

Regulation  
No. 1110-2-241

24 May 1990

Engineering and Design  
USE OF STORAGE ALLOCATED FOR FLOOD CONTROL  
AND NAVIGATION AT NON-CORPS PROJECTS

1. Purpose. This regulation prescribes the responsibilities and general procedures for regulating reservoir projects for flood control or navigation and the use of storage allocated for such purposes. Excepted projects are those owned and operated by the Corps of Engineers; the International Boundary and Water Commission, United States and Mexico; and those under the jurisdiction of the International Joint Commission, United States and Canada, and the Columbia River Treaty. The intent of this regulation is to establish an understanding between project owners, operating agencies and the Corps of Engineers.

2. Applicability. This regulation applies to HQUSACE/OCE elements, major subordinate commands, districts, laboratories, and field operating activities (FOA) having Civil Works responsibilities.

3. References.

a. Section 7 of the Flood Control Act approved 22 December 1944 (58 Stat. 890; U.S.C. 709).

b. Section 9 of Public Law 43-83d Congress (68 Stat. 303).

c. The Federal Power Act, approved 10 June 1920, as amended (41 Stat. 1063; 16 U.S.C. 791(a)).

d. The Fish and Wildlife Coordination Act of 1958, Public Law 85-624.

e. The Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500 (86 Stat. 816, 33 U.S.C. 1251).

f. The Federal Power Commission Order No. 540, issued 31 October 1975 and published 7 November 1975 (40 FR 51998), amending Section 2.9 of the Commission's General Policy and Interpretations prescribing Standardized Conditions (Forms) for Inclusion in Preliminary Permits and Licenses Issued under Part I of the Federal Power Act.

g. ER 1110-2-240

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This regulation supercedes ER-1110-2-241, 8 December 1978

4. Responsibilities. The basic responsibilities of the Corps of Engineers regarding project operation are set out in the cited authority and described in the following paragraphs:

a. Section 7 of the Flood Control Act of 1944 (58 Stat. 890, 33 U.S.C. 709) directs the Secretary of the Army to prescribe regulations for flood control and navigation in the following manner:

"Hereafter, it shall be the duty of the Secretary of War to prescribe regulations for the use of storage allocated for flood control or navigation at all reservoirs constructed wholly or in part with Federal funds provided on the basis of such purposes, and the operation of any such project shall be in accordance with such regulations: Provided, that this section shall not apply to the Tennessee Valley Authority, except that in case of danger from floods on the lower Ohio and Mississippi Rivers the Tennessee Valley Authority is directed to regulate the release of water from the Tennessee River into the Ohio River in the release of water from the Tennessee River into the Ohio River in accordance with such instructions as may be issued by the War Department."

b. Section 9 of Public Law 436-83d Congress (68 Stat. 303) provides for the development of the Coosa River, Alabama and Georgia, and directs the Secretary of the Army to prescribe rules and regulations for project operation in the interest of flood control and navigation as follows:

"The operation and maintenance of the dams shall be subject to reasonable rules and regulations of the Secretary of the Army in the interest of flood control and navigation."

NOTE. - This Regulation will also be applicable to dam and reservoir projects operated under provisions of future legislative acts wherein the Secretary of the Army is directed to prescribe rules and regulations in the interest of flood control and navigation. The Chief of Engineers, U.S. Army Corps of Engineers, is designated the duly authorized representative of the Secretary of the Army to exercise the authority set out in the Congressional Acts. This Regulation will normally be implemented by letters of understanding between the Corps of Engineers and project owner and will incorporate the provisions of such letters of understanding prior to the time construction renders the project capable of significant impoundment of water. A water control agreement signed by both parties will follow when deliberate impoundment first begins or at such time as the responsibilities of any Corps-owned projects may be transferred to another entity. Promulgation of this Regulation for a given project will occur at such time as the name of the project appears in the Federal Register in accordance with the requirements of paragraph 6k. When agreement on a water control plan cannot be reached between the Corps and the project owner after coordination with all interested parties, the project name will be entered in the Federal Register and the Corps of Engineers plan will be the official water control plan until such time as differences can be resolved.

c. Federal Energy Regulatory Commission (FERC), formerly Federal Power Commission (FPC), Licenses.

(1) Responsibilities of the Secretary of the Army and/or the Chief of Engineers in FERC licensing actions are set forth in reference 3c above and pertinent sections are cited herein. The Commission may further stipulate as a licensing condition, that a licensee enter into an agreement with the Department of the Army providing for operation of the project during flood times, in accordance with rules and regulations prescribed by the Secretary of the Army.

