

STRUCTURE 77

This structure is a reinforced concrete, gated spillway with discharge controlled by four cable operated, vertical lift gates. Operation of the gates is manually controlled. The structure is located on Canal 43 (the Caloosahatchee River) at the outlet of Lake Okeechobee.

PURPOSE

The structure provides control of regulatory discharge from Lake Okeechobee to the Caloosahatchee River; it passes the design flood (30% of the Standard Project Flood) without exceeding the upstream flood design stage and restricts downstream flood stages and channel velocities to the non-damaging levels of the design flood; and it passes sufficient discharge during low-flow periods to maintain downstream stages and irrigation water supply and environmental demands.

OPERATION

This structure is operated and maintained by the Corps of Engineers, subject to hydraulic and structure restraint, to maintain the required stage in Lake Okeechobee and to meet downstream water requirements. The operation can be divided into two modes, low-water operation and flood operation as follows:

Low-water Operation

Releases will be made as required to maintain a tailwater elevation of 11.1 feet or other downstream demand requirement.

Flood Operation

Flood releases will be made to maintain the Lake Okeechobee operation schedule.

These releases will be determined by the U.S. Corps of Engineers.

Hydraulic Limitations

To prevent damage from high velocity discharge, the gate opening will be limited in accordance with the "Maximum Allowable Gate Openings" curve. Gate settings should be checked frequently to ensure that the design capacity of the structure is not being exceeded.

FLOOD DISCHARGE CHARACTERISTICS

	Design	Standard Project Flood
Discharge Rate	<u>9300</u> cfs	<u>9300</u> cfs

	<u>30</u> % SPF	<u>100</u> % SPF
Headwater Elevation	<u>16.4</u> feet	<u>23.5</u> feet
Tailwater Elevation	<u>13.1</u> feet	<u>13.1</u> feet
Type Discharge	controlled <u>submerged</u>	<u>submerged</u>

NOTE: This SPF is not simultaneous with the SPF at S-78.

DESCRIPTION OF STRUCTURE

Type reinforced concrete spillway

Weir Crest

Net Length 80.0 feet

Elevation 5.6 feet

Service Bridge Elevation 35.5 feet

Water Level which will by-pass structure 35.5 feet

Gates

Number 4

Size 12.4 ft. high by 20.8 ft. wide

Type vertical lift gates

Bottom elevation of gates, full open 19.8 feet Normal, 34.4 feet Maximum

Top elevation of gates, full closed 17.9 feet

Bottom of breast wall, 17.5 feet

Control manual

Lifting Mechanism

Normal power source commercial electricity

Emergency power source gasoline motor driven generator

Type Hoist each gate operated by a hydraulic cylinder actuated by electric motor driven pump, with emergency hand pump; connected to gate by steel cables.

DATE OF ACCEPTANCE INTO SERVICE _____

ACCESS: from U.S. 27 via access road on east side of C-43

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water Level On-site, upstream and downstream recorders

Gate Position Recorder none

DEWATERING FACILITIES

Type steel bulkhead

Size and Number (per bay)

The spillway gate section can be dewatered by using eleven standard bulkheads and one special bulkhead. The bulkheads shall be oriented and placed in the bulkhead recesses of Structure 77 with the skin plate side of the bulkheads facing the spillway gate. The bulkheads can be stacked on top of each other to a maximum of 5 bulkheads on the upstream side and 5 bulkheads on the downstream side in order to dewater the spillway gate section. The one special bulkhead shall be placed first in the upstream bulkhead recess and then up to 4 standard bulkheads may be stacked on top of the special bulkhead. Each bulkhead is 3' high, 1'-5" wide, and 21'-10" long.