

## **STRUCTURE G-310**

This structure is a six unit pumping station. It is equipped with two 100 cfs, two 470 cfs and two 950 cfs pumps with a maximum facility design outflow pumping capacity of 3,040 cfs. The structure is located at the south corner of STA-1W approximately 400 feet east and 1,500 feet north of the southeast corner of Section 34, Township 44 South, Range 39 East in Palm Beach County. The structure is positioned immediately west of the Arthur R. Marshall Loxahatchee National Wildlife Refuge, also known as Water Conservation Area 1 (WCA-1).

### **PURPOSE**

Pump station G-310 serves as the primary outflow pump station for STA-1W. It works in concert with existing pump station G-251 to pump treated agricultural drainage water from which nutrients have been removed by STA-1W to WCA1. Under high flow conditions, some of the eastern flow-way water is conveyed through structures G-259, G-258, G-309 and G-308 into the Discharge Canal and to WCA-1 via the G-310 outflow pump station. Seepage from the western flow-way of STA-1 W will be captured by the discharge canal and directed to WCA-1 via the G-310 outflow pump station. Treated water will exit Cell 5 through structures G-306A-J to the discharge canal leading to outflow pump station G-310. Pump station S-5A is the primary inflow structure for the overall STA-1W project. Control of water levels in the collection canal by G-310 also provides seepage control to isolate areas west of STA-1W from water levels in the treatment cells.

### **OPERATION**

The structure is operated based on the Operation Plans for Stormwater Treatment Area 1 West published by the South Florida Water Management District, January 2001. All G-310 pumps have the capability to be operated locally or remotely. However, there are no plans to operate the four diesel pumps remotely at this time. Remote operation of the two G-310 electric pumps is from the SFWMD's West Palm Beach Operations Control Center. When the pumps

are fully automated, normal operations are expected to turn on the pumps when water level exceeds 8.5 and turn off the pumps when the water level falls to 8.0. Under the current condition, where only the smaller electric pumps are available for remote operation, water levels are allowed to fluctuate between 8.0 and 9.0 to facilitate staffing requirements.

Under very dry conditions, seepage impacts to adjacent lands is less problematic and water levels of 10.0 can be tolerated for short periods of time. Under peak flow conditions, it is necessary to pump the water level down to 7.0 upstream of G-310 to allow design flows into the collection canal.

### DISCHARGE CHARACTERISTICS

Design Discharge Rate (combined): 3,040 cfs

### DESCRIPTION OF STRUCTURE

Number of Pumps:	<u>6</u>
Motor Size:	
2-100-cfs electric pumps:	200 hp
2- 470-cfs diesel pumps:	1020 hp
2-950-cfs diesel pumps:	1535hp
Design Headwater elevation:	7.0 - 13.5 ft NGVD
Design low water (headwater) elevation:	7.0 ft NGVD
Design Tailwater elevation:	14.0 - 17.5 ft NGVD
Nominal pump operating speed:	
Electric: (pump #1 & #2)	440 rpm
Diesel 470-cfs: (pump #3 & #6)	177 rpm
Diesel 950-cfs: (pump #4 & #5)	125 rpm
Motor Speed:	
Electric:	440 rpm
Diesel:	720 rpm
Pump Manufacturer	_____
Model Number	_____

### POWER SOURCE

Prime Movers	Commercial electricity Commercial Diesel
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**STATION POWER**

Normal  
Emergency

Commercial electricity  
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**HYDRAULIC AND HYDROLOGIC MEASUREMENTS**

Staff gauges: Stage recorders at upstream and downstream of structure Telemetry system Two electric pumps on telemetry control, six pumps monitored for rpm.

**ACCESS:** To gain access to G-310 enter in through the main entrance at S-5A. For directions or information stop in at the office on the right after entering the gate. The G-310 Pump Station is approximately 9 miles down the L-7 Levee, which can be accessed through the S-5A Pump Station Entrance.