22 - Inspection of Dams Operated by the Holder of a Special Use Authorization

1. Forest Service Monitoring. Monitor construction sufficiently to ensure that the holder complies with the terms and conditions of the special use authorization per FSH 2709.11, section 53.1.
2. State Coordination. Coordinate Forest Service monitoring and joint inspections with State and other Federal agency personnel to promote efficiency and consistent communications.

7531.3 - Design Changes

Design changes are subject to the direction regarding certification and approval or review of designs in FSM 7504.5 and 7525. Proposed design changes made after initial approval or certification of a design must be submitted to the regional director of Engineering at least 3 business days prior to proposed implementation. To expedite approval or review of design changes when a project is already under construction, the regional director of Engineering may delegate approval or review authority to a qualified engineer.

7531.4 - Records and Reports

7531.41 - Records and Reports for Dams Operated by the Forest Service

Records and reports must conform to the requirements of FSH 6209.11. A final construction report must be prepared for projects requiring regional forester approval (FSM 7504). The final construction report, including photographs taken during construction, must be retained in the project file (FSH 7509.11, ch. 10).

7531.42 - Records and Reports for Dams Operated by the Holder of a Special Use Authorization

Ensure that the holder of a special use authorization for a dam complies with the terms and conditions of the authorization.

7531.5 - Certification of Construction

The regional director of Engineering shall take whatever action is deemed necessary to verify compliance of a completed dam project with all applicable requirements prior to granting approval to operate the dam.

Approval of plans and specifications for a dam does not authorize operation of the dam. A dam may be operated only after the regional Director of Engineering has certified in writing by issuing a "Letter of Acceptance" that the dam is acceptable for water storage and the certification has been received by the responsible official. Additional construction approvals may be necessary from State or other Federal agencies.

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As-built drawings must be submitted within 1 year of final inspection for all completed dam construction projects and must be retained in the project file.