

§ 208.19 Marshall Ford Dam and Reservoir (Mansfield Dam and Lake Travis), Colorado River, Tex.

The Secretary of the Interior, through his agent, the Lower Colorado River Authority (LCRA) shall operate the Marshall Ford Dam and Reservoir in the interest of flood control as follows:

(a) *Water Control Plan*—(1) *General objectives.* The objectives of the Marshall Ford Reservoir (Lake Travis) are the improvement of navigation, flood control, stream regulation, generation of power, irrigation, water supply, and recreation uses.

(2) *Overall plan for water control.* Within the Colorado River Basin, four Federal projects provide flood control protection: Twin Buttes, O. C. Fisher, Hords Creek, Marshall Ford Reservoir. The considerable distance (328 river miles) and large intervening area (19,990 square miles) separating Marshall Ford Reservoir and the three upper basin flood-control projects prevent realizing any significant benefits from coordinating releases to control the inflow into Marshall Ford. Marshall Ford Reservoir is the fifth project in a tandem of six lakes operated and controlled by the Lower Colorado River Authority for the generation of hydroelectric power. These six projects in downstream order are: Lake Buchanan, Lake Inks, Lake Lyndon B. Johnson (Alvin Wirtz Dam), Lake Marble Falls (Max Starcke Dam), Marshall Ford Reservoir (Lake Travis and Mansfield Dam) and Lake Austin (Tom Miller Dam). The releases from each of the six projects are closely coordinated by the LCRA System Operation Control Center. Three of the projects (Lake Inks, Lake Marble Falls, and Lake Austin) are run-of-the-river projects. The capability of the four upstream lakes to control the inflow of flood water into Marshall Ford depends on their antecedent lake elevations. The majority of inflows to Marshall Ford are comprised of the mainstream flows of the Colorado River, the tributary flows of the Llano River (entering the Colorado River between Lakes Inks and Lyndon B. Johnson) and the unregulated tributary flows of the Pedernales River (entering between Lake Marble Falls and Marshall Ford Reservoir). During flood

conditions, the following upstream U.S. Geological Survey gaging stations are used as indicators of the magnitude of the inflows to Marshall Ford Reservoir:

- (i) Colorado River near San Saba (08147000).
- (ii) Pedernales River near Johnson City (08153500).
- (iii) Llano River at Llano (08151500).

(3) *Standing instructions to dam tender.* During normal conditions, the dam tender will regulate the project in accordance with instructions received from the LCRA System Operator. During flood conditions, when the Marshall Ford Reservoir level is within the flood control zone, the LCRA System Operator will regulate the project in accordance with instructions received from the Corps of Engineers. In the event of a communication outage, the LCRA System Operator will rely on the Emergency Release Schedule, to make changes in the rate of releases from the lake.

(4) *Flood control regulation*—(i) *General.* At all times, releases shall be coordinated such that the Colorado River, Texas, will be controlled when possible, to remain below control stages at downstream official U.S. Geological Survey (USGS) gaging stations; except that no curtailment of normal hydroelectric turbine releases shall result thereby at any time. The USGS river stations and their control stages are as follows:

KEY DOWNSTREAM CONTROL POINTS

Station	Control stage (feet)	Equivalent cubic feet per second (c.f.s.)
Austin (08158000)	20.5	30,000
	¹ 24.8	150,000
Bastrop (08159200)	25.1	45,000
	¹ 26.7	150,000
Columbus (08161000)	25.5	50,000

¹Control stage when elevation 710 is forecast to be exceeded.

Forecasted reservoir inflows and the upstream USGS gaging stations Pedernales River near Johnson City (08153500), Llano River at Llano (08151500), and Colorado River near San Saba (08147000) will be considered when scheduling flood releases.

(ii) *Flood control release schedule.* Marshall Ford will be regulated to reduce

flooding on the Colorado River below the dam. This plan of regulation will govern flood control releases from Marshall Ford Dam as follows:

(A) *Elevation 681-683.* If the reservoir level is forecast to rise above elevation 681 feet, m.s.l. (top of conservation pool) but not to exceed elevation 683 feet, m.s.l., the releases shall be increased to 3,000 c.f.s. and maintained until the reservoir level recedes to elevation 681 feet, m.s.l. These release rates may need to be reduced due to excessive downstream runoff to prevent exceeding the control stages specified in paragraph (a)(4)(i) of this section.

