

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-8000	FACP System Alarm	YAIR-0302--1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8000	FACP System Supervisory	YAIR-0305--1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8000	Transformer #7 High Temp	TAHR-303-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8000	Transformer #7 Low Oil Level	LALR-0304-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8000	UPS Disconnected	YAIR-0315-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	WTP-LCP-1 Power On	JOIR-0400-1XXX	DI		Normal	Ready		WTP-LCP-1				
I-8001	WTP-LCP-1 UPS Fault	JAIR-0401-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Air Compressor A On	YIR-0402-1XXX	DI		Normal	On	20-RAC-1	WTP-LCP-1				
I-8001	Air Compressor A Running	YIR-0403-1XXX	DI		Normal	Running		WTP-LCP-1				
I-8001	Air Compressor A Fault	YAIR-0404-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Air Compressor B Running	YIR-0405-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Air Compressor B Fault	YAIR-0406--1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Air Compressor Low Pressure	PALR-0407-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Blower #1 In Remote	ZIR-0409-1XXX			Normal	Auto		WTP-LCP-1				
I-8001	Blower #1 Running	YIR-0410-1XXX	DI		Normal	Running		WTP-LCP-1				
I-8001	Blower #1 Fan Fault	YAIR-0411-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Blower #1 Motor Overload	IAHR-04012-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Blower #1 Fan Running	YIR-0413-1XXX	DI		Normal	Running		WTP-LCP-1				
I-8001	Blower #2 Running Disconnect	?	DI		Normal			WTP-LCP-1				
I-8001	Blower #2 In Remote	ZIR-0501-1XXX	DI		Normal	Auto		WTP-LCP-1				
I-8001	Blower #2 Fan Fault	YAIR-0502-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Blower #2 Motor Overload	IAHR-0503-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Blower #2 Fan Running	YIR-0504-1XXX	DI		Normal	Running		WTP-LCP-1				
E-0607, I-8001	LC-2A Building Lighting in Remote	ZLIR-0505-1XXX	DI		Normal	Auto		WTP-LCP-1				
E-0607, I-8001	LC-2A Site Lighting in Remote	ZLIR-0506-1XXX	DI		Normal	Auto		WTP-LCP-1				
I-8001	Refrigerated Air Dryer #1 System On	YIR-0507-1XXX	DI		Normal	Ready		WTP-LCP-1				
I-8001	Refrigerated Air Dryer #1 High Temp	TAHR-0508-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Refrigerated Air Dryer #1 Running	YIR-0509-1XXX	DI		Normal	Running		WTP-LCP-1				
I-8001	Refrigerated Air Dryer #2 System On	YIR-0510-1XXX	DI		Normal	Ready		WTP-LCP-1				
I-8001	Refrigerated Air Dryer #2 High Temp	TAHR-0511-1XXX	DI		Normal	Alarm		WTP-LCP-1				
I-8001	Refrigerated Air Dryer #2 Running	YIR-0512-1XXX	DI		Normal	Running		WTP-LCP-1				
I-8002	ATS Force Transfer	YCIR-0700-1XXX	DO		Normal	Transfer		WTP-LCP-1				
I-8002	Blower #1 Start / Stop	YCIR-0701-1XXX	DO		Normal	Modulate		WTP-LCP-1				
E-0607, I-8002	LC-2A Building Lighting On / Off	YCLI-0702-1XXX	DO		Normal	Modulate		WTP-LCP-1				

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-0607, I-8002	LC-2A Site Lighting On / Off	YCLI-0703-1XXX	DO		Normal	Modulate		WTP-LCP-1				
I-8002	Blower #2 Start / Stop	YCIR-0704-1XXX	DO		Normal	Modulate		WTP-LCP-1				
WTP-RCP-2	Sludge Thickener / Wash Water Storage											
E-0609, E-5401, I-7700, I-8008	Sludge Recycle Pump #1 Running	YIR-0202-2XXX	DI		Normal	Running	52-P-1	A2-1	WTP-RCP-2	CNSWTCH#2	40-96-35 O, P, Q, R	
E-0609, E-5401, I-7700, I-8008	Sludge Recycle Pump #1 Fault	YAIR-0203-2XXX	DI		Normal	Alarm	52-P-1	A2-1	WTP-RCP-2	CNSWTCH#2		
E-0609, E-5401, I-7700, I-8008	Sludge Recycle Pump #1 In Remote	ZIR-0204-2XXX	DI		Normal	Auto	52-P-1	A2-1	WTP-RCP-2	CNSWTCH#2		
E-0609, E-5401, I-7700, I-8008	Thickened Sludge Pump #1 Running	YIR-0205-2XXX	DI		Normal	Running	51-P-1	A2-1	WTP-RCP-2	CNSWTCH#2		
E-0609, E-5401, I-7700, I-8008	Thickened Sludge Pump #1 Fault	YAIR-0206-2XXX	DI		Normal	Alarm	51-P-1	A2-1	WTP-RCP-2	CNSWTCH#2		
E-0609, E-5401, I-7700, I-8008	Thickened Sludge Pump #1 In Remote	ZIR-0207-2XXX	DI		Normal	Auto	51-P-1	A2-1	WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener Drive Motor Running	YIR--TCP-2XXX	DI		Normal	Running	TCP-RUN	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener Drive In Auto	ZIR-TCP-2XXX	DI		Normal	Auto	TCP-AUTO	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener High Torque Alarm	WAHR-TCP-2XXX	DI		Normal	Alarm	TCP-H	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener High High Torque Alarm	WAHR-TCP-2XXX	DI		Normal	Alarm	TCP-HH	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener Motor Overload Alarm	IAHR-TCP-2XXX	DI		Normal	Alarm	TCP-OL	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
	WTP-RCP-2 UPS Disconnected	JAIR-0212-2XXX	DI		Normal	Alarm			WTP-RCP-2	CNSWTCH#2		
	WTP-RCP-2 UPS On	YIR-0213-2XXX	DI		Normal	On			WTP-RCP-2	CNSWTCH#2		
	WTP-RCP-2 UPS Fault	JAIR-0214-2XXX	DI		Normal	Alarm			WTP-RCP-2	CNSWTCH#2		
E-0609, I-7700, I-8008	Sludge Recycle Pump #2 Running	YIR-0300-2XXX	DI		Normal	Running	52-P-2	A2-1	WTP-RCP-2	CNSWTCH#2		FUTURE
E-0609, I-7700, I-8008	Sludge Recycle Pump #2 Fault	YAIR-0301-2XXX	DI		Normal	Alarm	52-P-2	A2-1	WTP-RCP-2	CNSWTCH#2		FUTURE
E-0609, I-7700, I-8008	Sludge Recycle Pump #2 In Remote	ZIR-0302-2XXX	DI		Normal	Auto	52-P-2	A2-1	WTP-RCP-2	CNSWTCH#2		FUTURE
E-0609, I-5700, I-8008	Thickened Sludge Pump #2 Running	YIR-0303-2XXX	DI		Normal	Running	51-P-2	A2-1	WTP-RCP-2	CNSWTCH#2		
E-0609, I-5700, I-8008	Thickened Sludge Pump #2 Fault	YAIR-0304-2XXX	DI		Normal	Alarm	51-P-2	A2-1	WTP-RCP-2	CNSWTCH#2		
E-0609, I-5700, I-8008	Thickened Sludge Pump #2 In Remote	ZIR-0304-2XXX	DI		Normal	Auto	51-P-2	A2-1	WTP-RCP-2	CNSWTCH#2		
I-7701	Elevated BW Water Storage Tank Level Switch High	LAHR-0305-2XXX	DI		Normal	Alarm	70-LSH-1		WTP-RCP-2	CNSWTCH#2		
I-7701	Elevated BW water Storage Tank Level Switch High High	LAHR-0306-2XXX	DI		Normal	Alarm	70-LSHH-1		WTP-RCP-2	CNSWTCH#2		
	WTP-RCP-2 Power On	JIR-0213-2XXX	DI		Normal	On			WTP-RCP-2	CNSWTCH#2		

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Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-0607, I-8008	LC-5 Building Lighting In-Remote	ZIR-0313-2XXX	DI		Normal	Auto			WTP-RCP-2	CNSWTCH#2		
E-0607, I-8008	LC-5 Site Lighting In-Remote	ZIR-0314-2XXX	DI		Normal	Auto			WTP-RCP-2	CNSWTCH#2		
E-0609, I-7700, I-8008	Sludge Recycle Pump #1 Start / Stop	YCIR-0500-2XXX	DO		Normal	Modulate	52-P-1		WTP-RCP-2	CNSWTCH#2		
E-0609, I-7700, I-8008	Sludge Recycle Pump #2 Start / Stop	YCIR-0501-2XXX	DO		Normal	Modulate	52-P-2		WTP-RCP-2	CNSWTCH#2		FUTURE
E-0609, I-5700, I-8008	Thickened Sludge Pump #1 Start / Stop	YCIR-0502-2XXX	DO		Normal	Modulate	51-P-1		WTP-RCP-2	CNSWTCH#2		
E-0609, I-5700, I-8008	Thickened Sludge Pump #2 Start / Stop	YCIR-0503-2XXX	DO		Normal	Modulate	51-P-2		WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener Drive Motor Start Command	YCIR-0504-2XXX	DO		Normal	Start	TCP-STRT	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
I-5700	Sludge Thickener Drive Motor Stop Command	YCIR-0508-2XXX	DO		Normal	Stop	TCP-STOP	PEP-TCP	WTP-RCP-2	CNSWTCH#2		
E-0607, I-8009	LC-5 Building Lighting On / Off	YCIR-0505-2XXX	DO		Normal	On			WTP-RCP-2	CNSWTCH#2		
E-0607, I-8009	LC-5 Site Lighting On / Off	YCIR-0506-2XXX	DO		Normal	On			WTP-RCP-2	CNSWTCH#2		
	WPP-RCP-2 Alarm	YCIR-0507-2XXX	DO		Normal	Alarm			WTP-RCP-2	CNSWTCH#2		
	Wash Water Storage Tank Flow	FQR-0600-2XXX	AI	4-20mA	0-20000	gpm	70-FIT-1		WTP-RCP-2	CNSWTCH#2		
	Wash Water Storage Tank Level	LIR-0601-2XXX	AI	4-20mA	0-35	feet	70-LIT-1		WTP-RCP-2	CNSWTCH#2		
	Wash Water Recovery Basin Level	LIR-0602-2XXX	AI	4-20mA	0-17	feet	70-LIT-2		WTP-RCP-2	CNSWTCH#2		
	WTP-RCP-2 Panel Temperature	TIR-0603-2XXX	AI	4-20mA	32-120	F			WTP-RCP-2	CNSWTCH#2		
	<b>Chemical Storage Area (WTP-RCP-5)</b>											
D-2307, I-2701, I-8015	Blow Off Valve Open	ZIOR-0200-3XXX	DI		Normal	Open	22-BFV-3		WTP-RCP-5	CNSWTCH#1	40-96-35 D,E, F, G, H, I, J	
D-2307, I-2701, I-8015	Blow Off Valve Closed	ZICR-0201-3XXX	DI		Normal	Closed	22-BFV-3		WTP-RCP-5	CNSWTCH#1		
D-2319, I-8015, E-2603	Influent Sample Pump 1A Running	YIR-0203-3XXX	DI		Normal	Running	20-SP-1A		WTP-RCP-5	CNSWTCH#1		
D-2319, I-8015, E-2603	Influent Sample Pump 1A Fault	YAIR-0204-3XXX	DI		Normal	Alarm	20-SP-1A		WTP-RCP-5	CNSWTCH#1		
D-2319, I-8015, E-2603	Influent Sample Pump 1 In-Remote	ZIR-0205-3XXX	DI		Normal	Auto	20-SP-1		WTP-RCP-5	CNSWTCH#1		
D-2319, I-8015, E-2603	Influent Sample Pump 1B Running	YIR-0206-3XXX	DI		Normal	Running	20-SP-1B		WTP-RCP-5	CNSWTCH#1		
D-2319, I-8015, E-2603	Influent Sample Pump 1B Fault	YAIR-0207-3XXX	DI		Normal	Alarm	20-SP-1B		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8015	Post Coagulant Sample Pump 2A Running	YIR-0209-3XXX	DI		Normal	Running	20-SP-2A		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8015	Post Coagulant Sample Pump 2A Fault	YAIR-0210-3XXX	DI		Normal	Alarm	20-SP-2A		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8015	Post Coagulant Sample Pump 2 In-Remote	ZIR-0211-3XXX	DI		Normal	Auto	20-SP-2		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8015	Post Coagulant Sample Pump 2B Running	YIR-0212-3XXX	DI		Normal	Running	20-SP-2B		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8015	Post Coagulant Sample Pump 2B Fault	YAIR-0213-3XXX	DI		Normal	Alarm	20-SP-2B		WTP-RCP-5	CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
E-2405, D2310, I-8015,	Metering Pump 23-1A In-Auto	ZIR-0303-3XXX	DI		Normal	Auto	23-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2310, I-8015	Metering Pump 23-1A Running	YIR-0304-3XXX	DI		Normal	Running	23-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2310, I-8015,	Metering Pump 23-1A Alarm	YAIR-0306-3XXX	DI		Normal	Alarm	23-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2310, I-8015	Metering Pump 23-1B In-Auto	ZIR-0307-3XXX	DI		Normal	Auto	23-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2310, I-8015,	Metering Pump 23-1B Running	YIR-0308-3XXX	DI		Normal	Running	23-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2310, I-8015	Metering Pump 23-1B Alarm	YAIR-0310-3XXX	DI		Normal	Alarm	23-MP-1B		WTP-RCP-5	CNSWTCH#1		
