SECTION 13310 INSTRUMENTATION AND CONTROLS, FIELD EQUIPMENT

PART 1 - GENERAL

1.01 THE REQUIREMENT:

A. The Contractor shall furnish, test, install and place in satisfactory operation all equipment required to provide a complete and operable Instrumentation and Control System (ICS) as specified herein and as shown on the Contract Drawings, even if each needed item is not specifically specified or shown.

B. The Control System Integrator (CSI) shall provide full onsite supervision of all equipment provided under this section, where installation is provided by others.

C. Field equipment (i.e. primary elements, measuring devices, transmitters, field controllers, chart recorders, indicators, and other instrumentation and accessories) shall be provided with all components necessary for a fully functional device whether specifically mentioned in these specifications or not. This shall include, as applicable or recommended by the manufacturer: sample conditioning, sensors, sensor holder and mounting brackets, transmitter, all required cables, calibration equipment, chemicals, reagents and spare parts.

D. Specialty cables between sensors/probes and their electronics/transmitters shall be furnished with each instrument. Special cables include any type of cable not specified in Division 16 – Electrical.

1.02 RELATED WORK SPECIFIED ELSEWHERE:

A. In addition to the requirements specified in this section, the requirements of specification Section 13300 - Instrumentation and Controls, General Requirements, and the sections referenced therein shall be applied.

1.03 SUBMITTALS:

A. All submittals shall be in accordance with Specification 01340 – Shop Drawings, Project Data and Samples and as specified in Section 13300 - Instrumentation and Controls, General Requirements. In addition, the following specific submittals items shall be provided:

1. An ISA specification sheet for each instrument furnished and/or calibrated shall be submitted with the field equipment submittals. The ISA data sheet shall be in accordance with ISA Standards ISA S20 “Specification Forms for Process Measurement and Control Instruments, Primary Elements, and Control Valves” and ISA TR20.00.01 “Specification Forms for Process Measurement and Control Instruments”.

2. The CSI and the field equipment manufacturer shall review the proposed installation and configuration of all field equipment, prior to submittal for approval, and shall identify any condition which shall require corrective

measures. The following as a minimum shall be reviewed for the installation configuration of each instrument:

a. Listed features

b. Material of construction

c. Consideration of process fluid

d. Environmental conditions

e. Installation location

f. Process connections

g. Ability to perform maintenance

3. Submit in writing in the field equipment submittal, that each piece of equipment is suitable for the proposed installation. Any proposed deviations shall be reviewed by the Engineer prior to execution.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS:

A. Unless otherwise specified, instruments shall be provided with enclosures to suit the specified environmental conditions. Field-mounted devices shall be rugged and mounted on walls, equipment racks, or pipe stanchions. Where the field equipment's integral enclosure for a specified instrument is not available with the specified environmental rating, the field equipment shall be provided in a control enclosure as specified in Specification Section 13320 - Instrumentation and Controls, Control Enclosures.

B. Where separate elements and transmitters are required, they shall be fully matched, and unless otherwise noted or shown on the Contract Drawings, installed adjacent or near to the sensor, in a readily accessible location. Special cables that are required for interconnection between sensors or probes and transmitters shall be furnished with the instrumentation devices by the associated equipment manufacturer. Special cables shall be of the required length for the equipment locations and conduit routing paths shown on the Contract Drawings. No splicing of cables will be accepted.

C. Electronic equipment shall utilize printed circuitry and shall be coated (tropicalized) to prevent contamination by dust, moisture and fungus. Ambient conditions shall be -15 to 50° C and twenty to ninety-five percent (20% - 95%) relative humidity, unless otherwise specified. Field mounted equipment and system components shall be designed for installation in dusty, humid and corrosive service conditions.

D. All non-loop-powered instruments and equipment shall be designed to operate on a 60 Hz alternating current power source at a nominal 120 VAC, except where specifically noted. All regulators and power supplies required for compliance with the above shall be provided. Where equipment requires voltage regulation, constant voltage transformers shall be supplied.

E. All analog transmitter and controller outputs shall be isolated, 4-20 mA into a load of 0-750 ohms minimum, unless specifically noted otherwise.

F. Process taps for primary sensors shall be sized to suit each individual installation and the requirements of the instrument served. It is the Contractor's responsibility to ensure that the location, supports, orientation and dimensions of the connections and taps for instrumentation furnished under this Division are such as to provide the proper bracing, the required accuracy of measurement, protection of the sensor from accidental damage, and accessibility for maintenance while the plant is in operation. Isolation valves shall be provided at all process taps.

G. All instrumentation exposed to sunlight shall be provided with sunshields constructed from 316 stainless steel. Sunshields shall be designed to withstand regional wind and ice loads. Sunshield design shall be submitted for approval.

H. All outdoor external sample/process piping, including valves and appurtenances, shall be insulated with weather-proof insulation, and heat-taped to prevent freezing. Heat taping shall be thermostatically controlled and self-regulating, and shall adjust its heat output to the temperature of the lines.

2.2 TOOLS, SUPPLIES AND SPARE PARTS:

A. Tools, supplies and spare parts shall be provided as specified in Section 13300 - Instrumentation and Controls, General Requirements, and as specified for each equipment item. In addition, the following items shall be provided:

1. One (1) remote handheld configuration device for communication with all "smart" equipment furnished under this Contract shall be provided. The device shall be capable of performing configuration, test, and format functions from anywhere on the 4-20 mA signal loop for a particular transmitter or by direct connection. For HART communications, the configuration device shall be Rosemount 475 or approved equal. Provide at least one (1) spare fuse for the device. Unit shall include case, cables, power transformer, etc.

2. One (1) Gage Pressure Transmitter for each model provided as part of the project.

3. Five (5) TVSS of each type furnished under this contract.

4. One (1) GE MDS iNet 900 Radio.

2.3 ACCESSORIES:

A. Instrument tubing shall be 1/2 x 0.065-inch seamless, annealed, ASTM A-269 Type 316L stainless steel with Type 316 - 37° stainless steel flared fittings, or Swagelock or Parker-CPI flareless fittings.