(B) *Elevation 683-685.* If the reservoir elevation is forecast to rise above elevation 683 feet, m.s.l. but not to exceed elevation 685 the releases shall be increased to 5,000 c.f.s. and maintained until the reservoir level recedes below 683 feet, m.s.l. These release rates may need to be reduced due to excessive downstream runoff to prevent exceeding the control stages specified in paragraph (a)(4)(i) of this section.

(C) *Elevation 685-691.* Seasonal. (1) During the months of January through April, July through August, and November through December: If the reservoir elevation is forecast to rise above elevation 685 feet, m.s.l. but not to exceed elevation 691, the releases shall be increased to 5,000 c.f.s. and maintained until the reservoir level recedes below 683 feet, m.s.l. These release rates may need to be reduced due to excessive downstream runoff to prevent exceeding the control stages specified in paragraph (a)(4)(i) of this section.

(2) During the months of May, June, September, and October: Should the reservoir elevation be forecast to exceed 685 feet, m.s.l. but not to exceed elevation 691 feet, m.s.l.: Releases will be made at 30,000 c.f.s. from the project or at a rate such that, when combined with local inflows below the dam, will equal but not exceed downstream con-

trol stages on the Colorado River as specified in paragraph (a)(4)(i) of this section. These release rates will be maintained until the reservoir level falls below elevation 685 feet, m.s.l.

(D) *Elevation 691-710.* Should the reservoir elevation be forecast to exceed 691 feet, m.s.l. (the top of the joint use pool) but not to exceed elevation 710 feet, m.s.l.: Releases will be made at 30,000 c.f.s. from the project or at a rate such that, when combined with local inflows below the dam, will equal but not exceed downstream control stages on the Colorado River as specified in paragraph (a)(4)(i) of this section. These release rates will be so controlled until the reservoir level falls below elevation 691 feet, m.s.l.

(E) *Elevation 710-714.* If the reservoir level is forecast to exceed 710 feet, m.s.l. but not to exceed elevation 714 feet, m.s.l.: Releases will be made at 50,000 c.f.s. from the project or at a rate such that, when combined with local inflows below the dam, will equal but not exceed the downstream control stages on the Colorado River as specified in paragraph (a)(4)(i) of this section. These release rates will be maintained until the reservoir level falls below elevation 710 feet, m.s.l.

(F) *Elevation 714-722.* If the reservoir level is forecast to exceed 714 feet, m.s.l. but not to exceed 722 feet, m.s.l.: Releases will be made at 90,000 c.f.s. from the project. Releases shall not exceed the associated peak flood reservoir inflow.

(G) *Elevation 722 and above.* If the reservoir level is forecast to exceed elevation 722 feet, m.s.l., the Bureau of Reclamation will schedule releases as required for the safety of the structure.

(iii) *Normal flood control regulation schedule.* The following table, Flood Control Regulation Schedule, summarizes the flood control releases schedule for given reservoir levels and river conditions:

MARSHALL FORD DAM AND RESERVOIR NORMAL FLOOD CONTROL REGULATION SCHEDULE

Condition	Reservoir level	Flood control release	Control points
Pool Rising	Forecast: 681-683 ¹	3,000 c.f.s	30,000 c.f.s. (20.5 ft.) at Austin. 45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus.
Do	Forecast: 683-685	5,000 c.f.s	30,000 c.f.s. (20.5 ft.) at Austin. 45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus.

MARSHALL FORD DAM AND RESERVOIR NORMAL FLOOD CONTROL REGULATION SCHEDULE—
Continued

Condition	Reservoir level	Flood control release	Control points
Do	Forecast: 685–691: (a) During January, February, March, April, July, August, November, December.	5,000 c.f.s	30,000 c.f.s. (20.5 ft.) at Austin. 45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 30,000 c.f.s. (20.5 ft.) at Austin.
	(b) During May, June, September, October.	30,000 c.f.s	45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 30,000 c.f.s. (20.5 ft.) at Austin.
Do	Forecast: 691–710	30,000 c.f.s	45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 30,000 c.f.s. (20.5 ft.) at Austin.
Do	Forecast: 710–714	50,000 c.f.s	45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 50,000 c.f.s. (24.8 ft.) at Austin.
Do	Forecast: 714–722 ²	90,000 c.f.s	50,000 c.f.s. (26.7 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. No controls.
Do	Forecast: above 722	The Bureau of Reclamation will specify the releases for safety of the structure.	
Pool Falling	Above 722do.	
Do	722–714 ²	90,000 c.f.s	No controls.
Do	714–710	50,000 c.f.s	50,000 c.f.s. (24.8 ft.) at Austin. 50,000 c.f.s. (26.7 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus.
Do	710–691	30,000 c.f.s	30,000 c.f.s. (20.5 ft.) at Austin. 45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus.
Do	691–685:	30,000 c.f.s	30,000 c.f.s. (20.5 ft.) at Austin.
	(a) During May, June, September, October.		
	(b) During January, February, March, April, July, August, November, December.	5,000 c.f.s	45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 30,000 c.f.s. (20.5 ft.) at Austin.
Do	685–683	5,000 c.f.s	45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 30,000 c.f.s. (20.5 ft.) at Austin.
Do	683–681	3,000 c.f.s	45,000 c.f.s. (25.1 ft.) at Bastrop. 50,000 c.f.s. (25.5 ft.) at Columbus. 30,000 c.f.s. (20.5 ft.) at Austin.

