STRUCTURE 177

This structure is a reinforced concrete, gated spillway, with discharge controlled by a cable operated, vertical lift gate. Operation of the gate is automatically controlled so that the gate hydraulic operating system opens or closes the gate in accordance with the operational criteria. The structure is located on Canal 111 just downstream from State Road #27.

PURPOSE

This structure maintains optimum water control upstream in Canal 111; it passes the design flood (40% of the Standard Project Flood) without exceeding upstream flood design stage, and restricts downstream flood stages and discharge velocities to non-damaging levels.

OPERATION

Based on IOP, the structure is operated according to its headwater stage, as follows:

No WCA-3A Regulatory Releases to SDCS or Shark Slough		WCA-3A Regulatory Releases to SDCS	
Open	4.2	Open	4.2
Close	3.6	Close	3.6

FLOOD DISCHARGE CHARACTERISTICS

	Design	Standard Project Flood
Discharge Rate	1400 cfs	2900 cfs
	40 % SPF	100 % SPF
Headwater Elevation	4.3 feet	6.0* feet
Tailwater Elevation	3.6 feet	4.0* feet
Type Discharge	uncontrolled submerged	uncontrolled submerged

*Some question of stages because later Corps' studies of C-111 raised stage below S-18C 0.7 feet above stage from studies which gave stages for S-177.

DESCRIPTION OF STRUCTURE

Type Fixed crest, reinforced concrete gated spillway

Weir Crest

Net Length 22.0 feet

Elevation -7.1 feet

Service bridge elevation 9.0 feet

Water level elevation which will by-pass structure 9.0 feet

Gates

Number 1

Size 12.6 ft. high X 22.8 ft. wide

Type Vertical lift gate

Bottom elevation of gates full open 6.9 feet

Top elevation of gates full closed 5.5 feet

Control automatic, on-site upstream control, remote control by Communications and Control System

Lifting Mechanism

Normal power source commercial electricity

Emergency power source L.P. gas driven generator

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

Date of Transfer: August 5, 1967

ACCESS: This structure is located at State Road #27.

HYDRAULIC & HYDROLOGIC MEASUREMENTS

Water Level On-site, dual recorder and remote digital recorders

Gate Position Recorder Remote digital recorder

Rain Gauge Remote digital recorder

DEWATERING FACILITIES

Storage Needles at Homestead Field Station; beams at West Palm Beach Field Station

Type Needle beams and vertical aluminum needles

Size & number (per bay)

Upstream and Downstream

Number 1 beam; needles, 4 @ 4' and 1 at 5'

Size Beam 16"WF145, Length 23'-10"

needles 20" long