<i>D2310, I-8015</i>	<i>Metering Pump 23-2A In-Auto</i>	<i>ZIR-0311-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>23-MP-2A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2310, I-8015</i>	<i>Metering Pump 23-2A Running</i>	<i>YIR-0312-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>23-MP-2A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2310, I-8015</i>	<i>Metering Pump 23-2A Alarm</i>	<i>YAIR-0314-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>23-MP-2A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2310, I-8015</i>	<i>Metering Pump 23-2B In-Auto</i>	<i>ZIR-0400-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>23-MP-2B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2310, I-8015</i>	<i>Metering Pump 23-2B Running</i>	<i>YIR-0401-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>23-MP-2B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2310, I-8015</i>	<i>Metering Pump 23-2B Alarm</i>	<i>YAIR-0403-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>23-MP-2B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, D2313, I-8016	Metering Pump 24-1A In-Auto	ZIR-0404-3XXX	DI		Normal	Auto	24-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-1A Running	YIR-0405-3XXX	DI		Normal	Running	24-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-1A Alarm	YAIR-0407-3XXX	DI		Normal	Alarm	24-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-1B In-Auto	ZIR-0408-3XXX	DI		Normal	Auto	24-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-1B Running	YIR-0409-3XXX	DI		Normal	Running	24-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-1B Alarm	YAIR-0411-3XXX	DI		Normal	Alarm	24-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-2A In-Auto	ZIR-0412-3XXX	DI		Normal	Auto	24-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-2A Running	YIR-0413-3XXX	DI		Normal	Running	24-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-2A Alarm	YAIR-0415-3XXX	DI		Normal	Alarm	24-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-2B In-Auto	ZIR-0500-3XXX	DI		Normal	Auto	24-MP-2B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-2B Running	YIR-0501-3XXX	DI		Normal	Running	24-MP-2B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-2B Alarm	YAIR-0503-3XXX	DI		Normal	Alarm	24-MP-2B		WTP-RCP-5	CNSWTCH#1		
<i>D2313, I-8016</i>	<i>Metering Pump 24-3A In-Auto</i>	<i>ZIR-0504-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>24-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-3A Running</i>	<i>YIR-0505-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>24-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-3A Alarm</i>	<i>YAIR-0507-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>24-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-3B In-Auto</i>	<i>ZIR-0508-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>24-MP-3B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-3B Running</i>	<i>YIR-0509-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>24-MP-3B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-3B Alarm</i>	<i>YAIR-0511-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>24-MP-3B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>

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Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-2405, D2313, I-8016	Metering Pump 24-4A In-Auto	ZIR-0512-3XXX	DI		Normal	Auto	24-MP-4A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-4A Running	YIR-0513-3XXX	DI		Normal	Running	24-MP-4A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-4A Alarm	YAIR-0515-3XXX	DI		Normal	Alarm	24-MP-4A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-4B In-Auto	ZIR-0600-3XXX	DI		Normal	Auto	24-MP-4B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-4B Running	YIR-0601-3XXX	DI		Normal	Running	24-MP-4B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2313, I-8016	Metering Pump 24-4B Alarm	YAIR-0603-3XXX	DI		Normal	Alarm	24-MP-4B		WTP-RCP-5	CNSWTCH#1		
<i>D2313, I-8016</i>	<i>Metering Pump 24-5A In-Auto</i>	<i>ZIR-0604-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>24-MP-5A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-5A Running</i>	<i>YIR-0605-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>24-MP-5A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-5A Alarm</i>	<i>YAIR-0607-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>24-MP-5A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-5B In-Auto</i>	<i>ZIR-0608-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>24-MP-5B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-5B Running</i>	<i>YIR-0609-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>24-MP-5B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2313, I-8016</i>	<i>Metering Pump 24-5B Alarm</i>	<i>YAIR-0611-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>24-MP-5B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2315, I-8016</i>	<i>Metering Pump 25-1A In-Auto</i>	<i>ZIR-0612-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>25-MP-1A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2315, I-8016</i>	<i>Metering Pump 25-1A Running</i>	<i>YIR-0613-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>25-MP-1A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2315, I-8016</i>	<i>Metering Pump 25-1A Alarm</i>	<i>YAIR-0615-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>25-MP-1A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, D2315, I-8017	Metering Pump 25-1B In-Auto	ZIR-0700-3XXX	DI		Normal	Auto	25-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-1B Running	YIR-0701-3XXX	DI		Normal	Running	25-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-1B Alarm	YAIR-0703-3XXX	DI		Normal	Alarm	25-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-1C In-Auto	ZIR-0704-3XXX	DI		Normal	Auto	25-MP-1C		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-1C Running	YIR-0705-3XXX	DI		Normal	Running	25-MP-1C		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-1C Alarm	YAIR-0707-3XXX	DI		Normal	Alarm	25-MP-1C		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-2A In-Auto	ZIR-0708-3XXX	DI		Normal	Auto	25-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-2A Running	YIR-0709-3XXX	DI		Normal	Running	25-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-2A Alarm	YAIR-0711-3XXX	DI		Normal	Alarm	25-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-2B In-Auto	ZIR-0712-3XXX	DI		Normal	Auto	25-MP-2B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-2B Running	YIR-0713-3XXX	DI		Normal	Running	25-MP-2B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2315, I-8017	Metering Pump 25-2B Alarm	YAIR-0715-3XXX	DI		Normal	Alarm	25-MP-2B		WTP-RCP-5	CNSWTCH#1		
<i>D2315, I-8017</i>	<i>Metering Pump 25-3A In-Auto</i>	<i>ZIR-0800-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Auto</i>	<i>25-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2315, I-8017</i>	<i>Metering Pump 25-3A Running</i>	<i>YIR-0801-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Running</i>	<i>25-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>D2315, I-8017</i>	<i>Metering Pump 25-3A Alarm</i>	<i>YAIR-0803-3XXX</i>	<i>DI</i>		<i>Normal</i>	<i>Alarm</i>	<i>25-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
D2315, I-8017	Metering Pump 25-3B In-Auto	ZIR-0804-3XXX	DI		Normal	Auto	25-MP-3B		WTP-RCP-5	CNSWTCH#1		FUTURE
D2315, I-8017	Metering Pump 25-3B Running	YIR-0805-3XXX	DI		Normal	Running	25-MP-3B		WTP-RCP-5	CNSWTCH#1		FUTURE
D2315, I-8017	Metering Pump 25-3B Alarm	YAIR-0807-3XXX	DI		Normal	Alarm	25-MP-3B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, D2316, I-8017	Metering Pump 26-1A In-Auto	ZIR-0808-3XXX	DI		Normal	Auto	26-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2316, I-8017	Metering Pump 26-1A Running	YIR-0809-3XXX	DI		Normal	Running	26-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2316, I-8017	Metering Pump 26-1A Alarm	YAIR-0811-3XXX	DI		Normal	Alarm	26-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2316, I-8017	Metering Pump 26-1B In-Auto	ZIR-0812-3XXX	DI		Normal	Auto	26-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2316, I-8017	Metering Pump 26-1B Running	YIR-0813-3XXX	DI		Normal	Running	26-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2316, I-8017	Metering Pump 26-1B Alarm	YAIR-0815-3XXX	DI		Normal	Alarm	26-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2317, I-8017	Metering Pump 27-1A In-Auto	ZIR-0900-3XXX	DI		Normal	Auto	27-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2317, I-8017	Metering Pump 27-1A Running	YIR-0901-3XXX	DI		Normal	Running	27-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2317, I-8017	Metering Pump 27-1A Alarm	YAIR-0903-3XXX	DI		Normal	Alarm	27-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2317, I-8017	Metering Pump 27-1B In-Auto	ZIR-0904-3XXX	DI		Normal	Auto	27-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2317, I-8017	Metering Pump 27-1B Running	YIR-0905-3XXX	DI		Normal	Running	27-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2317, I-8017	Metering Pump 27-1B Alarm	YAIR-0907-3XXX	DI		Normal	Alarm	27-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8017	Metering Pump 28-1A In-Auto	ZIR-0908-3XXX	DI		Normal	Auto	28-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8017	Metering Pump 28-1A Running	YIR-0909-3XXX	DI		Normal	Running	28-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8017	Metering Pump 28-1A Alarm	YAIR-0911-3XXX	DI		Normal	Alarm	28-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8017	Metering Pump 28-1B In-Auto	ZIR-0912-3XXX	DI		Normal	Auto	28-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8017	Metering Pump 28-1B Running	YIR-0913-3XXX	DI		Normal	Running	28-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8017	Metering Pump 28-1B Alarm	YAIR-0915-3XXX	DI		Normal	Alarm	28-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, D2318, I-8018	Metering Pump 28-2A In-Auto	ZIR-1000-3XXX	DI		Normal	Auto	28-MP-2A		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, D2318, I-8018	Metering Pump 28-2A Running	YIR-1001-3XXX	DI		Normal	Running	28-MP-2A		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, D2318, I-8018	Metering Pump 28-2A Alarm	YAIR-1003-3XXX	DI		Normal	Alarm	28-MP-2A		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, D2318, I-8018	Metering Pump 28-2B In-Auto	ZIR-1004-3XXX	DI		Normal	Auto	28-MP-2B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, D2318, I-8018	Metering Pump 28-2B Running	YIR-1005-3XXX	DI		Normal	Running	28-MP-2B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, D2318, I-8018	Metering Pump 28-2B Alarm	YAIR-1007-3XXX	DI		Normal	Alarm	28-MP-2B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8018	Metering Pump 29-1A In-Auto	ZIR-1008-3XXX	DI		Normal	Auto	29-MP-1A		WTP-RCP-5	CNSWTCH#1		FUTURE

