STRUCTURE 26

This structure is a reinforced concrete, gated spillway, with discharge controlled by two cable operated, vertical lift gates driven by overhead horizontal hydraulic cylinders. Operation of the gates is automatically controlled. The structure is located in the City of Miami at the NW 36th Street crossing of the Miami Canal, C-6.

PURPOSE

This structure maintains optimum water control stages upstream in Canal 6 (Miami Canal); it passes the design flood (the Standard Project Flood) without exceeding upstream flood design stage, and restricts downstream flood stages and discharge velocities to non-damaging levels; and it prevents saline intrusion during periods of high flood tides.

OPERATION

This structure will be automatically operated to maintain, as close as possible, the optimum headwater elevation of 2.5 feet. The gates will operate to maintain the optimum upstream water surface elevations as follows:

When the headwater elevation rises to 2.8 feet, the gates will open at six inches per minute.

When the headwater elevation rises or falls to 2.5 feet, the gates will become stationary.

When the headwater elevation falls to 2.3 feet, the gates will close at six inches per minute.

During extreme flood events, the structure is placed on a low range operation as follows:

When the headwater elevation rises to 1.7 feet, the gates will open at six inches per minute.

When the headwater elevation rises or falls to 1.6 feet, the gates will become stationary.

When the headwater elevation falls to 1.2 feet, the gates will close at six inches per minute.

A special timing device has been installed at this site to protect manatees during automatic gate operation. This device causes alternate gate operation. During this operation, when the upstream float sensor indicates that the gates should open, one gate opens a minimum of 2.5 feet. If this opening results in a headwater stage below the gate close level, as it often does, this gate will close. Whenever the headwater stage again rises to the gate open level, the other gate will open in a similar manner.

In addition to maintaining optimum upstream fresh water control, as described above, the automatic controls on this structure have an overriding control which closes the gates, regardless of the upstream water level in the event of a high flood tide, whenever the differential between the

head and the tailwater pool elevation reaches 0.3 feet.

FLOOD DISCHARGE CHARACTERISTICS

	Design (Standard Project Flood)
Discharge Rate	3470 cfs
	100% SPF
Headwater Elevation	4.4 feet
Tailwater Elevation	3.9 feet
Type Discharge	uncontrolled submerged

DESCRIPTION OF STRUCTURE

Type Fixed crest, reinforced concrete gates spillway

Weir Crest

Net length 52.0 feet

Elevation -10.1 feet

Service Bridge Elevation 8.4 feet

Water level which will by-pass structure 5.5 feet

Gates

Number 2

Six 14.1 feet high by 26.0 feet wide

Type Vertical lift gates

Control Automatic, on-site upstream control with override differential water surface control sensed by bubbler system and remote computer control.

Bottom elevation of gates, full open 5.4 feet

Top elevation of gates, full closed 4.0 feet

Lifting mechanism

Normal power source — Commercial electricity

Emergency power source — LP gas driven generator with automatic transfer switch

Type hoist — Hydraulic cylinder actuated by electric motor driven pump, with emergency hand pump; connected to gate by steel cables.

ACCESS: The structure is located about 150 feet northeast of NW South River Drive just downstream from NW 36th Street, City of Miami.

HYDRAULIC & HYDROLOGIC MEASUREMENTS

Water Level — Remote digital upstream and downstream recorders.

Gate Position Recorder — Remote digital recorder on both gates.

Rain Gauge — Remote digital recorder

DEWATERING FACILITIES

Storage — Needles at Miami Field Station; beams at West Palm Beach Field Station

Type — Needle beams and vertical aluminum needles

Size and Number (per bay)

Upstream and Downstream

Number — 2 beams

Size — Beam 27WF84 with ends cut down to 18", length 27' - 11" needles 20' long