

PUMPING STATION 131

This structure consists of a pumping plant and a navigation lock. The pumping plant has one gated spillway consisting of a corrugated metal pipe culvert which controls flows which bypass the pumps. Structure 131 is located on the northwest shore of Lake Okeechobee in the alignment of Levee 50. It is just south of State Road 78 and about 27 miles southwest of the town of Okeechobee. The pumping plant consists of both a pumping and an outlet unit. The pumping unit is a reinforced concrete structure with a concrete block superstructure. The outlet unit is a U-shaped structure of reinforced concrete sides and bottom. The pumping plant is equipped with two 125 cfs pumps.

PURPOSE

Lake Okeechobee Northwest Shore Levees, together with higher lake stages, restrict natural drainage to the lake. This structure removes the otherwise impounded water at a rate of as much as 3/4 inch of runoff per day from the tributary drainage area.

OPERATION

The spillway will be used to allow gravity discharge during periods when Lake Okeechobee stage is below elevation 13.0. This pipe spillway can also be used during drought conditions to provide water for the tributary area when the lake stage is above the intake canal water level. Normally, pumping will be initiated when the headwater elevation reaches 13.5 and terminated when it falls to 12.75. In response to heavy rainfall, all pumping units may be placed in operation and the stage lowered to and maintained at 12.5 until the storm has passed.

The spillway gate shall be closed at all times when the lake level is above intake canal water level except when backflow for irrigation purposes is desirable during a drought period.

For the normal range of pumping heads, the engine should be run at a constant governed speed of 1200 r.p.m.

After the pump is stopped, the vacuum breaker valve is opened to permit the water column in the pump to drop to pool level and the water in the discharge pipe to drop to the lower of the lake or invert elevation.

Whenever the lake stage is below 13.0 feet, the lock remains full open. At this condition,

canal level may be higher than the lake due to the sandbar in the area. When the lake exceeds this stage, the lock is operable seven days a week between 5:30 AM and 8:00 PM, and the lock is full closed between 8:00 PM and 5:30 AM in the winter. The lock is operable seven days a week between 5:30 AM and 9:00 PM in the summer.

FLOOD DISCHARGE CHARACTERISTICS

	Pump Design
Discharge Rate	<u>250 230</u> cfs
Headwater Elevation	<u>13.0</u> feet
Tailwater Elevation	<u>23.5</u> feet
Type Discharge	<u>pumped</u>

DESCRIPTION OF STRUCTURE

Type Two pumping units and one gated CMP culvert spillway in a reinforced concrete and concrete block structure and a reinforced concrete navigation lock

Spillway

Number of barrels one

Size of barrels 96-inch diameter

Length of barrels 217 feet "

Flow line elevation 6.0 to 5.0 feet

Service bridge elevation 24.8 feet

Water level which will by-pass structure 38.0 feet

Gates

Number 2

Type slide, upstream; flap gate, downstream

Size 96" diameter

Control manual

Lifting mechanism pedestal mounted, manually operated

handwheel on head gate stem, hand operated

winch, which operates cable and drum.

Pumping Station

Number of pumps 2

Size & Type of Pumps 48" vertical, axial flow

Design rating 125 cfs each

Impeller speed 390 r.p.m.

Pump manufacturer Johnson Pump Co.

Engine make & type Caterpillar, D-342, 6 cylinder, in-line diesel

Engine horsepower 225 each

Engine speed 1200 r.p.m.

Gates (per bay)

Number one

Type flap, downstream

Size 48" diameter

Control None

Lifting Mechanism None

Lock

Type reinforced concrete, U-shaped chamber

Operating Deck Elevations 54.0 ft. lakeside; 45.0 ft. landside

Dimensions (usable chamber)

Length 50 feet

Width 15 feet

Invert Elevation 8.0 feet

Gates

Type vertical lift

Size

Landside gate 14.0 feet high by 15.75 feet wide

Lakeside gate 19.9 feet high by 15.8 feet wide

Lifting mechanism direct drive electric motor gear
connected to cable drum

Dewatering facilities

Location West Palm Beach Field Station

Type stop logs

Size and Number 24 each 10" x 10" x 16' -2" long

POWER SOURCE

Normal Commercial electricity

Emergency Diesel engine driven electric generator

Date of Transfer: November 29, 1963

ACCESS from State Road 721A south of State Road 78 via about 1/4 miles of access road

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water Level On site, dual recorder, remote, telemetry

Gate Position Recorder None

Engine Tachometers Remote, telemetry

SPILLWAY AND PUMP DEWATERING FACILITIES - None