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-2405, I-8018	Metering Pump 29-1A Running	YIR-1009-3XXX	DI		Normal	Running	29-MP-1A		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8018	Metering Pump 29-1A Alarm	YAIR-1011-3XXX	DI		Normal	Alarm	29-MP-1A		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8018	Metering Pump 29-1B In-Auto	ZIR-1012-3XXX	DI		Normal	Auto	29-MP-1B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8018	Metering Pump 29-1B Running	YIR-1013-3XXX	DI		Normal	Running	29-MP-1B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8018	Metering Pump 29-1B Alarm	YAIR-1015-3XXX	DI		Normal	Alarm	29-MP-1B		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8018	Filter Gallery Flood Switch High Alarm	LAHR-1100-3XXX	DI		Normal	Alarm	21-FS-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	WTP-RCP-5 UPS Disconnect	ZIOR-1202-3XXX	DI		Normal	Open			WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	WTP-RCP-5 UPS Power On	YIR-1203-3XXX	DI		Normal	Open			WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	WTP-RCP-5 UPS UPS Fault	JAIR-1204-3XXX	DI		Normal	Open			WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Chemical Tote Low Level	LLR-1205-3XXX	DI		Normal	Low	29-LSL-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1206-3XXX	DI		Normal	Alarm	FS-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1207-3XXX	DI		Normal	Alarm	FS-2		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1208-3XXX	DI		Normal	Alarm	FS-3		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1209-3XXX	DI		Normal	Alarm	FS-4		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1210-3XXX	DI		Normal	Alarm	FS-5		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1211-3XXX	DI		Normal	Alarm	FS-6		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1212-3XXX	DI		Normal	Alarm	FS-7		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8018	Eye Shower Activate	YAIR-1213-3XXX	DI		Normal	Alarm	FS-8		WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8018	Sodium Hydroxide Pump #1 Open Disconnect	ZIO-1214-3XXX	DI		Normal	Alarm			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8018	Sodium Hydroxide Pump #1 In-Remote	ZIR-1215-3XXX	DI		Normal	Auto			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8019	Sodium Hydroxide Pump #1 Running	YIR-1300-3XXX	DI		Normal	Running			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8019	Sodium Hydroxide Pump #1 Motor Overload	IAHR-1301-3XXX	DI		Normal	Alarm			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8019	Sodium Hydroxide Pump #1 Open Disconnect	ZIO-1302-3XXX	DI		Normal	Open			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8019	Sodium Hydroxide Pump #1 In-Remote	ZIR-1303-3XXX	DI		Normal	Auto			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8019	Sodium Hydroxide Pump #1 Running	YIR-1304-3XXX	DI		Normal	Running			WTP-RCP-5	CNSWTCH#1		
E-0611, E-2405, I-8019	Sodium Hydroxide Pump #1 Motor Overload	IAHR-1305-3XXX	DI		Normal	Alarm			WTP-RCP-5	CNSWTCH#1		
E-0607, I-8019	LC-2B Building Lighting In-Remote	ZIR-1306-3XXX	DI		Normal	Auto			WTP-RCP-5	CNSWTCH#1		
E-0607, I-8019	LC-2B Site Lighting In-Remote	ZIR-1307-3XXX	DI		Normal	Auto			WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Alum Tank Containment Area High Level	LAHR-1308-3XXX	DI		Normal	Alarm	23-LSH-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Alum Pump Containment Area High Level	LAHR-1309-3XXX	DI		Normal	Alarm	23-LSH-2		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Alum Tank Containment Area High Level	LAHR-1310-3XXX	DI		Normal	Alarm	23-LSH-3		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Sodium Hypochlorite Tank Containment Area High Level	LAHR-1311-3XXX	DI		Normal	Alarm	24-LSH-1		WTP-RCP-5	CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-2405, I-8019	Sodium Hypochlorite Pump Containment Area High Level	LAHR-1312-3XXX	DI		Normal	Alarm	24-LSH-2		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Sodium Hypochlorite Tank Containment Area High Level	LAHR-1313-3XXX	DI		Normal	Alarm	24-LSH-3		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Sodium Hydroxide Tank Containment Area High Level	LAHR-1314-3XXX	DI		Normal	Alarm	25-LSH-1		WTP-RCP-5	CNSWTCH#1	-	-
E-2405, I-8019	Sodium Hydroxide Pump Containment Area High Level	LAHR-1315-3XXX	DI		Normal	Alarm	25-LSH-2		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Polyphosphate Tank Containment Area High Level	LAHR-1316-3XXX	DI	-	Normal	Alarm	26-LSH-1	-	WTP-RCP-5	CNSWTCH#1	-	-
E-2405, I-8019	Polyphosphate Pump Containment Area High Level	LAHR-1317-3XXX	DI		Normal	Alarm	26-LSH-2		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Fluoride Tank Containment Area High Level	LAHR-1400-3XXX	DI	-	Normal	Alarm	27-LSH-1	-	WTP-RCP-5	CNSWTCH#1		
E-2405, I-8019	Fluoride Pump Containment Area High Level	LAHR-1401-3XXX	DI		Normal	Alarm	27-LSH-2		WTP-RCP-5	CNSWTCH#1		
I-8019	SSP #1 Seal Fail	YAIR-1402-3XXX	DI		Normal	Alarm			WTP-RCP-5	CNSWTCH#1		
I-8019	SSP #1 Running	ZIR-1403-3XXX	DI		Normal	Auto			WTP-RCP-5	CNSWTCH#1		
I-8019	SSP #1 High High Level	LAHR-1404-3XXX	DI		Normal	Alarm			WTP-RCP-5	CNSWTCH#1		
I-8019	Filter Influent Channel High Level	LAHR-1405-3XXX	DI		Normal	Alarm	21-LSH-1					
E-0611, I-0820	Sodium Hydroxide Pump #2 Start / Stop	YCIR-1601-3XXX	DO		Normal	Modulate			WTP-RCP-5	CNSWTCH#1		
E-0607, I-0820	LC-2B Building Lighting On / Off	YCIR-1602-3XXX	DO		Normal	On			WTP-RCP-5	CNSWTCH#1		
E-0607, I-0820	LC-2B Site Lighting On / Off	YCIR-1603-3XXX	DO		Normal	On			WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1605-3XXX	DO		Normal	Modulate	23-MP-1A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1606-3XXX	DO		Normal	Modulate	23-MP-1B		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1607-3XXX	DO		Normal	Modulate	23-MP-2A		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1608-3XXX	DO		Normal	Modulate	23-MP-2B		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1609-3XXX	DO		Normal	Modulate	24-MP-1A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1610-3XXX	DO		Normal	Modulate	24-MP-1B		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1611-3XXX	DO	-	Normal	Modulate	24-MP-2A	-	WTP-RCP-5	CNSWTCH#1	-	-
I-8020	Metering Pump Start / Stop	YCIR-1612-3XXX	DO	-	Normal	Modulate	24-MP-2B	-	WTP-RCP-5	CNSWTCH#1	-	-
I-8020	Metering Pump Start / Stop	YCIR-1613-3XXX	DO		Normal	Modulate	24-MP-3A		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1614-3XXX	DO		Normal	Modulate	24-MP-3B		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1615-3XXX	DO		Normal	Modulate	24-MP-4A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1700-3XXX	DO		Normal	Modulate	24-MP-4B		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1701-3XXX	DO		Normal	Modulate	24-MP-5A		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1702-3XXX	DO		Normal	Modulate	24-MP-5B		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1703-3XXX	DO		Normal	Modulate	25-MP-1A		WTP-RCP-5	CNSWTCH#1		FUTURE
I-8020	Metering Pump Start / Stop	YCIR-1704-3XXX	DO	-	Normal	Modulate	25-MP-1B	-	WTP-RCP-5	CNSWTCH#1	-	-
I-8020	Metering Pump Start / Stop	YCIR-1705-3XXX	DO	-	Normal	Modulate	25-MP-1C	-	WTP-RCP-5	CNSWTCH#1	-	-
I-8020	Metering Pump Start / Stop	YCIR-1706-3XXX	DO	-	Normal	Modulate	25-MP-2A	-	WTP-RCP-5	CNSWTCH#1	-	-



Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-8020	Metering Pump Start / Stop	YCIR-1707-3XXX	DO	-	Normal	Modulate	25-MP-2B	-	WTP-RCP-5	CNSWTCH#1	-	-
I-8020	Metering Pump Start / Stop	YCIR-1708-3XXX	DO	-	Normal	Modulate	25-MP-3A	-	WTP-RCP-5	CNSWTCH#1	-	-
<i>I-8020</i>	<i>Metering Pump Start / Stop</i>	<i>YCIR-1709-3XXX</i>	<i>DO</i>		<i>Normal</i>	<i>Modulate</i>	<i>25-MP-3B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
I-8020	Metering Pump Start / Stop	YCIR-1710-3XXX	DO		Normal	Modulate	26-MP-1A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1711-3XXX	DO		Normal	Modulate	26-MP-1B		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1712-3XXX	DO		Normal	Modulate	27-MP-1A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1713-3XXX	DO		Normal	Modulate	27-MP-1B		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1714-3XXX	DO		Normal	Modulate	28-MP-1A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1715-3XXX	DO		Normal	Modulate	28-MP-1B		WTP-RCP-5	CNSWTCH#1		
<i>I-8020</i>	<i>Metering Pump Start / Stop</i>	<i>YCIR-1800-3XXX</i>	<i>DO</i>		<i>Normal</i>	<i>Modulate</i>	<i>28-MP-2A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>I-8020</i>	<i>Metering Pump Start / Stop</i>	<i>YCIR-1801-3XXX</i>	<i>DO</i>		<i>Normal</i>	<i>Modulate</i>	<i>28-MP-2B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
I-8020	Metering Pump Start / Stop	YCIR-1802-3XXX	DO		Normal	Modulate	29-MP-1A		WTP-RCP-5	CNSWTCH#1		
I-8020	Metering Pump Start / Stop	YCIR-1803-3XXX	DO		Normal	Modulate	29-MP-1B		WTP-RCP-5	CNSWTCH#1		
D-2307, I-2701, I-8021	Blower Blowoff Valve Open/Close	ZCOR-1903- 3XXX	DO		Normal	Open	22-BFV-3		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8021	Influent Flow (Raw Water Flow)	FIQR-2000-3XXX	AI	4-20mA	0-30	MGD	20-FIT-1		WTP-RCP-5	CNSWTCH#1		
D-2118, E-2405, I-8021	Fluoride Day Tank Scale	WIR-2001-3XXX	AI	4-20mA	0-100	%	27-LIT-2		WTP-RCP-5	CNSWTCH#1		
E-2402, I-8021	Sedimentation Basin Level	LIR-2002-3XXX	AI	4-20mA	0-16	ft	21-LIT-5		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8021	Sodium Hypochlorite Storage Tank Level	LIR-2003-3XXX	AI	4-20mA	0-14	ft	24-LIT-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8021	Sodium Hypochlorite Storage Tank Level	LIR-2004-3XXX	AI	4-20mA	0-14	ft	24-LIT-2		WTP-RCP-5	CNSWTCH#1		
