

STRUCTURE 71

This structure is a reinforced concrete, gated spillway with discharge controlled by three cable hoist operated, vertical lift gates. Operation of the gates is automatically controlled in accordance with the established operational criteria. The structure is located on Canal 41 about 2 miles upstream from Lake Okeechobee.

PURPOSE

This structure maintains optimum upstream water control stages in Canal 41; 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 non-damaging levels; and it prevents backflow from Lake Okeechobee during excessive stages in the lake caused by floods or wind tides.

OPERATION

This structure will be operated to maintain an optimum headwater elevation between 19.8 and 20.2, insofar as possible, through automatic controls as follows:

When the headwater elevation rises to 20.2, the gates will open at six inches per minute;

When the headwater elevation rises or falls to 20.0, the gates will become stationary;

When the headwater elevation falls to 19.8, the gates will close at six inches per minute.

When the tailwater rises to within 0.2 feet of the headwater, the gates close to prevent backflow through the structure.

FLOOD DISCHARGE CHARACTERISTICS

	Design*	Standard Project Flood**
Discharge Rate	<u>6000</u> cfs <u>30</u> % SPF	<u>6800</u> cfs <u>100</u> % SPF
Headwater Elevation	<u>20.0</u> feet	<u>22.2</u> feet
Tailwater Elevation	<u>19.0</u> feet	<u>19.0</u> feet
Type Discharge	uncontrolled <u>submerged</u>	uncontrolled <u>submerged</u>

*Design discharge apparently cannot be obtained with given headwater and tailwater elevation even with uncontrolled discharge. No curve available for uncontrolled discharge, so headwater elevation for design flow unobtainable.

**For Standard Project Flood, headwater and tailwater elevations and maximum gate opening limit discharge to 4300.

DESCRIPTION OF STRUCTURE

Type reinforced concrete, gated spillway

Weir Crest

Net Length 75.0 feet

Elevation 10.2 feet

Service Bridge Elevation 27.0 feet

Water Level which will by-pass structure 27.0 feet

Gates

Number 3

Size 11.2 ft. high by 25.8 ft. wide

Type vertical lift

Bottom elevation of gates, full open 21.4 ft. Normal

25.6 ft. Maximum

Top elevation of gates, full closed 21.4 ft.

Control automatic on-site control and remote computer control

Lifting Mechanism

Normal power source commercial electricity

Emergency power source LP engine driven generator

Type Hoist electric motor driven speed reducer, gear connected to

Cable drum lifts

Date of Transfer: February 13, 1961 (beneficial occupancy); December 27, 1961

ACCESS: Structure located on State Road 721.

Points of possible flooding _____

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water Level Remote headwater and tailwater digital recorders

Gate Position Recorder Remote digital recorder on all gates

Other _____

DEWATERING FACILITIES

Storage Okeechobee Field Station, 710 Compound

Type steel needle beam and aluminum needles

Size and Number (per bay)

Upstream

needles 5 @ 5' wide,

beam 33WF 200, 26'-11" long

Downstream

Same