(a) Section 4(e) of the Federal Power Act requires approval by the Chief of Engineers and the Secretary of the Army of plans of dams or other structures affecting the navigable capacity of any navigable waters of the United States, prior to issuance of a license by the Commission as follows:

"The Commission is hereby authorized and empowered to issue licenses to citizens...for the purpose of constructing, operating and maintaining dams, water conduits, reservoirs, powerhouses, transmission lines, or other project works necessary or convenient for the development and improvement of navigation and for the development, transmission, and utilization of power across, along, from or in any of the streams or other bodies of water over which Congress has jurisdiction . . . Provided further, that no license affecting the navigable capacity of any navigable waters of the United States shall be issued until the plans of the dam or other structures affecting navigation have been approved by the Chief of Engineers and the Secretary of the Army."

(b) Sections 10(a) and 10(c) of the Federal Power Act specify conditions of project licenses including the following:

Section 10(a). "That the project adopted . . . shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of waterpower development, and for other beneficial public uses . . . ."

Section 10(c). "That the licensee shall . . . so maintain and operate said works as not to impair navigation, and shall conform to such rules and regulations as the Commission may from time to time prescribe for the protection of life, health, and property . . . ."

(c) Section 18 of the Federal Power Act directs the operation of any navigation facilities built under the provision of that Act, be controlled by rules and regulations prescribed by the Secretary of the Army as follows:

"The operation of any navigation facilities which may be constructed as part of or in connection with any dam or diversion structure built under the provisions of this Act, whether at the expense of a licensee hereunder or of

the United States, shall at all times be controlled by such reasonable rules and regulations in the interest of navigation; including the control of the pool caused by such dam or diversion structure as may be made from time to time by the Secretary of the Army, . . . "

(2) Federal Power Commission Order No. 540 issued 31 October 1975 and published 7 November 1975 (40 FR 51998), amending Section 2.9 of the Commission's General Policy and Interpretations prescribed Standardized Conditions (Forms) for Inclusion in Preliminary Permits and Licenses Issued Under Part I of the Federal Power Act. As an example, Article 12 of Standard Form L-3, titled: "Terms and Conditions of License for Constructed Major Projects Affecting Navigable Waters of the United States," sets forth the Commission's interpretation of appropriate sections of the Act, which deal with navigation aspects, and attendant responsibilities of the Secretary of the Army in licensing actions as follows:

"The United States specifically retains and safeguards to the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, . . . and the Licensee shall release water from the project reservoir at such rate . . . as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned."

5. Scope and Terminology. This regulation applies to Federal authorized flood control and/or navigation storage projects, and to non-Federal projects which require the Secretary of the Army to prescribe regulations as a condition of the license, permit or legislation, during the planning, design and construction phases, and throughout the life of the project. In compliance with the authority cited above, this regulation defines certain activities and responsibilities concerning water control management throughout the nation in the interest of flood control and navigation. In carrying out the conditions of this regulation, the owner and/or operating agency will comply with applicable provisions of Public Law 85-624, the Fish and Wildlife Coordination Act of 1958, and Public Law 92-500, the Federal Water Pollution Control Act Amendments of 1972. This regulation does not apply to local flood protection works governed by 33 Code of Federal Regulations (CFR) Part 208.10, or to navigation facilities and associated structures which are otherwise covered by 33 CFR Part 207 (Navigation Regulations). Small reservoirs, containing less than 12,500 acre-feet of flood control or navigation storage, may be excluded from this regulation and covered under 33 CFR Part 208.10, unless specifically required by law or conditions of the license or permit.

a. The terms "reservoir" and "project" as used herein include all water resource impoundment projects constructed or modified, including natural lakes, that are subject to this regulation.

b. The term "project owner" refers to the entity responsible for maintenance, physical operation, and safety of the project, and for carrying out the water control plan in the interest of flood control and/or navigation as prescribed by the Corps of Engineers. Special arrangements may be made by the project owner for "operating agencies" to perform these tasks.

c. The term "letter of understanding" as used herein includes statements which consummate this regulation for any given project and define the general provisions or conditions of the local sponsor, or owner, cooperation agreed to in the authorizing legislative document, and the requirements for compliance with Section 7 of the 1944 Flood Control Act, the Federal Power Act or other special Congressional Act. This information will be specified in the water control plan and manual. The letter of understanding will be signed by a duly authorized representative of the Chief of Engineers and the project owner. A "field working agreement" may be substituted for a letter of understanding, provided that the specified minimum requirements of the latter, as stated above, are met.