<i>I-8021</i>	<i>Sodium Hypochlorite Storage Tank Level</i>	<i>LIR-2005-3XXX</i>	<i>AI</i>	<i>4-20mA</i>	<i>0-14</i>	<i>ft</i>	<i>24-LIT-3</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, I-8021	Aluminum Bulk Storage Tank Level	LIR-2006-3XXX	AI	4-20mA	0-14	ft	23-LIT-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8021	Aluminum Bulk Storage Tank Level	LIR-2007-3XXX	AI	4-20mA	0-14	ft	23-LIT-2		WTP-RCP-5	CNSWTCH#1		
<i>E-2405, I-8021</i>	<i>Aluminum Bulk Storage Tank Level</i>	<i>LIR-2100-3XXX</i>	<i>AI</i>	<i>4-20mA</i>	<i>0-14</i>	<i>ft</i>	<i>23-LIT-3</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, I-8021	Sodium Hydroxide Storage Tank Level	LIR-2101-3XXX	AI	4-20mA	0-14	ft	25-LIT-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8021	Sodium Hydroxide Storage Tank Level	LIR-2102-3XXX	AI	4-20mA	0-14	ft	25-LIT-2		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8021	Polyphosphate Bulk Storage Tank Level	LIR-2103-3XXX	AI	4-20mA	0-14	ft	26-LIT-1		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8021	Fluoride Bulk Storage Tank Level	LIR-2104-3XXX	AI	4-20mA	0-14	ft	27-LIT-1		WTP-RCP-5	CNSWTCH#1		
I-8021	WTP-RCP-5 Panel Temperature	TIR-2105-3XXX	AI	4-20mA	32-120	F			WTP-RCP-5	CNSWTCH#1		
I-2700, I-8021	Raw Water Turbidity	AIR-2106-3XXX	AI	4-20mA	0-10	NTU	20-AIT-3		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8021	Raw Water pH	AIR-2107-3XXX	AI	4-20mA	0-14	Unitless	20-AIT-4		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8022	Dosed pH	AIR-2200-3XXX	AI	4-20mA	0-14	Unitless	20-AIT-1		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8022	Dosed Streaming Current	AIR-2201-3XXX	AI	4-20mA			20-AIT-2		WTP-RCP-5	CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-0608, I-2701, I-8022	Wash Water Valve (Backwash Supply Valve)	ZIR-2202-3XXX	AI	4-20mA	0-100	%	21-BFV-5		WTP-RCP-5	CNSWTCH#1		
E-0608, I-2701, I-8022	Wash Water Valve	YIR	DI	DDH	Normal	Local	21-BFV-5		WTP-RCP-5	CNSWTCH#1		
I-2701, I-8022	Backwash Air Pressure	PIR-2203-3XXX	AI	4-20mA	0-150	psi	22-PIT-1		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8022	Settled Water Turbidity Meter Train #1	AIR-2204-3XXX	AI	4-20mA	0-10	NTU	20-AIT-5		WTP-RCP-5	CNSWTCH#1		
I-2700, I-8022	Settled Water Turbidity Meter Train #2	AIR-2205-3XXX	AI	4-20mA	0-10	NTU	20-AIT-6		WTP-RCP-5	CNSWTCH#1		
I-2701, I-8022	Combined Filter Effluent Turbidity Meter	AIR-2206-3XXX	AI	4-20mA	0-10	NTU	21-AIT-5		WTP-RCP-5	CNSWTCH#1		
E-0610, I-8022	23-MP-1A Speed Feedback	SIR-2207-3XXX	AI	4-20mA	0-100	%	23-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-0610, I-8022	23-MP-1B Speed Feedback	SIR-2300-3XXX	AI	4-20mA	0-100	%	23-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 23-MP-1A Speed Command	SCIR-2401-3XXX	AO	4-20mA	0-100	%	23-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 23-MP-1B Speed Command	SCIR-2402-3XXX	AO	4-20mA	0-100	%	23-MP-1B		WTP-RCP-5	CNSWTCH#1		
<i>E-2405, I-8023</i>	<i>Metering Pump 23-MP-2A Speed Command</i>	<i>SCIR-2403-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>23-MP-2A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>E-2405, I-8023</i>	<i>Metering Pump 23-MP-2B Speed Command</i>	<i>SCIR-2404-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>23-MP-2B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, I-8023	Metering Pump 24-MP-1A Speed Command	SCIR-2405-3XXX	AO	4-20mA	0-100	%	24-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 24-MP-1B Speed Command	SCIR-2406-3XXX	AO	4-20mA	0-100	%	24-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 24-MP-2A Speed Command	SCIR-2407-3XXX	AO	4-20mA	0-100	%	24-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 24-MP-2B Speed Command	SCIR-2500-3XXX	AO	4-20mA	0-100	%	24-MP-2B		WTP-RCP-5	CNSWTCH#1		
<i>I-8023</i>	<i>Metering Pump 24-MP-3A Speed Command</i>	<i>SCIR-2501-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>24-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>I-8023</i>	<i>Metering Pump 24-MP-3B Speed Command</i>	<i>SCIR-2502-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>24-MP-3B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, I-8023	Metering Pump 24-MP-4A Speed Command	SCIR-2503-3XXX	AO	4-20mA	0-100	%	24-MP-4A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 24-MP-4B Speed Command	SCIR-2504-3XXX	AO	4-20mA	0-100	%	24-MP-4B		WTP-RCP-5	CNSWTCH#1		
<i>I-8023</i>	<i>Metering Pump 24-MP-5A Speed Command</i>	<i>SCIR-2505-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>24-MP-5A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>I-8023</i>	<i>Metering Pump 24-MP-5B Speed Command</i>	<i>SCIR-2506-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>24-MP-5B</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
<i>I-8023</i>	<i>Metering Pump 25-MP-1A Speed Command</i>	<i>SCIR-2507-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>25-MP-1A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>
E-2405, I-8023	Metering Pump 25-MP-1B Speed Command	SCIR-2600-3XXX	AO	4-20mA	0-100	%	25-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 25-MP-1C Speed Command	SCIR-2601-3XXX	AO	4-20mA	0-100	%	25-MP-1C		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 25-MP-2A Speed Command	SCIR-2602-3XXX	AO	4-20mA	0-100	%	25-MP-2A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8023	Metering Pump 25-MP-2B Speed Command	SCIR-2603-3XXX	AO	4-20mA	0-100	%	25-MP-2B		WTP-RCP-5	CNSWTCH#1		
<i>I-8023</i>	<i>Metering Pump 25-MP-3A Speed Command</i>	<i>SCIR-2605-3XXX</i>	<i>AO</i>	<i>4-20mA</i>	<i>0-100</i>	<i>%</i>	<i>25-MP-3A</i>		<i>WTP-RCP-5</i>	<i>CNSWTCH#1</i>		<i>FUTURE</i>

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-8023	Metering Pump 25-MP-3B Speed Command	SCIR-2606-3XXX	AO	4-20mA	0-100	%	25-MP-3B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8023	Metering Pump 26-MP-1A Speed Command	SCIR-2607-3XXX	AO	4-20mA	0-100	%	26-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 26-MP-1B Speed Command	SCIR-2700-3XXX	AO	4-20mA	0-100	%	26-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 27-MP-1A Speed Command	SCIR-2701-3XXX	AO	4-20mA	0-100	%	27-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 27-MP-1B Speed Command	SCIR-2702-3XXX	AO	4-20mA	0-100	%	27-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 28-MP-1A Speed Command	SCIR-2703-3XXX	AO	4-20mA	0-100	%	28-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 28-MP-1B Speed Command	SCIR-2704-3XXX	AO	4-20mA	0-100	%	28-MP-1B		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 28-MP-2A Speed Command	SCIR-2705-3XXX	AO	4-20mA	0-100	%	28-MP-2A		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8024	Metering Pump 28-MP-2B Speed Command	SCIR-2706-3XXX	AO	4-20mA	0-100	%	28-MP-2B		WTP-RCP-5	CNSWTCH#1		FUTURE
E-2405, I-8024	Metering Pump 29-MP-1A Speed Command	SCIR-2707-3XXX	AO	4-20mA	0-100	%	29-MP-1A		WTP-RCP-5	CNSWTCH#1		
E-2405, I-8024	Metering Pump 29-MP-1B Speed Command	SCIR-2800-3XXX	AO	4-20mA	0-100	%	29-MP-1B		WTP-RCP-5	CNSWTCH#1		
I-2701, I-8022	Wash Water Valve (Backwash Supply Valve)	ZCIR-2801-3XXX	AO	4-20mA	0-100	%	21-BFV-5		WTP-RCP-5	CNSWTCH#1		
I-2603	<b>Filter FT1 (WTP-PEP-FT1)</b>											
I-2603, I-2701	Influent Valve Opened	ZIOR-FT1-001	DI	DDH	Normal	Open	21-BFV-1A	WTP-PEP-FT1		CNSWTCH#1	40-96-35 L	
I-2603, I-2701	Influent Valve Closed	ZICR-FT1-002	DI	DDH	Normal	Close	21-BFV-1A	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Opened	ZIOR-FT1-003	DI	DDH	Normal	Open	21-BFV-1B	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Closed	ZICR-FT1-004	DI	DDH	Normal	Close	21-BFV-1B	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Opened	ZIOR-FT1-005	DI	DDH	Normal	Open	21-SOL-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Closed	ZICR-FT1-006	DI	DDH	Normal	Close	21-SOL-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Opened	ZIOR-FT1-007	DI	DDH	Normal	Open	21-BVF-1F	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Closed	ZICR-FT1-008	DI	DDH	Normal	Close	21-BVF-1F	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Opened	ZIOR-FT1-009	DI	DDH	Normal	Open	21-BFV-1E	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Closed	ZICR-FT1-010	DI	DDH	Normal	Close	21-BFV-1E	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Backwash Extended	ZIR-FT1-011	DI	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Backwash Abort	YIR-FT1-012	DI	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Backwash Start	YIR-FT1-013	DI	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Backwash Mode	YIR-FT1-014	DI	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Influent Valve Open	ZCOR-FT1-015	DO	DDH	Normal	Open	21-BFV-1A	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Influent Valve Close	ZCCR-FT1-016	DO	DDH	Normal	Close	21-BFV-1A	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Open	ZCOR-FT1-017	DO	DDH	Normal	Open	21-BFV-1B	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Close	ZCCR-FT1-018	DO	DDH	Normal	Close	21-BFV-1B	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Open	ZCOR-FT1-019	DO	DDH	Normal	Open	21-SOL-1	WTP-PEP-FT1		CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-2603, I-2701	Air Vent Valve Close	ZCCR-FT1-020	DO	DDH	Normal	Close	21-SOL-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Open	ZCOR-FT1-021	DO	DDH	Normal	Open	21-BFV-1F	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Close	ZCCR-FT1-022	DO	DDH	Normal	Close	21-BFV-1F	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Open	ZCOR-FT1-023	DO	DDH	Normal	Open	21-BFV-1E	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Close	ZCCR-FT1-024	DO	DDH	Normal	Close	21-BFV-1E	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Backwash Required	YCIR-FT1-025	DO	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	High Turbidity	AAIR-FT1-026	DO	DDH	Normal	Alarm	21-AIT-5	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	High Loss of Head	AAIR-FT1-027	DO	DDH	Normal		21-PDIT-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Filtering	YIR-FT1-028	DO	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Backwashing	YIR-FT1-029	DO	DDH	Normal			WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Air Blower On	YIR-FT1-030	DO	DDH	Normal	On		WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Effluent Flow Rate	FIQR-FT1-031	AI	DDH			21-FIT-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Effluent Valve Position	ZIR-FT1-032	AI	DDH			21-BFV-1C	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Position	ZIR-FI1-033	AI	DDH			21-BFV-1D	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Filter Loss of Head	YAIR-FT1-034	AI	DDH			21-PDIT-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Filter Turbidity	ZIR-FT1-035	AI	DDH			21-AIT-5	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Filter Level	LIR-FT1-036	AI	DDH			21-LIT-1	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Effluent Control Valve Setpoint	ZCR-FT1-037	AO	DDH			21-BFV-1C	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Setpoint	ZCR-FT1-038	AO	DDH			21-BFV-1D	WTP-PEP-FT1		CNSWTCH#1		