B. Diaphragm seals shall be provided to systems as shown on the Contract Drawings, as specified herein and/or for isolation of pressure gauges, switches and transmitters attached to systems containing chemical solutions or corrosive fluids. As a minimum, seals shall be of all 316 stainless steel construction. Diaphragms shall be 316L stainless steel for operating pressures at or above 15 psi, and elastomers for operating pressures below 15 psi. Diaphragm material shall be non-reactive with the process fluid. Refer to the Instrument Schedules for specific

materials requirements. Seal shall have fill connection, 1/4-inch NPT valve flush port and capable of disassembly without loss of filler fluid. Where specified, diaphragm seals shall comply with the above requirements, and shall be provided with 316 stainless steel factory filled capillaries. Seals shall be Helicoid Type 100 HA, Mansfield & Green, Ashcroft, or equal.

C. Isolating ring seals shall be provided for sensing elements measuring pressure in solids bearing fluids.

D. For heavy solids/slurry applications, wherever the associated pressure instrument is used for control purposes, or where shown on the Contract Drawings, the sensor body shall be full line size wafer design, with 316 stainless steel housing and assembly flanges, and Buna N flexible cylinder lining for in-line mounting. The wafer shall have through bolt holes or centerline gauge for positive alignment with the associated flanged piping. The captive liquid chamber and associated instrument(s) shall be furnished with threaded drain tap and plug. Isolating ring seals shall be RED Valve Series 40, Ronningen-Petter Iso-Ring, Moyno RKL Series W, or equal.

E. For all other solids bearing fluids, pressure shall be sensed via a 1/2" diameter spool-type isolating ring seal, mounted on a 1/2" pipe nipple at 90 degrees from the process piping. An isolation ball valve shall be provided between the process piping and the ring seal, and a cleanout ball valve shall be provided between the ring seal and the atmosphere. The pressure instrument shall be back or side mounted to the ring seal such that the gauge or readout may be viewed normally. Isolating ring seals for normal solids service shall be Red Valve Series 42, Ronningen-Petter Iso-Spool, or equal.

F. Isolation valves shall be 1/2-inch diameter ball valves with 316 stainless steel body, 316 stainless steel ball.

2.4 TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS):

A. TVSS shall be supplied for all field equipment power, signal, and communications wires regardless of equipment location. TVSS must be provided for both indoor and outdoor applications. Refer to Specification Section 13320 - Instrumentation and Controls, Control Enclosures for requirements.

2.5 GAGE PRESSURE TRANSMITTERS

A. Gage pressure transmitters shall be of the capacitance type, with a process isolated diaphragm with silicone oil fill, microprocessor based "smart" electronics (HART), and a field adjustable 30:1 input range.

B. Span and zero shall be continuously adjustable externally over the entire range. Span and zero adjustments shall be capable of being disabled internally.

C. Transmitters shall be NEMA 4X weatherproof and corrosion resistant construction with low copper aluminum body and 316 stainless steel process wetted parts.

D. Accuracy, including nonlinearity, hysteresis, and repeatability errors shall be plus or minus 0.10 percent of calibrated span, zero based. The maximum zero elevation and maximum zero suppression shall be adjustable to anywhere within sensor limits.

E. Output shall be linear isolated 4-20 mA, 24 VDC. Power supply shall be 24 VDC, two-wire design.

F. Each transmitter shall be furnished with a 4-digit LCD indicator capable of displaying engineering units and/or milliamps, and mounting hardware as required.

G. Overload capacity shall be rated at a minimum of 25 MPa. Environmental limits shall be 40 to 85 °C at zero to one hundred percent (0-100%) relative humidity.

H. Each transmitter shall have a stainless steel tag with calibration data, attached to body.

I. The capacitance pressure sensor shall be mechanically, electrically and thermally isolated from the process and the environment, shall include an integral temperature compensation sensor, and shall provide a digital signal to the transmitter's electronics for further processing.

J. Factory set correction coefficients shall be stored in the sensor's non-volatile memory for correction and linearization of the sensor output in the electronics section.

K. The electronics section shall correct the digital signal from the sensor, and convert it into a 4-20 mA analog signal for transmission to receiving devices.

L. The electronics section shall contain configuration parameters and diagnostic data in non-volatile EEPROM memory, and shall be capable of communicating, via a digital signal superimposed on the 4-20 mA output signal, with a remote interface device. Output signal damping shall be provided, with an adjustable time constant of 0-36 seconds.

M. Where scheduled, gauge pressure indicating transmitters shall be calibrated in feet of liquid for liquid level service. Refer to the Contract Drawings for installations and applications.

N. Gage pressure indicating transmitters shall be equal to Rosemount Model 2051CG, Endress + Hauser Cerabar S Series or approved equal.

2.6 MAGNETIC FLOW METERS:

A. Magnetic Flow meters shall consist of a flowmeter with remote signal converter/transmitter that is capable of converting and transmitting a signal from the flow tube. The flow tube shall utilize the characterized principle of electromagnetic induction and shall produce DC signals directly proportional to the flow rate. The meter shall be capable of bi-directional flow and provide status output to indicate flow direction.

B. The flowmeter accuracy shall be ≤±0.5% of reading from 2-100% meter capacity.

C. The flowmeter shall include but not be limited to the following:

1. NEMA 6P / IP68 accidental submersion enclosure
2. Meter body shall be powder coated aluminum or carbon steel with an epoxy finish

3. Electrical Housing shall be epoxy painted aluminum
4. ANSI Class 150 flanges (minimum)
5. Tefzel or polyurethane liner to suit process requirements
6. Flush type or bullet type (slurry applications) electrodes compatible with process fluid
7. Empty pipe detection
8. SST bolts/nuts, centering device, Teflon gaskets
9. Grounding rings when installed in non-metallic piping. Grounding rings shall be chemically resistant to process, 316SST minimum.
10. The cables for interconnecting the flow tube to the transmitter shall be furnished by the manufacturer and of sufficient length as to not require splicing.

D. The transmitter shall include but not be limited to the following:

1. NEMA 4X enclosure
2. 120VAC, 60Hz input power
3. Process display with keypad for menu driven configuration
4. One (1) 4-20ma output
5. HART protocol
6. One (1) alarm relay output
7. Empty pipe detection
8. Lo-flow cutoff
9. Damping
10. Flow Totalizer
11. Non-volatile memory
12. Communications upgradable to Ethernet

E. Magnetic Flow meters shall include Flow tube and remote-mounted signal converter/transmitter as provided by Endress + Hauser Promag L 400, or approved equal. Size requirements are shown in contract drawings.

