

CHAPTER 12 PUMP STATION SCADA SYSTEMS

12.1 SCADA DEFINITIONS

A. TYPE I

1. Minimum requirement when a local pump station flows from gravity and discharges into a gravity system.
2. Type I SCADA consists of event alarm cellular monitoring only; provide Mission M110 system. In addition to the standard Mission M110 cellular telemetry unit, provide and install a Mission Wetwell Module as part of the telemetry system. Wire pump run status signals and wetwell high level float through the Wetwell Module.
3. SCADA shall monitor the following:
 - a) Report/Record
 - i) Pump 1 Runtime
 - ii) Pump 2 Runtime
 - b) Event Alarms
 - i) High Water Alarm
 - ii) Low Water Alarm
 - iii) Phase Failure
 - iv) Pump 1 Failure
 - v) Pump 2 Failure

B. TYPE II

1. Minimum requirement when a master pump station that receives flow from other pump station and discharges into a force main.
2. Type II consists of near Real-time cellular monitoring; provide Mission M800 system. In addition to the standard Mission M800 cellular telemetry unit, provide and install a Mission Wetwell Module and a two-point Mission Pulse Adapter Board as part of the telemetry system. Wire pump run status signals and wetwell high level float through the Wetwell Module. Wire totalized pulse signal from flow meter into the Pulse Adapter Board.
3. SCADA shall monitor the following:
 - a) Report/Record
 - i) Pump 1 Runtime
 - ii) Pump 2 Runtime
 - b) Event Alarms
 - i) Wet Well Level
 - ii) Phase Failure
 - iii) Pump 1 Failure
 - iv) Pump 2 Failure
 - v) Backup System Status
 - c) Near Real-Time
 - i) Wet Well Level

- ii) Pump Station Flow Rate
- d) Optional Remote Control of:
 - i) High Level Float Trip

C. TYPE III

1. Minimum requirement when a regional pump station discharges directly to a waster water treatment plant through, or is on a common force main.
2. Type III SCADA is site specific will be designed by an engineer and approved by BJWSA.
3. Type III consists of Real-time Radio SCADA with antenna for full monitoring and control by MR Systems as described below.
4. SCADA shall perform the following:
 - a) Record/Report
 - i) Pump 1 Runtime
 - ii) Pump 2 Runtime
 - b) Live Monitoring of:
 - i) Pump/Power Status
 - ii) Wet Well Level
 - iii) Pump Head Condition
 - iv) Pump Station Flow Rate
 - c) Remote Control of:
 - i) Pump(s) on/off
 - ii) Valves

12.2 SCADA I/O

A. Type I SCADA I/O for Mission M 110

I/O Type	SCADA Panel Module No.	I/O No.	Description
DI	Mission Unit No.1	IN	Pump No.1 Run
DI	Mission Unit No.1	IN	Pump No.2 Run
DI	Mission Unit No.1	IN	Pump No.3 Run (reserve if not used)
DI	Mission Unit No.1	IN	High-High Level Float
DI	Mission Unit No.1	IN	Low Level Float
DI	Mission Unit No.1	IN	Pump No.1 or No.2 Fail (Overtemp/ Seal Fail)
DI	Mission Unit No.1	IN	Phase Fail
DI	Mission Unit No.1	IN	

B. Type II SCADA I/O for Mission M 800

<i>I/O Type</i>	<i>SCADA Panel Module No.</i>	<i>I/O No.</i>	<i>Description</i>
DI	Mission Unit No.1	IN	Pump No.1 Run
DI	Mission Unit No.1	IN	Pump No.2 Run
DI	Mission Unit No.1	IN	Pump No.3 Run (reserve if not used)
DI	Mission Unit No.1	IN	High-High Level Float
DI	Mission Unit No.1	IN	Low Level Float
DI	Mission Unit No.1	IN	Pump No.1 or No.2 Fail (Overtemp/ *Seal Fail)
DI	Mission Unit No.1	IN	Phase Fail
DI	Mission Unit No.1	IN	Reserved for Back Up System** if Necessary
DO	Mission Unit No.1	OUT	Pump Disable
DO	Mission Unit No.1	OUT	Pump Remote Call-to-Run
AI	Mission Unit No.1	AI	Wetwell Level
AI	Mission Unit No.1	AI	Flow Meter

* Seal sensor will not be required for self priming stations.

** Back up system could be back up pumps or a back up generator.

All SCADA systems will include the built in monitoring of AC fail, battery fail, and input wiring fault.

Installation of SCADA conduits/cables adhere to control panel penetration restrictions addressed elsewhere in this Specifications.

Record Drawings: Communication/Control module used is to be included in Record Drawings along with AsB SCADA schematic.

END OF SECTION