I-2603, I-2701	Influent Channel Level	LIR-FT1-039	AO	DDH			21-LIT-5		WTP-RCP-5	CNSWTCH#1		
I-2603, I-2701	Level in Storage Tank	LIR-FT1-040	AO	DDH			70-LIT-1		WTP-RCP-2	CNSWTCH#2		
I-2603	<b>Filter FT2 (WTP-PEP-FT2)</b>											
I-2603, I-2701	Influent Valve Opened	ZIOR-FT2-001	DI	DDH	Normal	Open	21-BFV-2A	WTP-PEP-FT2		CNSWTCH#1	40-96-35 L	
I-2603, I-2701	Influent Valve Closed	ZICR-FT2-002	DI	DDH	Normal	Close	21-BFV-2A	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Opened	ZIOR-FT2-003	DI	DDH	Normal	Open	21-BFV-2B	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Closed	ZICR-FT2-004	DI	DDH	Normal	Close	21-BFV-2B	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Opened	ZIOR-FT2-005	DI	DDH	Normal	Open	21-SOL-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Closed	ZICR-FT2-006	DI	DDH	Normal	Close	21-SOL-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Opened	ZIOR-FT2-007	DI	DDH	Normal	Open	21-BVF-2F	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Closed	ZICR-FT2-008	DI	DDH	Normal	Close	21-BVF-2F	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Opened	ZIOR-FT2-009	DI	DDH	Normal	Open	21-BFV-2E	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Closed	ZICR-FT2-010	DI	DDH	Normal	Close	21-BFV-2E	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Backwash Extended	ZIR-FT2-011	DI	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Backwash Abort	YIR-FT2-012	DI	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Backwash Start	YIR-FT2-013	DI	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Backwash Mode	YIR-FT2-014	DI	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-2603, I-2701	Influent Valve Open	ZCOR-FT2-015	DO	DDH	Normal	Open	21-BFV-2A	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Influent Valve Close	ZCCR-FT2-016	DO	DDH	Normal	Close	21-BFV-2A	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Open	ZCOR-FT2-017	DO	DDH	Normal	Open	21-BFV-2B	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Close	ZCCR-FT2-018	DO	DDH	Normal	Close	21-BFV-2B	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Open	ZCOR-FT2-019	DO	DDH	Normal	Open	21-SOL-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Close	ZCCR-FT2-020	DO	DDH	Normal	Close	21-SOL-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Open	ZCOR-FT2-021	DO	DDH	Normal	Open	21-BFV-2F	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Close	ZCCR-FT2-022	DO	DDH	Normal	Close	21-BFV-2F	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Open	ZCOR-FT2-023	DO	DDH	Normal	Open	21-BFV-2E	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Close	ZCCR-FT2-024	DO	DDH	Normal	Close	21-BFV-2E	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Backwash Required	YCIR-FT2-025	DO	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	High Turbidity	AAIR-FT2-026	DO	DDH	Normal	Alarm	21-AIT-5	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	High Loss of Head	AAIR-FT2-027	DO	DDH	Normal		21-PDIT-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Filtering	YIR-FT2-028	DO	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Backwashing	YIR-FT2-029	DO	DDH	Normal			WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Air Blower On	YIR-FT2-030	DO	DDH	Normal	On		WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Effluent Flow Rate	FIQR-FT2-031	AI	DDH			21-FIT-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Effluent Valve Position	ZIR-FT2-032	AI	DDH			21-BFV-2C	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Position	ZIR-FI1-033	AI	DDH			21-BFV-2D	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Filter Loss of Head	YAIR-FT2-034	AI	DDH			21-PDIT-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Filter Turbidity	ZIR-FT2-035	AI	DDH			21-AIT-5	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Filter Level	LIR-FT2-036	AI	DDH			21-LIT-2	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Effluent Control Valve Setpoint	ZCR-FT2-037	AO	DDH			21-BFV-2C	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Setpoint	ZCR-FT2-038	AO	DDH			21-BFV-2D	WTP-PEP-FT2		CNSWTCH#1		
I-2603, I-2701	Influent Channel Level	LIR-FT2-039	AO	DDH			21-LIT-5		WTP-RCP-5	CNSWTCH#1		
I-2603, I-2701	Level in Storage Tank	LIR-FT2-040	AO	DDH			70-LIT-1		WTP-RCP-2	CNSWTCH#2		
I-2603	<b>Filter FT3 (WTP-PEP-FT3)</b>											
I-2603, I-2701	Influent Valve Opened	ZIOR-FT3-001	DI	DDH	Normal	Open	21-BFV-3A	WTP-PEP-FT3		CNSWTCH#1	40-96-35 L	Attachment 40-96-35 L
I-2603, I-2701	Influent Valve Closed	ZICR-FT3-002	DI	DDH	Normal	Close	21-BFV-3A	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Opened	ZIOR-FT3-003	DI	DDH	Normal	Open	21-BFV-3B	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Closed	ZICR-FT3-004	DI	DDH	Normal	Close	21-BFV-3B	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Opened	ZIOR-FT3-005	DI	DDH	Normal	Open	21-SOL-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Closed	ZICR-FT3-006	DI	DDH	Normal	Close	21-SOL-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Opened	ZIOR-FT3-007	DI	DDH	Normal	Open	21-BVF-3F	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Closed	ZICR-FT3-008	DI	DDH	Normal	Close	21-BVF-3F	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Opened	ZIOR-FT3-009	DI	DDH	Normal	Open	21-BFV-3E	WTP-PEP-FT3		CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-2603, I-2701	Washwater Drain Valve Closed	ZICR-FT3-010	DI	DDH	Normal	Close	21-BFV-3E	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Backwash Extended	ZIR-FT3-011	DI	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Backwash Abort	YIR-FT3-012	DI	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Backwash Start	YIR-FT3-013	DI	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Backwash Mode	YIR-FT3-014	DI	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Influent Valve Open	ZCOR-FT3-015	DO	DDH	Normal	Open	21-BFV-3A	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Influent Valve Close	ZCCR-FT3-016	DO	DDH	Normal	Close	21-BFV-3A	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Open	ZCOR-FT3-017	DO	DDH	Normal	Open	21-BFV-3B	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Close	ZCCR-FT3-018	DO	DDH	Normal	Close	21-BFV-3B	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Open	ZCOR-FT3-019	DO	DDH	Normal	Open	21-SOL-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Close	ZCCR-FT3-020	DO	DDH	Normal	Close	21-SOL-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Open	ZCOR-FT3-021	DO	DDH	Normal	Open	21-BFV-3F	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Close	ZCCR-FT3-022	DO	DDH	Normal	Close	21-BFV-3F	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Open	ZCOR-FT3-023	DO	DDH	Normal	Open	21-BFV-3E	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Close	ZCCR-FT3-024	DO	DDH	Normal	Close	21-BFV-3E	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Backwash Required	YICR-FT3-025	DO	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	High Turbidity	AAIR-FT3-026	DO	DDH	Normal	Alarm	21-AIT-5	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	High Loss of Head	AAIR-FT3-027	DO	DDH	Normal		21-PDIT-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Filtering	YIR-FT3-028	DO	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Backwashing	YIR-FT3-029	DO	DDH	Normal			WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Air Blower On	YIR-FT3-030	DO	DDH	Normal	On		WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Effluent Flow Rate	FIQR-FT3-031	AI	DDH			21-FIT-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Effluent Valve Position	ZIR-FT3-032	AI	DDH			21-BFV-3C	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Position	ZIR-FI1-033	AI	DDH			21-BFV-3D	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Filter Loss of Head	YAIR-FT3-034	AI	DDH			21-PDIT-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Filter Turbidity	ZIR-FT3-035	AI	DDH			21-AIT-5	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Filter Level	LIR-FT3-036	AI	DDH			21-LIT-3	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Effluent Control Valve Setpoint	ZCR-FT3-037	AO	DDH			21-BFV-3C	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Setpoint	ZCR-FT3-038	AO	DDH			21-BFV-3D	WTP-PEP-FT3		CNSWTCH#1		
I-2603, I-2701	Influent Channel Level	LIR-FT3-039	AO	DDH			21-LIT-5		WTP-RCP-5	CNSWTCH#1		
I-2603, I-2701	Level in Storage Tank	LIR-FT3-040	AO	DDH			70-LIT-3		WTP-RCP-2	CNSWTCH#2		
I-2603	<b>Filter FT4 (WTP-PEP-FT4)</b>											
I-2603, I-2701	Influent Valve Opened	ZIOR-FT4-001	DI	DDH	Normal	Open	21-BFV-4A	WTP-PEP-FT4		CNSWTCH#1	40-96-35 L	