2.7 PROPELLER FLOW METER UPGRADE

A. The remote sites listed below have existing Water Specialties propeller flowmeters. The existing flowmeters shall be upgraded to have analog output capability for flow and flow totalization of the unit.

1. 53rd Ave & 51st St. W AG Discharge
2. Cortez Rd. West & 75th St. W AG Discharge
3. McClure Farms East
4. McClure Farms West
5. Manatee Fruit Bollettieri Blvd.
6. Manatee Fruit 66th St. W
7. Manatee Fruit Cortez Rd. W West & 82nd Ave

8. Manatee Fruit Cortez Rd. & 71st St.

2.8 INSERTION FLOW METER UPGRADE

A. The remote site listed below has an existing Seametrics TX215 (TX215S-04-09) flowmeter. The existing flowmeter shall be upgraded to have analog output capability for transmitter flow.

1. Buffalo Creek Golf Course

2.9 PRESSURE GAUGES

A. General: Unless otherwise noted or specified, pressure and vacuum gauges shall conform to the following requirements.

B. Mounting Type: Gauges shall be of the stem-mount type unless noted otherwise.

C. Construction: Gauges shall be of the bourdon tube or bellows type with 270 degrees clockwise pointer travel. Dials shall be white face with black numerals. Dial size shall be 4-1/2 inches. Connections for all gauges shall be male 1/2 NPT with square wrench flats. Wetted parts shall be corrosion-resistant to the process fluid shown and unless otherwise specified shall be the manufacturer's best quality standard. The case shall be filled with glycerin and shall be black phenolic. Accuracy shall be ±0.5 percent of span.

D. Chemical Seal: Where specified or shown in the drawings, the gauge, with optional locking device, shall be furnished with a diaphragm seal. The diaphragm seal shall have a 316 stainless steel (minimum) top and bottom housing and a 316 stainless steel diaphragm welded to the top housing. When the process fluid or pressure is not compatible with 316 stainless steel, the manufacturer shall provide a diaphragm seal compatible with the process fluid. The process connection shall be a 3/4-inch threaded connection with a flushing connection. The fill fluid shall be glycerin. A locking device shall be included from the factory on all fluid-filled instruments to prevent inadvertent loosening or removal from the seal.

E. Where no seal is specified the gauge will be supplied with a pressure limiting snubber to protect against surges and pulsations.

F. Manufacturers: The gauges shall be equal to Ashcroft, McDaniels, U.S. Gauge or approved equal.

G. The diaphragm seals shall be field serviceable for oil filling and equal to Ashcroft, Mansfield and Green, FIT, Ametek or equal.

2.10 CHECK VALVE LIMIT SWITCH

H. Limit switches shall be provided, where shown on the drawings, to sense the position of a pump discharge check valve to determine pump flow and operate a SPDT switch to actuate alarms or control circuits. Limit switches shall also be provided on building doors for intrusion alarms at locations shown on the drawings. The switch contacts shall be rated for up to 10-ampere maximum load

at 120 VAC, 60 Hz. The limit switch shall consist of a lever sensor and operating head. The lever sensor shall be 316 stainless steel or other material suitable for the application.

I. The lever sensor shall be a roller type or pushpin arm to allow reaction to the movement of the check valve arm and as required based on the specific requirements of the installation. The operating head shall be housed in a NEMA 4 enclosure with an electrical conduit connection.

J. The switch shall be field adjusted for correct operation. Repeatability of sensing shall be within 1.0 percent (± 1.0%) of full switch range.

K. Lever type limit switches shall be equal to model 802T type as manufactured by Allen Bradley or approved equal.

2.11 POWER MONITORING SYSTEM

A. The three (3) existing Allen-Bradley PowerMonitor 3000s at each of the three (3) booster stations (Rye Road, Spencer Parrish and 63rd Avenue) shall be replaced with an updated model to provide Ethernet capability as shown in the contract drawings. The model to be used is specified below.

1. Monitors four (4) voltage and four (4) current channels for every electrical cycle – 1024 data points across eight (8) channels every 12-17 milliseconds
2. Calculates over 6,000 parameters every cycle
3. Provides a second communication port
4. Includes native EtherNet/IP™ port
5. Includes 4 digital inputs for WAGES data collection
6. Includes 4 outputs for connection to SCADA or control systems
7. Offers configurable alarms for up to 20 events
8. Provides virtual wiring correction capability

B. Unit shall be Allen-Bradley PowerMonitor 5000 M5 Base Power Quality Meter, part number 1426-M5E, no approved equals in order to match existing equipment.

C. Unit shall be configured with a door mounted display to replace the existing display. Allen-Bradley part number 1426-DM, no approved equals in order to match existing equipment.

2.12 SUNSHIELDS:

A. All outdoor mounted transmitters shall be provided with a stainless steel sunshield. Sunshields shall be sized so the sunshield extends a minimum of twelve (12) inches beyond the transmitter enclosure on all sides.

B. The sunshield shall be sized to include protection for the transmitter and the surge arresting device.

C. All sunshield and instrument mounting hardware shall be 316 stainless steel.

PART 3 - EXECUTION

3.01 REQUIREMENTS:

A. In addition to the requirements specified in this section, refer to Section 13300 - Instrumentation and Controls, General Requirements.

PART 4 - SCADA INPUT / OUTPUT SCHEDULE

A. The following table lists proposed and existing I/O for the sites listed. Additional I/O may be required to meet the functionality requirements of Section 13000 - Instrumentation and Control, General Requirements, Section 13330 - Instrumentation and Control, Supervisory Control and Data Acquisition Equipment and / or Section 13340 DFS RTU Equipment.

B. The following notes apply to the SCADA I/O Schedule.

1. Input / Output types are as follows:
   a. DI - Discrete Input
   b. DO - Discrete Output
   c. AI - Analog Input
   d. AO - Analog Output
   e. COM – Digital Communications Link (RS-232, RS-485, fieldbus, etc.)

2. Spans or ranges shown or shown as blank or incomplete shall be determined from the related equipment submittals, process conditions, etc. and shall be submitted for approval / correction during construction.

3. Provide all I/O points shown. Modify existing equipment as needed to provide signals and functionality for I/O points unless marked as future.

C. The following notes apply to the I/O as shown in the Notes column on the SCADA I/O Schedule.

1. Verify the signal from the instrument to the PLC. As part of the I/O signal verification, provide report of the verification.