d. The term "water control agreement" refers to a compilation of water control criteria, guidelines, diagrams, release schedules, rule curves and specifications that basically govern the use of reservoir storage space allocated for flood control or navigation and/or release functions of a water control project for these purposes. In general, they indicate controlling or limiting rates of discharge and storage space required for flood control and/or navigation, based on the runoff potential during various seasons of the year.

e. For the purpose of this regulation, the term "water control plan" is limited to the plan of regulation for a water resources project in the interest of flood control and/or navigation. The water control plan must conform with proposed allocations of storage capacity and downstream conditions or other requirements to meet all functional objectives of the particular project, acting separately or in combination with other projects in a system.

f. The term "real-time" denotes the processing of current information or data in a sufficiently timely manner to influence a physical response in the system being monitored and controlled. As used herein the term includes information the analyses for and execution of water control decisions for both minor and major flood events and for navigation, based on prevailing hydrometeorological and other conditions and constraints, to achieve efficient management of water resource systems.

6. Procedures.

a. Conditions during Project Formulation. During the planning and design phases, the project owner should consult with the Corps of Engineers regarding the quantity and value of space to reserve in the reservoir for flood control and/or navigation purposes, and for utilization of the space, and other requirements of the license, permit or conditions of the law. Relevant matters that bear upon flood control and navigation accomplishment include: runoff potential, reservoir discharge capability, downstream channel characteristics, hydrometeorological data collection, flood hazard, flood damage characteristics, real estate acquisition for flowage requirements (fee and easement), and resources required to carry out the water control plan. Advice may also be sought on determination of and regulation for the probable maximum or other design flood under consideration by the project owner to establish the quantity of surcharge storage space, and freeboard and top of dam or embankment elevation for safety of the project.

b. Corps of Engineers Involvement. If the project owner is responsible for real-time implementation of the water control plan, consultation and assistance will be provided by the Corps of Engineers when appropriate and to the extent possible. During any emergency that affects flood control and/or navigation, the Corps of Engineers may temporarily prescribe regulation of flood control or navigation storage space on a day-to-day (real-time) basis without request of the project owner. Appropriate consideration will be given for other authorized project functions. Upon refusal of the project owner to comply with regulations prescribed by the Corps of Engineers, a letter will be sent to the project owner by the Chief of Engineers or his duly authorized representative describing the reason for the regulations prescribed, events that have transpired, and notification that the project owner is in violation of the Code of Federal Regulations. Should an impasse arise, in that the project owner or the designated operating entity persists in noncompliance with regulations prescribed by the Corps of Engineers, measures may be taken to assure compliance.

c. Corps of Engineers Implementation of Real-Time Water Control Decisions. The Corps of Engineers may prescribe the continuing regulation of flood control storage space for any project subject to this regulation on a day-to-day (real-time) basis. When this is the case, consultation and assistance from the project owner to the extent possible will be expected. Special requests by the project owner, or appropriate operating entity, are preferred before the Corps of Engineers offers advice on real-time regulation during surcharge storage utilization.

d. Water Control Plan and Manual. Prior to project completion, water control managers from the Corps of Engineers will visit the project and the area served by the project to become familiar with the water control facilities, and to insure sound formulation of the water control plan. The formal plan of regulation for flood control and/or navigation, referred to

herein as the water control plan, will be developed and documented in a water control manual prepared by the Corps of Engineers. Development of the manual will be coordinated with the project owner to obtain the necessary pertinent information, and to insure compatibility with other project purposes and with surcharge regulation. Major topics in the manual will include: authorization and description of the project, hydrometeorology, data collection and communication networks, hydrologic forecasting, the water control plan, and water resource management functions, including responsibilities and coordination for water control decision-making. Special instructions to the damtenders or reservoir manager on data collection, reporting to higher Federal authority, and on procedures to be followed in the event of a communication outage under emergency conditions, will be prepared as an exhibit in the manual. Other exhibits will include copies of this regulation, letters of understanding consummating this regulation, and the water control agreements. After approval by the Chief of Engineers or his duly authorized representative, the manual will be furnished to the project owner.

e. Water Control Agreement.