I-2603, I-2701	Influent Valve Closed	ZICR-FT4-002	DI	DDH	Normal	Close	21-BFV-4A	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Opened	ZIOR-FT4-003	DI	DDH	Normal	Open	21-BFV-4B	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Closed	ZICR-FT4-004	DI	DDH	Normal	Close	21-BFV-4B	WTP-PEP-FT4		CNSWTCH#1		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-2603, I-2701	Air Vent Valve Opened	ZIOR-FT4-005	DI	DDH	Normal	Open	21-SOL-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Closed	ZICR-FT4-006	DI	DDH	Normal	Close	21-SOL-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Opened	ZIOR-FT4-007	DI	DDH	Normal	Open	21-BFV-4F	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Closed	ZICR-FT4-008	DI	DDH	Normal	Close	21-BFV-4F	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Opened	ZIOR-FT4-009	DI	DDH	Normal	Open	21-BFV-4E	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Washwater Drain Valve Closed	ZICR-FT4-010	DI	DDH	Normal	Close	21-BFV-4E	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Backwash Extended	ZIR-FT4-011	DI	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Backwash Abort	YIR-FT4-012	DI	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Backwash Start	YIR-FT4-013	DI	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Backwash Mode	YIR-FT4-014	DI	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Influent Valve Open	ZCOR-FT4-015	DO	DDH	Normal	Open	21-BFV-4A	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Influent Valve Close	ZCCR-FT4-016	DO	DDH	Normal	Close	21-BFV-4A	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Open	ZCOR-FT4-017	DO	DDH	Normal	Open	21-BFV-4B	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Wash Water Supply Valve Close	ZCCR-FT4-018	DO	DDH	Normal	Close	21-BFV-4B	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Open	ZCOR-FT4-019	DO	DDH	Normal	Open	21-SOL-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Vent Valve Close	ZCCR-FT4-020	DO	DDH	Normal	Close	21-SOL-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Open	ZCOR-FT4-021	DO	DDH	Normal	Open	21-BFV-4F	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Inlet Valve Close	ZCCR-FT4-022	DO	DDH	Normal	Close	21-BFV-4F	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Open	ZCOR-FT4-023	DO	DDH	Normal	Open	21-BFV-4E	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Wash Water Drain Valve Close	ZCCR-FT4-024	DO	DDH	Normal	Close	21-BFV-4E	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Backwash Required	YCIR-FT4-025	DO	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	High Turbidity	AAIR-FT4-026	DO	DDH	Normal	Alarm	21-AIT-5	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	High Loss of Head	AAIR-FT4-027	DO	DDH	Normal		21-PDIT-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Filtering	YIR-FT4-028	DO	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Backwashing	YIR-FT4-029	DO	DDH	Normal			WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Air Blower On	YIR-FT4-030	DO	DDH	Normal	On		WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Effluent Flow Rate	FIQR-FT4-031	AI	DDH			21-FIT-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Effluent Valve Position	ZIR-FT4-032	AI	DDH			21-BFV-4C	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Position	ZIR-FI1-033	AI	DDH			21-BFV-4D	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Filter Loss of Head	YAIR-FT4-034	AI	DDH			21-PDIT-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Filter Turbidity	ZIR-FT4-035	AI	DDH			21-AIT-5	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Filter Level	LIR-FT4-036	AI	DDH			21-LIT-4	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Effluent Control Valve Setpoint	ZCR-FT4-037	AO	DDH			21-BFV-4C	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Filter to Waste Valve Setpoint	ZCR-FT4-038	AO	DDH			21-BFV-4D	WTP-PEP-FT4		CNSWTCH#1		
I-2603, I-2701	Influent Channel Level	LIR-FT4-039	AO	DDH			21-LIT-5		WTP-RCP-5	CNSWTCH#1		
I-2603, I-2701	Level in Storage Tank	LIR-FT4-040	AO	DDH			70-LIT-3		WTP-RCP-2	CNSWTCH#2		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
	<b>GAC Building (WTP-RCP-4)</b>											
I-8013	WTP-RCP-4 UPS Disconnected	ZIOR-0200-4XXX	DI		Normal			WTP-RCP-4		CNSWTCH#2	40-96-35 M	
I-8013	WTP-RCP-4 UPS Power On	YIR-0201-4XXX	DI		Normal	On		WTP-RCP-4		CNSWTCH#2		
I-8013	WTP-RCP-4 UPS Fault	YAIR-0202-4XXX	DI		Normal	Alarm		WTP-RCP-4		CNSWTCH#2		
I-8013	GAC Flood Switch High Level Alarm	LAHR-0300-4XXX	DI		Normal	Alarm	30-FS-1	WTP-RCP-4		CNSWTCH#2		
E-0607, I-8013	LC3 Building Lighting In-Remote	ZIR-0301-4XXX	DI		Normal	Auto		WTP-RCP-4		CNSWTCH#2		
E-0607, I-8013	LC3 Site Lighting In-Remote	ZIR-0302-4XXX	DI		Normal	Auto		WTP-RCP-4		CNSWTCH#2		
E-0607, I-8014	LC3 Building Lighting On / Off	YCIR-0404-4XXX	DO		Normal	On / Off		WTP-RCP-4		CNSWTCH#2		
E-0607, I-8014	LC3 Site Lighting On/Off	YCIR-0405-4XXX	DO		Normal	On / Off		WTP-RCP-4		CNSWTCH#2		
I-8014	WTP-RCP-4 Panel Temperature	TIR-0500-4XXX	AI	4-20mA	32-120	F		WTP-RCP-4		CNSWTCH#2		
E-0608, I-3700, I-8014	Backwash Valve Position Feedback 30-BFV-5	ZIR-0501-4XXX	AI	4-20mA	0-100	%	30-BFV-5	WTP-RCP-4		CNSWTCH#2		
I-0608	Backwash Valve Position Feedback 30-BFV-5	YIR	DI		Normal	Local	30-BFV-5	WTP-RCP-4		CNSWTCH#2		
I-3700, I-8014	Influent Channel Level	LIR-0502-4XXX	AI	4-20mA	0-6	ft	30-LIT-1	WTP-RCP-4		CNSWTCH#2		
I-3700, I-8014	Combined GAC Contactor Effluent Turbidity Meter	AIR-0503-4XXX	AI	4-20mA	0-10	NTU	30-AIT-5	WTP-RCP-4		CNSWTCH#2		
E-0608, I-3700, I-8014	Backwash Valve Position Command 30-BFV-5	ZCIR-0600-4XXX	AO	4-20mA	0-100	%	30-BFV-5	WTP-RCP-4		CNSWTCH#2		
	<b>GAC Filter 1 (WTP-PEP-GC1)</b>											
I-3601, I-3700	Influent Valve Opened	ZIOR-GC1-001	DI	DDH	Normal	Open	30-BFV-1A	WTP-PEP-GC1		CNSWTCH#2	40-96-35 M	
I-3601, I-3700	Influent Valve Closed	ZICR-GC1-002	DI	DDH	Normal	Close	30-BFV-1A	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Opened	ZIOR-GC1-003	DI	DDH	Normal	Open	30-BFV-1B	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Closed	ZICR-GC1-004	DI	DDH	Normal	Close	30-BFV-1B	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Opened	ZIOR-GC1-005	DI	DDH	Normal	Open	30-SOL-1	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Closed	ZICR-GC1-006	DI	DDH	Normal	Close	30-SOL-1	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Opened	ZIOR-GC1-007	DI	DDH	Normal	Open	30-BFV-1E	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Closed	ZICR-GC1-008	DI	DDH	Normal	Close	30-BFV-1E	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Backwash Extended	ZIR-GC1-009	DI	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Backwash Abort	YIR-GC1-010	DI	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Backwash Start	YIR-GC1-011	DI	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Backwash Mode	YIR-GC1-012	DI	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Influent Valve Open	ZCOR-GC1-013	DO	DDH	Normal	Open	30-BFV-1A	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Influent Valve Close	ZCCR-GC1-014	DO	DDH	Normal	Close	30-BFV-1A	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Open	ZCOR-GC1-015	DO	DDH	Normal	Open	30-BFV-1B	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Close	ZCCR-GC1-016	DO	DDH	Normal	Close	30-BFV-1B	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Open	ZCOR-GC1-017	DO	DDH	Normal	Open	30-SOL-1	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Close	ZCCR-GC1-018	DO	DDH	Normal	Close	30-SOL-1	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Wash Water Drain Valve Open	ZCOR-GC1-021	DO	DDH	Normal	Open	30-BFV-1E	WTP-PEP-GC1		CNSWTCH#2		



Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-3601, I-3700	Wash Water Drain Valve Close	ZCCR-GC1-022	DO	DDH	Normal	Close	30-BFV-1E	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Backwash Required	YCIR-GC1-023	DO	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	High Turbidity	AAIR-GC1-024	DO	DDH	Normal		30-AIT-1	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	High Loss of Head	AAIR-GC1-025	DO	DDH	Normal		30-PDIT-1	WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Filtering	YIR-GC1-026	DO	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700	Backwashing	YIR-GC1-027	DO	DDH	Normal			WTP-PEP-GC1		CNSWTCH#2		
I-3601, I-3700												
I-3601, I-3700	Effluent Flow Rate	FIQR-GC1-029	AI	DDH			30-FIT-1			CNSWTCH#2		
I-3601, I-3700	Effluent Valve Position	ZIR-GC1-030	AI	DDH			30-BFV-1C			CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Position	ZIR-GC1-031	AI	DDH			30-BFV-1C			CNSWTCH#2		
I-3601, I-3700	Filter Loss of Head	YAIR-GC1-032	AI	DDH			30-PDIT-1			CNSWTCH#2		
I-3601, I-3700	Filter Turbidity	ZIR-GC1-033	AI	DDH			30-AIT-1			CNSWTCH#2		
I-3601, I-3700	Effluent Control Valve Setpoint	ZCR-GC1-034	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Setpoint	ZCR-GC1-035	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Influent Channel Flow	FIQR-GC1-036	AO	DDH			30-FIT-1			CNSWTCH#2		
I-2603, I-2701	Level in Storage Tank	LIR-FT3-037	AO	DDH			70-LIT-3		WTP-RCP-2	CNSWTCH#2		
	<b>GAC Filter 2 (WTP-PEP-GC2)</b>											
I-3601, I-3700	Influent Valve Opened	ZIOR-GC2-001	DI	DDH	Normal	Open	30-BFV-3A	WTP-PEP-GC2		CNSWTCH#2	40-96-35 M	
I-3601, I-3700	Influent Valve Closed	ZICR-GC2-002	DI	DDH	Normal	Close	30-BFV-3A	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Opened	ZIOR-GC2-003	DI	DDH	Normal	Open	30-BFV-3B	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Closed	ZICR-GC2-004	DI	DDH	Normal	Close	30-BFV-3B	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Opened	ZIOR-GC2-005	DI	DDH	Normal	Open	30-SOL-3	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Closed	ZICR-GC2-006	DI	DDH	Normal	Close	30-SOL-3	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Opened	ZIOR-GC2-007	DI	DDH	Normal	Open	30-BFV-3E	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Closed	ZICR-GC2-008	DI	DDH	Normal	Close	30-BFV-3E	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Backwash Extended	ZIR-GC2-009	DI	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Backwash Abort	YIR-GC2-010	DI	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Backwash Start	YIR-GC2-011	DI	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Backwash Mode	YIR-GC2-012	DI	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Influent Valve Open	ZCOR-GC2-013	DO	DDH	Normal	Open	30-BFV-3A	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Influent Valve Close	ZCCR-GC2-014	DO	DDH	Normal	Close	30-BFV-3A	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Open	ZCOR-GC2-015	DO	DDH	Normal	Open	30-BFV-3B	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Close	ZCCR-GC2-016	DO	DDH	Normal	Close	30-BFV-3B	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Open	ZCOR-GC2-017	DO	DDH	Normal	Open	30-SOL-3	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Close	ZCCR-GC2-018	DO	DDH	Normal	Close	30-SOL-3	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Wash Water Drain Valve Open	ZCOR-GC2-021	DO	DDH	Normal	Open	30-BFV-3E	WTP-PEP-GC2		CNSWTCH#2		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-3601, I-3700	Wash Water Drain Valve Close	ZCCR-GC2-022	DO	DDH	Normal	Close	30-BFV-3E	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Backwash Required	YCIR-GC2-023	DO	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	High Turbidity	AAIR-GC2-024	DO	DDH	Normal		30-AIT-3	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	High Loss of Head	AAIR-GC2-025	DO	DDH	Normal		30-PDIT-3	WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Filtering	YIR-GC2-026	DO	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700	Backwashing	YIR-GC2-027	DO	DDH	Normal			WTP-PEP-GC2		CNSWTCH#2		