2. Calibrate the instrument and verify the correct reading from the PLC/SCADA.

3. Proposed instrument being installed as part of project requirements, calibrate and test signal from instrument to PLC/RTU.

4. Provide and install instrumentation, calibrate and test signal from instrument to PLC/RTU. In some cases, the instrumentation testing will require assistance from Dataflow Systems (DFS) where their RTU is installed at the site.

5. Instrument to be relocated as part of project requirements. Relocate, calibrate and test signal from instrument to PLC/SCADA.

SCADA Input / Output Schedule								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
63rd Avenue Booster Pump Station								
RCW-FS-101-63BS	DI	0/03/0	106	Jockey Pump Check Valve Open	Closed	Opened		2,3
RCW-FS-102-63BS	DI	0/03/1	108	Booster Pump #1 Check Valve Open	Closed	Opened		2,3
RCW-FS-103-63BS	DI	0/03/2	110	Booster Pump #2 Check Valve Open	Closed	Opened		2,3
RCW-FS-104-63BS	DI	0/03/3	112	Future Booster Pump #3 Check Valve Open	Closed	Opened		5
RCW-OA-101A-63BS	DI	0/03/4	114	FV-101A Valve Fault	OK	Faulted		3
RCW-OL-101A-63BS	DI	0/03/5	116	FV-101A Valve in Travel	Not In Travel	In Travel		3
RCW-ZSO-101A-63BS	DI	0/03/6	118	FV-101A Valve Open	Closed	Opened		3
RCW-ZSC-101A-63BS	DI	0/03/7	120	FV-101A Valve Closed	Opened	Closed		3
RCW-ZC-101A-63BS	DI	0/03/8	131	FV-101A Valve In Remote	Local	Remote		3
RCW-OA-101B-63BS	DI	0/03/9	133	FV-101B Valve Fault	OK	Faulted		3
RCW-OL-101B-63BS	DI	0/03/10	135	FV-101B Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-101B-63BS	DI	0/03/11	137	FV-101B Valve Open	Closed	Opened		3
RCW-ZSC-101B-63BS	DI	0/03/12	139	FV-101B Valve Closed	Opened	Closed		3
RCW-ZC-101B-63BS	DI	0/03/13	141	FV-101B Valve In Remote	Local	Remote		3
RCW-OA-102A-63BS	DI	0/03/14	143	FV-102A Valve Fault	Faulted	OK		3
RCW-OL-102A-63BS	DI	0/03/15	145	FV-102A Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-102A-63BS	DI	0/04/0	156	FV-102A Valve Open	Closed	Opened		3
RCW-ZSC-102A-63BS	DI	0/04/1	158	FV-102A Valve Closed	Opened	Closed		3
RCW-ZC-102A-63BS	DI	0/04/2	160	FV-102A Valve In Remote	Local	Remote		3
RCW-OA-102B-63BS	DI	0/04/3	162	FV-102B Valve Fault	Faulted	OK		3
RCW-OL-102B-63BS	DI	0/04/4	164	FV-102B Valve in Travel	Not In-Travel	In-Travel		3

63rd Avenue Booster Pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-ZSO-102B-63BS	DI	0/04/5	166	FV-102B Valve Open	Closed	Opened		3
RCW-ZSC-102B-63BS	DI	0/04/6	168	FV-102B Valve Closed	Opened	Closed		3
RCW-ZC-102B-63BS	DI	0/04/7	170	FV-102B Valve In Remote	Local	Remote		3
RCW-ZAC-100-63BS	DI	0/04/8	181	Intruder Alarm	OK	Alarm		3
RCW-ESL-100-63BS	DI	0/04/9	183	Power On	Off	On		3
RCW-CAH-1-04-63BS	DI	0/04/10	185	Generator Fuel Leak Alarm	OK	Alarm		3
RCW-SAH-1-04-63BS	DI	0/04/11	187	Generator Over Speed Alarm	OK	Alarm		3
RCW-OAL-1-04-63BS	DI	0/04/12	189	Generator Battery Low Alarm	OK	Alarm		3
RCW-PAL-1-04-63BS	DI	0/04/13	191	Generator Low Oil Pressure Alarm	OK	Alarm		3
RCW-LAL-1-04-63BS	DI	0/04/14	193	Generator Low Coolant Alarm	OK	Alarm		3
RCW-OAH-1-04-63BS	DI	0/04/15	195	Generator Over Crank Alarm	OK	Alarm		3
RCW-TAH-1-04-63BS	DI	0/05/0	206	Generator Over Temperature Alarm	OK	Alarm		3
RCW-HS-1-04B-63BS	DI	0/05/1	208	Generator In Auto	In Manual	In Auto		3
RCW-OL-1-04B-63BS	DI	0/05/2	210	Generator Running	Off	Running		3
RCW-OL-1-04A-63BS	DI	0/05/3	212	Generator Ready	Not Ready	Ready		3
RCW-FAL-1-04-63BS	DI	0/05/4	214	Generator Coolant Low Flow Alarm	OK	Alarm		3
RCW-OL-101-63BS	DI	0/05/5	216	FIT-101 Flow Direction Status	Forward	Reverse		3
RCW-ZC-101A-63BS	DO	0/08/0	357	FV-101A Valve Open Command		Open		3
RCW-ZC-101A-63BS	DO	0/08/1	359	FV-101A Valve Close Command		Close		3
RCW-ZC-101B-63BS	DO	0/08/2	361	FV-101B Valve Open Command		Open		3
RCW-ZC-101B-63BS	DO	0/08/3	363	FV-101B Valve Close Command		Close		3

63rd Avenue Booster Pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-ZC-102A-63BS	DO	0/08/4	365	FV-102A Valve Open Command		Open		3
RCW-ZC-102A-63BS	DO	0/08/5	367	FV-102A Valve Close Command		Close		3
RCW-ZC-102B-63BS	DO	0/08/6	369	FV-102B Valve Open Command		Open		3
RCW-ZC-102B-63BS	DO	0/08/7	371	FV-102B Valve Close Command		Close		3
RCW-HS-1-04B-63BS	DO	0/08/8	382	Generator Start Command	Stop	Start		3
RCW-FIT-101-63BS	AI	0/10/0	458,460	Discharge Flow Meter	0	3600	GPM	3
RCW-PIT-101A-63BS	AI	0/10/1	464,466 A	Discharge Pressure (West)	0	100	PSI	2
RCW-PIT-101B-63BS	AI	0/10/2	483,485	Discharge Pressure (East)	0	100	PSI	2
RCW-EI-121-63BS	AI	0/10/3	489,491	Generator Voltage	0	500	VAC	1,2
RCW-EI-120-63BS	AI	0/11/0	508,510	Plant Normal Voltage	0	500	VAC	1,2