(1) A water control diagram (graphical) will be prepared by the Corps of Engineers for each project having variable space reservation for flood control and/or navigation during the year; e.g., variable seasonal storage, joint-use space, or other rule curve designation. Reservoir inflow parameters will be included on the diagrams when appropriate. Concise notes will be included on the diagrams prescribing the use of storage space in terms of release schedules, runoff, nondamaging or other controlling flow rates downstream of the damsite, and other major factors as appropriate. A water control release schedule will be prepared in tabular form for projects that do not have variable space reservation for flood control and/or navigation. The water control diagram or release schedule will be signed by a duly authorized representative of the Chief of Engineers, the project owner, and the designated operating agency, and will be used as the basis for carrying out this regulation. Each diagram or schedule will contain a reference to this regulation.

(2) When deemed necessary by the Corps of Engineers, information given on the water control diagram or release schedule will be supplemented by appropriate text to assure mutual understanding on certain details or other important aspects of the water control plan not covered in this regulation, on the water control diagram or in the release schedule. This material will include clarification of any aspects that might otherwise result in unsatisfactory project performance in the interest of flood control and/or navigation. Supplementation of the agreement will be necessary for each project where the Corps of Engineers exercises the discretionary authority to prescribe the flood control regulation on a day-to-day (real-time) basis. The agreement will include delegation of the responsibility. The document should also cite, as appropriate, Section 7 of the 1944 Flood Control Act, the Federal

Power Act and/or other Congressional legislation authorizing construction and/or directing operation of the project.

(3) All flood control regulations published in the Federal Register under this Section (Part 208) of the Code prior to the date of this publication which are listed in paragraph 208.11(e) are hereby superseded.

(4) Nothing in this regulation prohibits the promulgation of specific regulations for a project in compliance with the authorizing Acts, when agreement on acceptable regulations cannot be reached between the Corps of Engineers and the owner.

f. Hydrometeorological Instrumentation. The project owner will provide instrumentation in the vicinity of the damsite and will provide communication equipment necessary to record and transmit hydrometeorological and reservoir data to all appropriate Federal authorities on a real-time basis unless there are extenuating circumstances or are otherwise provided for as a condition of the license or permit. For those projects where the owner retains responsibility for real-time implementation of the water control plan, the owner will also provide or arrange for the measurement and reporting of hydrometeorological parameters required within and adjacent to the watershed and downstream of the damsite, sufficient to regulate the project for flood control and/or navigation in an efficient manner. When data collection stations outside the immediate vicinity of the damsite are required, and funds for installation, observation, and maintenance are not available from other sources, the Corps of Engineers may agree to share the costs for such stations with the project owner. Availability of funds and urgency of data needs are factors which will be considered in reaching decisions on cost sharing.

g. Project Safety. The project owner is responsible for the safety of the dam and appurtenant facilities and for regulation of the project during surcharge storage utilization. Emphasis upon the safety of the dam is especially important in the event surcharge storage is utilized, which results when the total storage space reserved for flood control is exceeded. Any assistance provided by the Corps of Engineers concerning surcharge regulation is to be utilized at the discretion of the project owner, and does not relieve the owner of the responsibility for safety of the project.

h. Notification of the General Public. The Corps of Engineers and other interested Federal and State agencies, and the project owner will jointly sponsor public involvement activities, as appropriate, to fully apprise the general public of the water control plan. Public meetings or other effective means of notification and involvement will be held, with the initial meeting being conducted as early as practicable but not later than the time the project first becomes operational. Notice of the initial public meeting shall be published once a week for three consecutive weeks in one or more newspapers of general circulation published in each county covered by the water control plan. Such notice shall also be used when appropriate to inform the public of



modifications in the water control plan. If no newspaper is published in a county, the notice shall be published in one or more newspaper of general circulation within that county. For the purposes of this Section a newspaper is one qualified to publish public notices under applicable state law. Notice shall be given in the event significant problems are anticipated or experienced that will prevent carrying out the approved water control plan or in the event that an extreme water condition is expected that could produce severe damage to property or loss of life. The means for conveying this information shall be commensurate with the urgency of the situation. The water control manual will be made available for examination by the general public upon request at the appropriate office of the Corps of Engineers, project owner or designated operating agency.

i. Other Generalized Requirements for Flood Control and Navigation.

(1) Storage space in the reservoirs allocated for flood control and navigation purposes shall be kept available for those purposes in accordance with the water control agreement, and the plan of regulation in the water control manual.

