STRUCTURE 25B

This structure is a reinforced concrete, gated spillway, with discharge controlled by two cable operated, vertical lift gates. Operation of the gates is automatically controlled. The structure is located in the City of Miami immediately downstream of the Le Jeune Road crossing of the Tamiami Canal, C-4.

PURPOSE

This structure maintains optimum water control stages upstream in Canal 4 (Tamiami 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 2.8 feet. The gates will operate to maintain the optimum upstream water surface elevation as follows:

When the headwater elevation rises to 3.0 feet, the gates will open at six inches per minute;

When the headwater elevation rises or falls to 2.8 feet, the gates will become stationary;

When the headwater elevation falls to 2.0 feet, the gates will close at six inches per minute.

During periods of high flow, in order to prevent flooding to the west, a low automatic setting is used. The low setting functions as follows:

When the headwater elevation rises to 2.0 feet, the gates will open at six inches per minute;

When the headwater elevation rises or falls to 1.5 feet, the gates will become stationary;

When the headwater elevation falls to 1.0 feet, the gates will close at six inches per minute.

Excess gate "yo-yo" action at the low setting has been experienced.

A special timing device has been installed at this site to protect manatees during automatic gate operation. This device causes alternate gate operation where the upstream float sensor indicates that the gate should open.

One gate opens a minimum of 2.5 feet. If this opening results in a headwater stage below the gate level, as it often does, this gate will close. Whenever the headwater stage 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	2,000 c.f.s.
	100 %SPF
Headwater Elevation	4.4 feet
Tailwater Elevation	4.1 feet
Type Discharge	uncontrolled
	submerged

DESCRIPTION OF STRUCTURE

Type Fixed crest, reinforced concrete gated spillway

Weir Crest

- Net Length 44.0 feet
- Elevation -7.9 feet

Service bridge elevation 8.7 feet

Water level which will by-pass structure 5.7 feet

Gates

- Number 2
- Size 11.9 feet high by 22.8 feet wide
- Type Vertical lift gates
- Bottom elevation of gates, full open 5.7 feet
- Top elevation of gates, full closed 4.0 feet

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

Lifting Mechanism

Normal power source commercial electricity

Emergency power source LP gas driven generator

Type hoist hydraulic cylinder activated by electric motor driven pump with emergency hand pump; connected to gate by steel cables.

ACCESS: to the structure is gained by a short access road (about 600 feet) from N.W. 21st Street just east of Le Jeune Road in the City of Miami.

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water level: Remote digital headwater and tailwater recorders

Gate Position Recorder: Remote digital recorder on both gates

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 needles 20 feet long