Rye Road Booster Pump Station								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FS-201-RRBS	DI	0/03/0	106	Jockey Pump Check Valve Open	Closed	Opened		2,3
RCW-FS-202-RRBS	DI	0/03/1	108	Booster Pump #1 Check Valve Open	Closed	Opened		2,3
RCW-FS-203-RRBS	DI	0/03/2	110	Booster Pump #2 Check Valve Open	Closed	Opened		2,3
RCW-FS-204-RRBS	DI	0/03/3	112	Future Booster Pump #3 Check Valve Open	Closed	Opened		5
RCW-OA-201A-RRBS	DI	0/03/4	114	FV-201A Valve Fault	OK	Faulted		3
RCW-OL-201A-RRBS	DI	0/03/5	116	FV-201A Valve in Travel	Not In Travel	In Travel		3

Rye Road Booster Pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-ZSO-201A-RRBS	DI	0/03/6	118	FV-201A Valve Open	Closed	Opened		3
RCW-ZSC-201A-RRBS	DI	0/03/7	120	FV-201A Valve Closed	Opened	Closed		3
RCW-ZC-201A-RRBS	DI	0/03/8	131	FV-201A Valve In Remote	Local	Remote		3
RCW-OA-201B-RRBS	DI	0/03/9	133	FV-201B Valve Fault	OK	Faulted		3
RCW-OL-201B-RRBS	DI	0/03/10	135	FV-201B Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-201B-RRBS	DI	0/03/11	137	FV-201B Valve Open	Closed	Opened		3
RCW-ZSC-201B-RRBS	DI	0/03/12	139	FV-201B Valve Closed	Opened	Closed		3
RCW-ZC-201B-RRBS	DI	0/03/13	141	FV-201B Valve In Remote	Local	Remote		3
RCW-OA-202A-RRBS	DI	0/03/14	143	FV-202A Valve Fault	Faulted	OK		3
RCW-OL-202A-RRBS	DI	0/03/15	145	FV-202A Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-202A-RRBS	DI	0/04/0	156	FV-202A Valve Open	Closed	Opened		3
RCW-ZSC-202A-RRBS	DI	0/04/1	158	FV-202A Valve Closed	Opened	Closed		3
RCW-ZC-202A-RRBS	DI	0/04/2	160	FV-202A Valve In Remote	Local	Remote		3
RCW-OA-202B-RRBS	DI	0/04/3	162	FV-202B Valve Fault	Faulted	OK		3
RCW-OL-202B-RRBS	DI	0/04/4	164	FV-202B Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-202B-RRBS	DI	0/04/5	166	FV-202B Valve Open	Closed	Opened		3
RCW-ZSC-202B-RRBS	DI	0/04/6	168	FV-202B Valve Closed	Opened	Closed		3
RCW-ZC-202B-RRBS	DI	0/04/7	170	FV-202B Valve In Remote	Local	Remote		3
RCW-ZAC-200-RRBS	DI	0/04/8	181	Intruder Alarm	OK	Alarm		3
RCW-ESL-200-RRBS	DI	0/04/9	183	Power On	Off	On		3
RCW-CAH-2-04-RRBS	DI	0/04/10	185	Generator Fuel Leak Alarm	OK	Alarm		3
RCW-SAH-2-04-RRBS	DI	0/04/11	187	Generator Over Speed Alarm	OK	Alarm		3
RCW-OAL-2-04-RRBS	DI	0/04/12	189	Generator Battery Low Alarm	OK	Alarm		3
RCW-PAL-2-04-RRBS	DI	0/04/13	191	Generator Low Oil Pressure Alarm	OK	Alarm		3

Rye Road Booster Pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-LAL-2-04-RRBS	DI	0/04/14	193	Generator Low Coolant Alarm	OK	Alarm		3
RCW-OAH-2-04-RRBS	DI	0/04/15	195	Generator Over Crank Alarm	OK	Alarm		3
RCW-TAH-2-04-RRBS	DI	0/05/0	206	Generator Over Temperature Alarm	OK	Alarm		3
RCW-HS-2-04B-RRBS	DI	0/05/1	208	Generator In Auto	In Manual	In Auto		3
RCW-OL-2-04B-RRBS	DI	0/05/2	210	Generator Running	Off	Running		3
RCW-OL-2-04A-RRBS	DI	0/05/3	212	Generator Ready	Not Ready	Ready		3
RCW-FAL-2-04-RRBS	DI	0/05/4	214	Generator Coolant Low Flow Alarm	OK	Alarm		3
RCW-OL-201-RRBS	DI	0/05/5	216	FIT-201 Flow Direction Status	Forward	Reverse		3
RCW-ZC-201A-RRBS	DO	0/08/0	357	FV-201A Valve Open Command		Open		3
RCW-ZC-201A-RRBS	DO	0/08/1	359	FV-201A Valve Close Command		Close		3
RCW-ZC-201B-RRBS	DO	0/08/2	361	FV-201B Valve Open Command		Open		3
RCW-ZC-201B-RRBS	DO	0/08/3	363	FV-201B Valve Close Command		Close		3
RCW-ZC-202A-RRBS	DO	0/08/4	365	FV-202A Valve Open Command		Open		3
RCW-ZC-202A-RRBS	DO	0/08/5	367	FV-202A Valve Close Command		Close		3
RCW-ZC-202B-RRBS	DO	0/08/6	369	FV-202B Valve Open Command		Open		3
RCW-ZC-202B-RRBS	DO	0/08/7	371	FV-202B Valve Close Command		Close		3
RCW-HS-1-04B-RRBS	DO	0/08/8	382	Generator Start Command	Stop	Start		3
RCW-FIT-201-RRBS	AI	0/10/0	458,460	Discharge Flow Meter	0	3600	GPM	3
RCW-PIT-201A-RRBS	AI	0/10/1	464,466 A	Discharge Pressure (West)	0	100	PSI	2