(2) Any water impounded in the flood control space defined by the water control agreement shall be evacuated as rapidly as can be safely accomplished without causing downstream flows to exceed the controlling rates; i.e., releases from reservoirs shall be restricted insofar as practicable to quantities which, in conjunction with uncontrolled runoff downstream of the dam, will not cause water levels to exceed the controlling stages currently in force. Although conflicts may arise with other purposes, such as hydropower, the plan or regulation may require releases to be completely curtailed in the interest of flood control or safety of the project.

(3) Nothing in the plan of regulation for flood control shall be construed to require or allow dangerously rapid changes in magnitudes of releases. Releases will be made in a manner consistent with requirements for protecting the dam and reservoir from major damage during passage of the maximum design flood for the project.

(4) The project owner shall monitor current reservoir and hydrometeorological conditions in and adjacent to the watershed and downstream of the dam site, as necessary. This and any other pertinent information shall be reported to the Corps of Engineers on a timely basis, in accordance with standing instructions to the dam tenders or other means requested by the Corps of Engineers.

(5) In all cases where the project owner retains responsibility for real-time implementation of the water control plan, he shall make current determinations of: reservoir inflow, flood control storage utilized, and scheduled releases. He shall also determine storage space and releases required to comply with the water control plan prescribed by the Corps of

Engineers. The owner shall report this information on a timely basis as requested by the Corps of Engineers.

(6) The water control plan is subject to temporary modification by the Corps of Engineers if found necessary in time of emergency. Requests for and action on such modifications may be made by the fastest means of communication available. The action taken shall be confirmed in writing the same day to the project owner and shall include justification for the action.

(7) The project owner may temporarily deviate from the water control plan in the event an immediate short-term departure is deemed necessary for emergency reasons to protect the safety of the dam, or to avoid other serious hazards. Such actions shall be immediately reported by the fastest means of communication available. Actions shall be confirmed in writing the same day to the Corps of Engineers and shall include justification for the action. Continuation of the deviation will require the express approval of the Chief of Engineers, or his duly authorized representative.

(8) Advance approval of the Chief of Engineers, or his duly authorized representative, is required prior to any deviation from the plan of regulation prescribed or approved by the Corps of Engineers in the interest of flood control and/or navigation, except in emergency situations provided for in paragraph 6i(7) above. When conditions appear to warrant a prolonged deviation from the approved plan, the project owner and the Corps of Engineers will jointly investigate and evaluate the proposed deviation to insure that the overall integrity of the plan would not be unduly compromised. Approval of prolonged deviations will not be granted unless such investigations and evaluations have been conducted to the extent deemed necessary by the Chiefs of Engineers or his designated representatives to fully substantiate the deviation.


j. Revisions. The water control plan and all associated documents will be revised by the Corps of Engineers as necessary, to reflect changed conditions that come to bear upon flood control and navigation, e.g., reallocation of reservoir storage space due to sedimentation or transfer of storage space to a neighboring project. Revision of the water control plan, water control agreement, water control diagram, or release schedule requires approval of the Chief of Engineers or his duly authorized representative. Each such revision shall be effective upon the date specified in the approval. The original (signed document) water control agreement shall be kept on file in the appropriate Division or District Office, Corps of Engineers, Department of the Army. Copies of these agreements may be obtained from the office of the project owner, or by contacting the appropriate Division Commander, U.S Army Corps of Engineers.

k. Federal Register. The following information for each project subject to Section 7 on the 1944 Flood Control Act and other applicable Congressional acts shall be published in the Federal Register prior to the time the projects

become operational and prior to any significant impoundment before project completion or . . . at such time as the responsibility for physical operation and maintenance of the Corps of Engineers owned projects is transferred to another entity: (a) dam and reservoir or lake names, (b) stream, county and state corresponding to the damsite location, (c) the maximum current active storage space in acre-feet to be reserved exclusively for flood control and/or navigation purposes, or any multiple-use space (intermingled) when flood control or navigation is one of the purposes, with corresponding elevations in feet above mean sea level, and area in acres, at the upper and lower limits of said space, (d) the name of the project owner, and (e) Congressional legislation authorizing the project for Federal participation.

7. List of Projects. Appendix A shows the pertinent data for projects which are subject to this regulation.

FOR THE COMMANDER:



ALBERT J. GENETTI, JR.  
Colonel, Corps of Engineers  
Chief of Staff

1 Appendix  
APP A - List of Projects