I-3601, I-3700												
I-3601, I-3700	Effluent Flow Rate	FIQR-GC2-029	AI	DDH			30-FIT-3			CNSWTCH#2		
I-3601, I-3700	Effluent Valve Position	ZIR-GC2-030	AI	DDH			30-BFV-3C			CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Position	ZIR-GC2-031	AI	DDH			30-BFV-3C			CNSWTCH#2		
I-3601, I-3700	Filter Loss of Head	YAIR-GC2-032	AI	DDH			30-PDIT-3			CNSWTCH#2		
I-3601, I-3700	Filter Turbidity	ZIR-GC2-033	AI	DDH			30-AIT-3			CNSWTCH#2		
I-3601, I-3700	Effluent Control Valve Setpoint	ZCR-GC2-034	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Setpoint	ZCR-GC2-035	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Influent Channel Flow	FIQR-GC2-036	AO	DDH			30-FIT-1			CNSWTCH#2		
I-2603, I-2701	Level in Storage Tank	LIR-FT3-037	AO	DDH			70-LIT-3		WTP-RCP-2	CNSWTCH#2		
	<b>GAC Filter 3 (WTP-PEP-GC3)</b>											
I-3601, I-3700	Influent Valve Opened	ZIOR-GC3-001	DI	DDH	Normal	Open	30-BFV-2A	WTP-PEP-GC3		CNSWTCH#2	40-96-35 M	
I-3601, I-3700	Influent Valve Closed	ZICR-GC3-002	DI	DDH	Normal	Close	30-BFV-2A	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Opened	ZIOR-GC3-003	DI	DDH	Normal	Open	30-BFV-2B	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Closed	ZICR-GC3-004	DI	DDH	Normal	Close	30-BFV-2B	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Opened	ZIOR-GC3-005	DI	DDH	Normal	Open	30-SOL-2	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Closed	ZICR-GC3-006	DI	DDH	Normal	Close	30-SOL-2	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Opened	ZIOR-GC3-007	DI	DDH	Normal	Open	30-BFV-2E	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Closed	ZICR-GC3-008	DI	DDH	Normal	Close	30-BFV-2E	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Backwash Extended	ZIR-GC3-009	DI	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Backwash Abort	YIR-GC3-010	DI	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Backwash Start	YIR-GC3-011	DI	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Backwash Mode	YIR-GC3-012	DI	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Influent Valve Open	ZCOR-GC3-013	DO	DDH	Normal	Open	30-BFV-2A	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Influent Valve Close	ZCCR-GC3-014	DO	DDH	Normal	Close	30-BFV-2A	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Open	ZCOR-GC3-015	DO	DDH	Normal	Open	30-BFV-2B	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Close	ZCCR-GC3-016	DO	DDH	Normal	Close	30-BFV-2B	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Open	ZCOR-GC3-017	DO	DDH	Normal	Open	30-SOL-2	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Close	ZCCR-GC3-018	DO	DDH	Normal	Close	30-SOL-2	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Wash Water Drain Valve Open	ZCOR-GC3-021	DO	DDH	Normal	Open	30-BFV-2E	WTP-PEP-GC3		CNSWTCH#2		

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Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-3601, I-3700	Wash Water Drain Valve Close	ZCCR-GC3-022	DO	DDH	Normal	Close	30-BFV-2E	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Backwash Required	YCIR-GC3-023	DO	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	High Turbidity	AAIR-GC3-024	DO	DDH	Normal		30-AIT-2	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	High Loss of Head	AAIR-GC3-025	DO	DDH	Normal		30-PDIT-2	WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Filtering	YIR-GC3-026	DO	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Backwashing	YIR-GC3-027	DO	DDH	Normal			WTP-PEP-GC3		CNSWTCH#2		
I-3601, I-3700	Effluent Flow Rate	FIQR-GC3-029	AI	DDH			30-FIT-2			CNSWTCH#2		
I-3601, I-3700	Effluent Valve Position	ZIR-GC3-030	AI	DDH			30-BFV-2C			CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Position	ZIR-GC3-031	AI	DDH			30-BFV-2C			CNSWTCH#2		
I-3601, I-3700	Filter Loss of Head	YAIR-GC3-032	AI	DDH			30-PDIT-2			CNSWTCH#2		
I-3601, I-3700	Filter Turbidity	AIR-GC3-033	AI	DDH			30-AIT-2			CNSWTCH#2		
I-3601, I-3700	Effluent Control Valve Setpoint	ZCR-GC3-034	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Setpoint	ZCR-GC3-035	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Influent Channel Flow	FIQR-GC3-036	AO	DDH			30-FIT-1			CNSWTCH#2		
I-2603, I-2701	Level in Storage Tank	LIR-FT3-037	AO	DDH			70-LIT-3		WTP-RCP-2	CNSWTCH#2		
	<b>GAC Filter 4 (WTP-PEP-GC4)</b>											
I-3601, I-3700	Influent Valve Opened	ZIOR-GC4-001	DI	DDH	Normal	Open	30-BFV-2A	WTP-PEP-GC4		CNSWTCH#2	40-96-35 M	
I-3601, I-3700	Influent Valve Closed	ZICR-GC4-002	DI	DDH	Normal	Close	30-BFV-2A	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Opened	ZIOR-GC4-003	DI	DDH	Normal	Open	30-BFV-2B	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Closed	ZICR-GC4-004	DI	DDH	Normal	Close	30-BFV-2B	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Opened	ZIOR-GC4-005	DI	DDH	Normal	Open	30-SOL-2	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Closed	ZICR-GC4-006	DI	DDH	Normal	Close	30-SOL-2	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Opened	ZIOR-GC4-007	DI	DDH	Normal	Open	30-BFV-2E	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Washwater Drain Valve Closed	ZICR-GC4-008	DI	DDH	Normal	Close	30-BFV-2E	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Backwash Extended	ZIR-GC4-009	DI	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Backwash Abort	YIR-GC4-010	DI	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Backwash Start	YIR-GC4-011	DI	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Backwash Mode	YIR-GC4-012	DI	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Influent Valve Open	ZCOR-GC4-013	DO	DDH	Normal	Open	30-BFV-2A	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Influent Valve Close	ZCCR-GC4-014	DO	DDH	Normal	Close	30-BFV-2A	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Open	ZCOR-GC4-015	DO	DDH	Normal	Open	30-BFV-2B	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Wash Water Supply Valve Close	ZCCR-GC4-016	DO	DDH	Normal	Close	30-BFV-2B	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Open	ZCOR-GC4-017	DO	DDH	Normal	Open	30-SOL-2	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Air Vent Valve Close	ZCCR-GC4-018	DO	DDH	Normal	Close	30-SOL-2	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Wash Water Drain Valve Open	ZCOR-GC4-021	DO	DDH	Normal	Open	30-BFV-2E	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Wash Water Drain Valve Close	ZCCR-GC4-022	DO	DDH	Normal	Close	30-BFV-2E	WTP-PEP-GC4		CNSWTCH#2		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
I-3601, I-3700	Backwash Required	YCIR-GC4-023	DO	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	High Turbidity	AAIR-GC4-024	DO	DDH	Normal		30-AIT-2	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	High Loss of Head	AAIR-GC4-025	DO	DDH	Normal		30-PDIT-2	WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Filtering	YIR-GC4-026	DO	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Backwashing	YIR-GC4-027	DO	DDH	Normal			WTP-PEP-GC4		CNSWTCH#2		
I-3601, I-3700	Effluent Flow Rate	FIQR-GC4-029	AI	DDH			30-FIT-2			CNSWTCH#2		
I-3601, I-3700	Effluent Valve Position	ZIR-GC4-030	AI	DDH			30-BFV-2C			CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Position	ZIR-GC4-031	AI	DDH			30-BFV-2C			CNSWTCH#2		
I-3601, I-3700	Filter Loss of Head	YAIR-GC4-032	AI	DDH			30-PDIT-2			CNSWTCH#2		
I-3601, I-3700	Filter Turbidity	ZIR-GC4-033	AI	DDH			30-AIT-2			CNSWTCH#2		
I-3601, I-3700	Effluent Control Valve Setpoint	ZCR-GC4-034	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Filter to Waste Valve Setpoint	ZCR-GC4-035	AO	DDH						CNSWTCH#2		
I-3601, I-3700	Influent Channel Flow	FIQR-GC4-036	AO	DDH			30-FIT-1			CNSWTCH#2		
I-2603, I-2701	Level in Storage Tank	LIR-FT3-037	AO	DDH			70-LIT-3		WTP-RCP-2	CNSWTCH#2		
	<b>Finished Water (WTP-RCP-1)</b>											
I-4700, I-8004	Disinfection Contact Basin Low Level	LAHR-0200-5XXX	DI		Normal	Alarm	40-LSL-1		WTP-RCP-1	CNSWTCH#2	40-96-35 N	
I-4700, I-8400, E-0607, E-4604	Sample Pump Running	YIR-0201-5XXX	DI		Normal	Running	40-P-1A		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8400, E-0607, E-4604	Sample Pump Fault	YAIR-0202-5XXX	DI		Normal	Alarm	40-P-1A		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8400, E-0607, E-4604	Sample Pumps In-Remote	ZIR-0203-5XXX	DI		Normal	Auto	40-P-1A/B		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8400, E-0607, E-4604	Sample Pump Running	YIR-0204-5XXX	DI		Normal	Running	40-P-1B		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8400, E-0607, E-4604	Sample Pump Fault	YAIR-0205-5XXX	DI		Normal	Alarm	40-P-1B		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #1 Running	YIR-0207-5XXX	DI		Normal	Running	42-P-1		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #1 Fault	YAIR-0208-5XXX	DI		Normal	Alarm	42-P-1		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #1 In-Remote	ZIR-0209-5XXX	DI		Normal	Auto	42-P-1		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #2 Running	YIR-0210-5XXX	DI		Normal	Running	42-P-2		WTP-RCP-1	CNSWTCH#2		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #2 Fault	YAIR-0211-5XXX	DI		Normal	Alarm	42-P-2		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #2 In-Remote	ZIR-0212-5XXX	DI		Normal	Auto	42-P-2		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #3 Running	YIR-0213-5XXX	DI		Normal	Running	42-P-3		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #3 Fault	YAIR-0214-5XXX	DI		Normal	Alarm	42-P-3		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8004	Finished Water Pump #3 In-Remote	ZIR-0215-5XXX	DI		Normal	Auto	42-P-3		WTP-RCP-1	CNSWTCH#2		