Rye Road Booster Pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-PIT-201B-RRBS	AI	0/10/2	483,485	Discharge Pressure (East)	0	100	PSI	2
RCW-EI-221-RRBS	AI	0/10/3	489,491	Generator Voltage	0	500	VAC	1,2
RCW-EI-220-RRBS	AI	0/11/0	508,510	Plant Normal Voltage	0	500	VAC	1,2
Spencer Parrish Re-pump Station								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FS-301-SPBS	DI	0/03/0	106	Jockey Pump Check Valve Open	Closed	Opened		2,3
RCW-FS-302-SPBS	DI	0/03/1	108	Booster Pump #1 Check Valve Open	Closed	Opened		2,3
RCW-FS-303-SPBS	DI	0/03/2	110	Booster Pump #2 Check Valve Open	Closed	Opened		2,3
RCW-FS-304-SPBS	DI	0/03/3	112	Future Booster Pump #3 Check Valve Open	Closed	Opened		5
RCW-OA-301A-SPBS	DI	0/03/4	114	FV-301A Valve Fault	OK	Faulted		3
RCW-OL-301A-SPBS	DI	0/03/5	116	FV-301A Valve in Travel	Not In Travel	In Travel		3
RCW-ZSO-301A-SPBS	DI	0/03/6	118	FV-301A Valve Open	Closed	Opened		3
RCW-ZSC-301A-SPBS	DI	0/03/7	120	FV-301A Valve Closed	Opened	Closed		3
RCW-ZC-301A-SPBS	DI	0/03/8	131	FV-301A Valve In Remote	Local	Remote		3
RCW-OA-301B-SPBS	DI	0/03/9	133	FV-301B Valve Fault	OK	Faulted		3
RCW-OL-301B-SPBS	DI	0/03/10	135	FV-301B Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-301B-SPBS	DI	0/03/11	137	FV-301B Valve Open	Closed	Opened		3
RCW-ZSC-301B-SPBS	DI	0/03/12	139	FV-301B Valve Closed	Opened	Closed		3
RCW-ZC-301B-SPBS	DI	0/03/13	141	FV-301B Valve In Remote	Local	Remote		3
RCW-OA-302A-SPBS	DI	0/03/14	143	FV-302A Valve Fault	Faulted	OK		3
RCW-OL-302A-SPBS	DI	0/03/15	145	FV-302A Valve in Travel	Not In-Travel	In-Travel		3

Spencer Parrish Re-pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-ZSO-302A-SPBS	DI	0/04/0	156	FV-302A Valve Open	Closed	Opened		3
RCW-ZSC-302A-SPBS	DI	0/04/1	158	FV-302A Valve Closed	Opened	Closed		3
RCW-ZC-302A-SPBS	DI	0/04/2	160	FV-302A Valve In Remote	Local	Remote		3
RCW-OA-302B-SPBS	DI	0/04/3	162	FV-302B Valve Fault	Faulted	OK		3
RCW-OL-302B-SPBS	DI	0/04/4	164	FV-302B Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-302B-SPBS	DI	0/04/5	166	FV-302B Valve Open	Closed	Opened		3
RCW-ZSC-302B-SPBS	DI	0/04/6	168	FV-302B Valve Closed	Opened	Closed		3
RCW-ZC-302B-SPBS	DI	0/04/7	170	FV-302B Valve In Remote	Local	Remote		3
RCW-ZAC-300-SPBS	DI	0/04/8	181	Intruder Alarm	OK	Alarm		3
RCW-ESL-300-SPBS	DI	0/04/9	183	Power On	Off	On		3
RCW-CAH-3-04-SPBS	DI	0/04/10	185	Generator Fuel Leak Alarm	OK	Alarm		3
RCW-SAH-3-04-SPBS	DI	0/04/11	187	Generator Over Speed Alarm	OK	Alarm		3
RCW-OAL-3-04-SPBS	DI	0/04/12	189	Generator Battery Low Alarm	OK	Alarm		3
RCW-PAL-3-04-SPBS	DI	0/04/13	191	Generator Low Oil Pressure Alarm	OK	Alarm		3
RCW-LAL-3-04-SPBS	DI	0/04/14	193	Generator Low Coolant Alarm	OK	Alarm		3
RCW-OAH-3-04-SPBS	DI	0/04/15	195	Generator Over Crank Alarm	OK	Alarm		3
RCW-TAH-3-04-SPBS	DI	0/05/0	206	Generator Over Temperature Alarm	OK	Alarm		3
RCW-HS-3-04B-SPBS	DI	0/05/1	208	Generator In Auto	In Manual	In Auto		3
RCW-OL-3-04B-SPBS	DI	0/05/2	210	Generator Running	Off	Running		3
RCW-OL-3-04A-SPBS	DI	0/05/3	212	Generator Ready	Not Ready	Ready		3
RCW-FAL-3-04-SPBS	DI	0/05/4	214	Generator Coolant Low Flow Alarm	OK	Alarm		3
RCW-OA-304B-SPBS	DI	0/05/5	216	FV-304B Valve Fault	Faulted	OK		3
RCW-OL-304B-SPBS	DI	0/05/6	218	FV-304B Valve in Travel	Not In-Travel	In-Travel		3

Spencer Parrish Re-pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-ZSO-304B-SPBS	DI	0/05/7	220	FV-304B Valve Open	Closed	Opened		3
RCW-ZSC-304B-SPBS	DI	0/05/8	231	FV-304B Valve Closed	Opened	Closed		3
RCW-ZC-304B-SPBS	DI	0/05/9	233	FV-304B Valve In Remote	Local	Remote		3
RCW-ZSO-300-SPBS	DI	0/05/10	235	FV-300 Valve Open	Closed	Opened		3
RCW-ZSC-300-SPBS	DI	0/05/11	237	FV-300 Valve Closed	Opened	Closed		3
RCW-OA-304A-SPBS	DI	0/05/12	239	FV-304A Valve Fault	Faulted	OK		3
RCW-OL-304A-SPBS	DI	0/05/13	241	FV-304A Valve in Travel	Not In-Travel	In-Travel		3
RCW-ZSO-304A-SPBS	DI	0/05/14	243	FV-304A Valve Open	Closed	Opened		3
RCW-ZSC-304A-SPBS	DI	0/05/15	245	FV-304A Valve Closed	Opened	Closed		3
RCW-ZC-304A	DI	0/06/0	256	FV-304A Valve In Remote	Local	Remote		3
RCW-OL-301	DI	0/06/1	258	FIT-301 Flow Direction Status	Forward	Reverse		3
RCW-ZC-301A	DO	0/08/0	357	FV-301A Valve Open Command		Open		3
RCW-ZC-301A	DO	0/08/1	359	FV-301A Valve Close Command		Close		3
RCW-ZC-301B	DO	0/08/2	361	FV-301B Valve Open Command		Open		3
RCW-ZC-301B	DO	0/08/3	363	FV-301B Valve Close Command		Close		3
RCW-ZC-302A	DO	0/08/4	365	FV-302A Valve Open Command		Open		3
RCW-ZC-302A	DO	0/08/5	367	FV-302A Valve Close Command		Close		3
RCW-ZC-302B	DO	0/08/6	369	FV-302B Valve Open Command		Open		3
RCW-ZC-302B	DO	0/08/7	371	FV-302B Valve Close Command		Close		3
RCW-HS-1-04B	DO	0/08/8	382	Generator Start Command	Stop	Start		3