¹ During flood conditions, when the reservoir level is below elevation 681 ft., m.s.l., the Corps of Engineers will provide recommendations to the Lower Colorado River Authority on flood control releases.

² Releases shall not exceed the associated peak flood reservoir inflow.

NOTE: No curtailment of normal hydroelectric turbine releases shall be required due to flood control operations.

(5) *Deviation from normal regulation.*
(i) There are occasions when it is necessary or desirable to deviate from the water control plan for short periods of time as indicated in the following paragraphs:

(A) 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.

(B) 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 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.

(C) Advance approval of the Chief of Engineers, or this 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 (a)(5)(i)(B) of this section. 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 Chief of Engineers, or his designated representative, to fully substantiate the deviations.

(ii) The Fort Worth District Corps of Engineers will serve as the LCRA contact point for any deviation from or modification of the water control plan. The communication network will be described in the Water Control Manual. The Fort Worth District will notify the Division Engineer, Southwestern Division, Corps of Engineers of any deviations or modifications of the water control plan and request his approval. The Division Engineer has been designated as the authorized representative of the Chief of Engineers in matters relating to projects within the Southwestern Division which are subject to provisions of Section 7 of the 1944 Flood Control Act.

(b) *Reports to the Corps of Engineers.*

(1) The Authority shall furnish the District Engineer, Fort Worth District, U.S. Army Corps of Engineers, by 0900 hours daily, with the following:

(i) Project information.

(A) Lake elevations at midnight and 0800 hours.

(B) Uncontrolled spillway, flood-control conduits, and turbine releases: Cubic feet per second at 0800 hours, and

day-second-feet average for the previous 24 hours, ending at midnight.

(C) Computed average inflow, in day-second-feet for the previous 24 hours, ending at midnight.

(D) Total precipitation in inches for the previous 24 hours at the dam, ending at 0800 hours.

(E) Summary of streamflow and channel conditions at gages named in paragraphs (a)(2) and (a)(4)(i) of this section.

(i) Lake Buchanan Pool elevation at 0800 hours.

(2) Whenever flood conditions are imminent, or stages of 16 feet (20,000 c.f.s.) or more at the Austin gage have been reached, the Authority shall report at once to the District Engineer by the fastest means of communications available. Data listed in paragraph (b)(1) of this section shall be reported to, and at intervals prescribed by the District Engineer for the duration of flood surveillance and control operations.

(Sec. 7, Pub. L. 78-534, 58 Stat. 890 (33 U.S.C. 709))

[44 FR 24552, Apr. 26, 1979; 44 FR 29050, May 18, 1979]

§ 208.22 Twin Buttes Dam and Reservoir, Middle and South Concho Rivers, Tex.

The Bureau of Reclamation, or its designated agent, shall operate the Twin Buttes Dam and Reservoir in the interest of flood control as follows:

(a) Whenever the Twin Buttes Reservoir level is between elevations 1,940.2 (top of conservation pool) and elevation 1,969.1 (top of flood control pool) the flood control discharge facilities shall be operated under the direction of the District Engineer, Corps of Engineers, Department of the Army, in charge of the locality, so as to reduce as much as practicable the flood damage below the reservoir. All flood control releases shall be made in amounts which, when combined with releases from San Angelo Reservoir on the North Concho River and local inflow below the dam, will not produce flows in excess of bankful capacities on the South Concho and Concho Rivers downstream of the reservoir. In order to accomplish this purpose, flows shall not exceed a 22.5-foot stage (25,000 c.f.s.) on