Spencer Parrish Re-pump Station Continued								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-ZC-300	DO	0/08/9	384	BPS/ACV-300 Valve Solenoid		Open		3
RCW-ZC-302A	DO	0/08/10	386	FV-302A Valve Open Command		Open		3
RCW-ZC-302A	DO	0/08/11	388	FV-302A Valve Close Command		Close		3
RCW-ZC-302B	DO	0/08/12	390	FV-302B Valve Open Command		Open		3
RCW-ZC-302B	DO	0/08/13	392	FV-302B Valve Close Command		Close		3
RCW-FIT-301	AI	0/10/0	458,460	Discharge Flow Meter	0	3600	GPM	3
RCW-PIT-301A	AI	0/10/1	464,466 A	Discharge Pressure (West)	0	100	PSI	2
RCW-PIT-301B	AI	0/10/2	483,485	Discharge Pressure (East)	0	100	PSI	2
RCW-EI-221	AI	0/10/3	489,491	Generator Voltage	0	500	VAC	1,2
RCW-EI-220	AI	0/11/0	508,510	Plant Normal Voltage	0	500	VAC	1,2

Manatee Fruit 53rd Ave & 51st St. W AG Discharge								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-100-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-100-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

Manatee Fruit Cortez Rd. W & 71st St. W AG Discharge								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-101-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-101-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

Manatee Fruit Cortez Rd. West & 75th St. W AG Discharge								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-102-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-102-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

McClure Farms East								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-103-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-103-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

McClure Farms West								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-104-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-104-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

Manatee Fruit Bollettieri Blvd.								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-105-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-105-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

Manatee Fruit 66th St. W								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-106-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-106-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

Manatee Fruit Cortez Rd. W West & 82nd Ave								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-FIT-107-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter	0		GPM	4
RCW-FQT-107-REM	AI	(Proposed Dataflow RTU)		MCMRS Flow Meter Total	0		GPD	4

LS-440								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-PIT-108-REM	AI	(Existing Dataflow RTU)		MCMRS Pressure	0	100	PSI	4

LS-147								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-PIT-109-REM	AI	(Existing Dataflow RTU)		MCMRS Pressure	0	100	PSI	4

LS-237								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-PIT-110-REM	AI	(Existing Dataflow RTU)		MCMRS Pressure	0	100	PSI	4

Rye Road Pressure Monitoring Station								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-PIT-111-REM	AI	(Existing Dataflow RTU)		MCMRS Pressure	0	100	PSI	4

Golf Course Rd. Pressure Monitoring Station								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
RCW-PIT-112-REM	AI	(Proposed Dataflow RTU)		MCMRS Pressure	0	100	PSI	4

Buffalo Creek Golf Course								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
FIT-711-N	AI	(Proposed Dataflow RTU)		Golf Course Irrigation Flow	0	XX	GPM	4

North WRF								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State Lower Span**	**Close State Upper Span**	**Units**	**Notes**
PW-PIT-1508-N	AI	TBD		Plant Water Pump Discharge Pressure	0	100	PSI	3, 4
PW-FIT-711-N	AI	TBD		Buffalo Creek Golf Course Flow	0	XXX	GPM	3, 4
PW-SIT-P1-1501-N	AI	TBD		Plant Water Pump 1 Speed Feedback	0	100	%	1
PW-SIT-P2-1502-N	AI	TBD		Plant Water Pump 2 Speed Feedback	0	100	%	1
PW-SIT-P3-1503-N	AI	TBD		Plant Water Pump 3 Speed Feedback	0	100	%	1
PW-OL1-1501-N	DI	TBD		Plant Water Pump 1 In Remote	Local	Remote		1

PW-OL2-1501-N	DI	TBD		Plant Water Pump 1 Run Status	Off	Running		1
PW-OA-1501-N	DI	TBD		Plant Water Pump 1 Fail	Normal	Alarm		1
PW-FS-1501-N	DI	TBD		Plant Water Pump 1 Check Valve Closed	Open	Alarm		3, 4
PW-OL1-1502-N	DI	TBD		Plant Water Pump 2 In Remote	Local	Remote		1
PW-OL2-1502-N	DI	TBD		Plant Water Pump 2 Run Status	Off	Running		1
PW-OA-1502-N	DI	TBD		Plant Water Pump 2 Fail	Normal	Alarm		1
PW-FS-1502-N	DI	TBD		Plant Water Pump 2 Check Valve Closed	Open	Alarm		3, 4
PW-OL1-1503-N	DI	TBD		Plant Water Pump 3 In Remote	Local	Remote		1
PW-OL2-1503-N	DI	TBD		Plant Water Pump 3 Run Status	Off	Running		1
PW-OA-1503-N	DI	TBD		Plant Water Pump 3 Fail	Normal	Alarm		1
PW-FS-1503-N	DI	TBD		Plant Water Pump 3 Check Valve Closed	Open	Alarm		3, 4
PW-CMD-1501-N	DO	TBD		Plant Water Pump 1 Run Command	Off	On		1
PW-CMD-1502-N	DO	TBD		Plant Water Pump 2 Run Command	Off	On		1
PW-CMD-1503-N	DO	TBD		Plant Water Pump 3 Run Command	Off	On		1
PW-SC-1501-N	AO	TBD		Plant Water Pump 1 Speed Command	0	100	%	1
PW-SC-1502-N	AO	TBD		Plant Water Pump 2 Speed Command	0	100	%	1
PW-SC-1503-N	AO	TBD		Plant Water Pump 3 Speed Command	0	100	%	1
RCW-OA-701-N	DI	TBD		MOV-701 Valve Fault	Faulted	OK		3
RCW-ZSO-701-N	DI	TBD		MOV-701 Valve Open	Closed	Opened		3

RCW-ZSC-701-N	DI	TBD		MOV-701 Valve Closed	Opened	Closed		3
RCW-ZC-701-N	DI	TBD		MOV-701 Valve Remote	Local	Remote		3
RCW-ZCO-701-N	DO	TBD		MOV-701 Valve Open Command		Open		3
RCW-ZCC-701-N	DO	TBD		MOV-701 Valve Close Command		Close		3

Southwest WRF								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State** **Lower Span**	**Close State** **Upper Span**	**Units**	**Notes**
PW-SIT-P1-1501-SW	AI	TBD		Plant Water Pump 1 Speed Feedback	0	100	%	1
PW-SIT-P2-1502-SW	AI	TBD		Plant Water Pump 2 Speed Feedback	0	100	%	1
PW-SIT-P3-1503-SW	AI	TBD		Plant Water Pump 3 Speed Feedback	0	100	%	1
PW-OL1-1501-SW	DI	TBD		Plant Water Pump 1 In Remote	Local	Remote		1
PW-OL2-1501-SW	DI	TBD		Plant Water Pump 1 Run Status	Off	Running		1
PW-OA-1501-SW	DI	TBD		Plant Water Pump 1 Fail	Normal	Alarm		1
PW-FS-1501-SW	DI	SP-13/TBD/TBD		Plant Water Pump 1 Check Valve Closed	Open	Alarm		3, 4
PW-OL1-1502-SW	DI	TBD		Plant Water Pump 2 In Remote	Local	Remote		1
PW-OL2-1502-SW	DI	TBD		Plant Water Pump 2 Run Status	Off	Running		1
PW-OA-1502-SW	DI	TBD		Plant Water Pump 2 Fail	Normal	Alarm		1
PW-FS-1502-SW	DI	TBD		Plant Water Pump 2 Check Valve Closed	Open	Alarm		3, 4
PW-OL1-1503-SW	DI	TBD		Plant Water Pump 3	Local	Remote		1

				In Remote				
PW-OL2-1503-SW	DI	TBD		Plant Water Pump 3 Run Status	Off	Running		1
PW-OA-1503-SW	DI	TBD		Plant Water Pump 3 Fail	Normal	Alarm		1
PW-FS-1503-SW	DI	TBD		Plant Water Pump 3 Check Valve Closed	Open	Alarm		3, 4
PW-CMD-1501-SW	DO	TBD		Plant Water Pump 1 Run Command	Off	On		1
PW-CMD-1502-SW	DO	TBD		Plant Water Pump 2 Run Command	Off	On		1
PW-CMD-1503-SW	DO	TBD		Plant Water Pump 3 Run Command	Off	On		1
PW-SC-1501-SW	AO	TBD		Plant Water Pump 1 Speed Command	0	100	%	1
PW-SC-1502-SW	AO	TBD		Plant Water Pump 2 Speed Command	0	100	%	1
PW-SC-1503-SW	AO	TBD		Plant Water Pump 3 Speed Command	0	100	%	1
PW-FS-1504-SW	DI	TBD		Plant Water Bypass Line Check Valve Closed	Open	Alarm		3,4
PW-FLW-104-SW	AI	TBD		Plant Water Flow	0	9792	GPM	5
PW-PIT-1500-SW	AI	TBD		Plant Water Pressure	0	100	PSI	5

Southeast WRF								
Loop	**Type**	**PLC RACK/SLOT/POINT**	**Wire Number**	**Description**	**Open State** **Lower Span**	**Close State** **Upper Span**	**Units**	**Notes**
PW-PIT-1508-SE	AI	TBD		Plant Water Pump Discharge Pressure	0	100	PSI	3, 4
PW-FIT-1505-SE	AI	TBD		Plant Water Pump Discharge Flow	0	XXX	GPM	5
PW-SIT-P1-1501-SE	AI	TBD		Plant Water Pump 1 Speed Feedback	0	100	%	1

PW-SIT-P2-1502-SE	AI	TBD		Plant Water Pump 2 Speed Feedback	0	100	%	1
PW-SIT-P3-1503-SE	AI	TBD		Plant Water Pump 3 Speed Feedback	0	100	%	1
PW-OL1-1501-SE	DI	TBD		Plant Water Pump 1 In Remote	Local	Remote		1
PW-OL2-1501-SE	DI	TBD		Plant Water Pump 1 Run Status	Off	Running		1
PW-OA-1501-SE	DI	TBD		Plant Water Pump 1 Fail	Normal	Alarm		1
PW-FS-1501-SE	DI	TBD		Plant Water Pump 1 Check Valve Closed	Open	Alarm		3, 4
PW-OL1-1502-SE	DI	TBD		Plant Water Pump 2 In Remote	Local	Remote		1
PW-OL2-1502-SE	DI	TBD		Plant Water Pump 2 Run Status	Off	Running		1
PW-OA-1502-SE	DI	TBD		Plant Water Pump 2 Fail	Normal	Alarm		1
PW-FS-1502-SE	DI	TBD		Plant Water Pump 2 Check Valve Closed	Open	Alarm		3, 4
PW-OL1-1503-SE	DI	TBD		Plant Water Pump 3 In Remote	Local	Remote		1
PW-OL2-1503-SE	DI	TBD		Plant Water Pump 3 Run Status	Off	Running		1
PW-OA-1503-SE	DI	TBD		Plant Water Pump 3 Fail	Normal	Alarm		1
PW-FS-1503-SE	DI	TBD		Plant Water Pump 3 Check Valve Closed	Open	Alarm		3, 4
PW-CMD-1501-SE	DO	TBD		Plant Water Pump 1 Run Command	Off	On		1
PW-CMD-1502-SE	DO	TBD		Plant Water Pump 2 Run Command	Off	On		1
PW-CMD-1503-SE	DO	TBD		Plant Water Pump 3 Run Command	Off	On		1
PW-SC-1501-SE	AO	TBD		Plant Water Pump 1 Speed Command	0	100	%	1
PW-SC-1502-SE	AO	TBD		Plant Water Pump 2 Speed Command	0	100	%	1

PW-SC-1503-SE	AO	TBD		Plant Water Pump 3 Speed Command	0	100	%	1

END OF SECTION