E-0605, E-4604, I-4700, I-8004	Backwash Pump #1 Running	YIR-0300-5XXX	DI		Normal	Running	BWP-1		WTP-RCP-1	CNSWTCH#2		
E-0605, E-4604, I-4700, I-8004	Backwash Pump #1 Fault	YAIR-0301-5XXX	DI		Normal	Alarm	BWP-1		WTP-RCP-1	CNSWTCH#2		
E-0605, E-4604, I-4700, I-8004	Backwash Pump #1 In-Remote	ZIR-0302-5XXX	DI		Normal	Auto	BWP-1		WTP-RCP-1	CNSWTCH#2		
	WTP-RCP-1 UPS Disconnected	ZAR-0308-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
	WTP-RCP-1 UPS Power On	YIR-0309-5XXX	DI		Normal	On			WTP-RCP-1	CNSWTCH#2		
	WTP-RCP-1 UPS Fault	JAIR-0310-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
I-4700, I-8004	Pump Chamber Low Level	LALR-0311-5XXX	DI		Normal	Alarm	42-LSL-1		WTP-RCP-1	CNSWTCH#2		
E-4401, E-4604, I-4700, I-8005	Air / Oil Accumulator In-Auto	ZIR-0401-5XXX	DI		Normal	Auto			WTP-RCP-1	CNSWTCH#2		
E-4401, E-4604, I-4700, I-8005	Air / Oil Accumulator System Active	YIR-0402-5XXX	DI		Normal	Active			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Oil Pump #1 Running	YIR-0403-5XXX	DI		Normal	Running			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Oil Pump #2 Running	YIR-0404-5XXX	DI		Normal	Running			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Air Compressor #1 Running	YIR-0405-5XXX	DI		Normal	Running			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Air Compressor #2 Running	YIR-0406-5XXX	DI		Normal	Running			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Air / Oil Accumulator System Warning	YAIR-0407-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Air / Oil Accumulator System Fault	YAIR-0408-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Air / Oil Accumulator Low Oil Level	LALR-0409-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-4401, I-4700, I-8005	Air / Oil Accumulator Low Pressure	PALR-0410-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-4601, I-8005	Transformer #3 Oil Temp High	TAHR-0411- 5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-4601, I-8005	Transformer #3 Oil Level Low	LALR-0412-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-4601, I-8005	Transformer #3 Pressure Vacuum Switch Alarm	PAR-0413-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-4601, I-8005	Transformer #3 Pressure Switch Alarm	PAR-0414-5XXX	DI		Normal	Alarm			WTP-RCP-1	CNSWTCH#2		
E-0607, I-8005	LC-4 Building Light In-Remote	ZIR-0500-5XXX	DI		Normal	Auto			WTP-RCP-1	CNSWTCH#2		
E-0607, I-8005	LC-4 Site Light In-Remote	ZIR-0501-5XXX	DI		Normal	Auto			WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	FWP #1 Float Permissive Disabled	ZIR-0502-5XXX	DI		Normal	Disabled	FWP-1		WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	FWP #2 Float Permissive Disabled	ZIR-0503-5XXX	DI		Normal	Disabled	FWP-2		WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	FWP #3 Float Permissive Disabled	ZIR-0504-5XXX	DI		Normal	Disabled	FWP-3		WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	BWP #1 Float Permissive Disabled	ZIR-0505-5XXX	DI		Normal	Disabled			WTP-RCP-1	CNSWTCH#2		
E-0604, I-4601, I-8005	PEP-SF High Level Alarm	LAHR-0506-5XXX	DI		Normal	Alarm		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lead Pump On	YIR-0507-5XXX	DI		Normal	On		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lag Pump On	YIR-0508-5XXX	DI		Normal	On		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Pumps Off	YIR-0509-5XXX	DI		Normal	Off		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lead Pump Hot Motor Windings	TAHR-0510-5XXX	DI		Normal	Alarm		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lag Pump Hot Motor Windings	TAHR-0511-5XXX	DI		Normal	Alarm		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lead Pump In-Remote	ZIR-0512-5XXX	DI		Normal	Auto		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lag Pump In-Remote	ZIR-0513-5XXX	DI		Normal	Auto		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lead Pump Seal Fail	YAIR-0514-5XXX	DI		Normal	Alarm		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	PEP-SF Lag Pump Seal Fail	YAIR-0515-5XXX	DI		Normal	Alarm		PEP-SF	WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, I-4601, I-8005	Finished Water Pump #1 Start / Stop	YCIR-0600-5XXX	DO		Normal	Modulate	FWP-1		WTP-RCP-1	CNSWTCH#2		
E-0604, I-4601, I-8005	Finished Water Pump #2 Start / Stop	YCIR-0601-5XXX	DO		Normal	Modulate	FWP-2		WTP-RCP-1	CNSWTCH#2		
E-0604, I-4601, I-8005	Finished Water Pump #3 Start / Stop	YCIR-0602-5XXX	DO		Normal	Modulate	FWP-3		WTP-RCP-1	CNSWTCH#2		
E-0605, I-4700, I-8006	Backwash Pump #1 Start / Stop	YCIR-0701-5XXX	DO		Normal	Modulate			WTP-RCP-1	CNSWTCH#2		
E-0607, I-8006	LC-4 Building Lights On / Off	YCIR-0702-5XXX	DO		Normal	On / Off			WTP-RCP-1	CNSWTCH#2		
E-0607, I-8006	LC-4 Site Lights On / Off	YCIR-0703-5XXX	DO		Normal	On / Off			WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Finished Water Flow	FIQR-0800-5XXX	AI	4-20mA	0-60	MGD	42-FIT-1		WTP-RCP-1	CNSWTCH#2	40-96-35 N	
E-0604, E-4602, I-4700, I-8006	Finished Water Pump #1 Rate Feedback	ZIR-0801-5XXX	AI	4-20mA	0-100	%	FWP-1		WTP-RCP-1	CNSWTCH#2		
E-0604, E-4602, I-4700, I-8006	Finished Water Pump #2 Rate Feedback	ZIR-0802-5XXX	AI	4-20mA	0-100	%	FWP-2		WTP-RCP-1	CNSWTCH#2		

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Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-0604, E-4602, I-4700, I-8006	Finished Water Pump #3 Rate Feed- back	ZIR-0803-5XXX	AI	4-20mA	0-100	%	FWP-3		WTP-RCP-1	CNSWTCH#2		
I-8006	WTP-RCP-1 Panel Temperature	TIR-0804-5XXX	AI	4-20mA	32-100	F			WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Disinfection Contact Basin Level	LIR-0805-5XXX	AI	4-20mA	0-20	ft	40-LIT-1		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Finished Water Basin Level	LIR-0806-5XXX	AI	4-20mA	0-25	ft	42-LIT-1		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Disinfection Contact Basin pH	AIR-0807-5XXX	AI	4-20mA	0-14	Unitless	40-AIT-1		WTP-RCP-1	CNSWTCH#2		
E-0605, I-4700, I-8006	Backwash Pump #1 Rate Feedback	ZIR-0901-5XXX	AI	4-20mA	0-100	%			WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Disinfection Contact Basin Turbidity	AIR-0902-5XXX	AI	4-20mA	0-10	NTU	40-AIT-2		WTP-RCP-1	CNSWTCH#2		
D-4305, I-4700, I-8006	Disinfection Contact Basin Chlorine	AIR-0903-5XXX	AI	4-20mA	0-5	ppm	40-AIT-3		WTP-RCP-1	CNSWTCH#2		
D-4305, I-4700, I-8006	Finished Water pH	AIR-0904-5XXX	AI	4-20mA	0-14	Unitless	42-AIT-1		WTP-RCP-1	CNSWTCH#2		
D-4305, I-4700, I-8006	Finished Water Turbidity	AIR-0905-5XXX	AI	4-20mA	0-10	NTU	42-AIT-2		WTP-RCP-1	CNSWTCH#2		
D-4305, I-4700, I-8006	Finished Water Chlorine	AIR-0906-5XXX	AI	4-20mA	0-5	ppm	42-AIT-3		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Finished Water to Transmission Net- work Pressure	PIR-0907-5XXX	AI	4-20mA	0-200	psi	42-PIT-1		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Finished Water to Elevated Storage Tank Pressure	PIR-1000-5XXX	AI	4-20mA	0-200	psi	41-PIT-1		WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Air / Oil Accumulator Oil Pressure	PIR-1001-5XXX	AI	4-20mA					WTP-RCP-1	CNSWTCH#2		
I-4700, I-8006	Air / Oil Accumulator Air Pressure	PIR-1002-5XXX	AI	4-20mA					WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	Finished Water Pump #1 Speed Com- mand	SCR-1100-5XXX	AO	4-20mA	0-100	%	FWP-1		WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	Finished Water Pump #2 Speed Com- mand	SCR-1101-5XXX	AO	4-20mA	0-100	%	FWP-2		WTP-RCP-1	CNSWTCH#2		
E-0604, I-8005	Finished Water Pump #3 Speed Com- mand	SCR-1102-5XXX	AO	4-20mA	0-100	%	FWP-3		WTP-RCP-1	CNSWTCH#2		
	<b>Electrical Room (WTP-RCP-3)</b>											
I-8011	Fire Alarm System Fault	YAIR-0209-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
I-8011	Fire Alarm System Trouble	YAIR-0210-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
I-8011	Fire Alarm System Active	YIR-0211-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
I-8011	WTP-RCP-3 Power On	YIR-0212-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
I-8011	WTP-RCP-3 UPS Fault	YAIR-0213-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-0607, I-8011	LC-8 Building Lighting In-Remote	YIR-0214-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-0607, I-8011	LC-8 Site Lighting In-Remote	YIR-0215-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Cooling Water Pump In-remote	YIR-0300-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Cooling Water Pump Running	YIR-0301-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Cooling Water Pump Motor Overload	YIR-0302-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Radiator Fan In-remote	YIR-0303-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Radiator Fan Running	YIR-0304-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Radiator Fan Motor Overload	YIR-0305-6XXX	DI		Normal				WTP-RCP-3	CNSWTCH#2		

Sheet #	Description	ISA Tag	Type	Signal	Range/ Off Status	Units/ On Status	Field Wiring Data				Specification Responsible for Signal Source	Remarks
							ISA Signal Source	Source/ Panel Location	Field FTC	SCADA Panel		
E-0607, I-8011	LC-8 Building Lighting On / Off	YCIR-0400-6XXX	DO		Normal	On / Off			WTP-RCP-3	CNSWTCH#2		
E-0607, I-8011	LC-8 Site Lighting On / Off	YCIR-0401-6XXX	DO		Normal	On / Off			WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Cooling Water Pump Run Command	YCIR-0402-6XXX	DO		Normal	On / Off			WTP-RCP-3	CNSWTCH#2		
E-8604, I-8011	Radiator Fan Run Command	YCIR-0403-6XXX	DO		Normal	On / Off			WTP-RCP-3	CNSWTCH#2		
I-8011	WTP-RCP-3 Panel Temperature	TIR-0500-6XXX	AO	4-20mA	32-100	F			WTP-RCP-3	CNSWTCH#2		
I-8011	Outfall Flow Rate	FQIR-0501-6XXX	AO	4-20mA			70-LIT-3		WTP-RCP-3	CNSWTCH#2		
	<b>Generator #1</b>											
	Generator #1 High Coolant	TAIR-9650H	DI	DDH	Normal	Alarm	TS-9650H	Generator		CNSWTCH#2		
	Generator #1 Low Fuel	YAIR-9650HH	DI	DDH	Normal	Alarm	YS-9650HH	Generator		CNSWTCH#2		
	Generator #1 Low Coolant Temperature	TAIR-9650L	DI	DDH	Normal	Alarm	TS-9650L	Generator		CNSWTCH#2		
	Generator #1 Overcrank	JUIR-9650	DI	DDH	Normal	Alarm	JS-9650	Generator		CNSWTCH#2		
	Generator #1 Generator #1 Not in Automatic	ZIR-9650C	DI	DDH	Normal	Alarm	Z-9650C	Generator		CNSWTCH#2		
	Generator #1 Low Oil Pressure Alarm	PAIR-9650L	DI	DDH	Normal	Alarm	PS-9650L	Generator		CNSWTCH#2		
	Generator #1 Low Oil Pressure Shut-Down	PAIR-9650LL	DI	DDH	Normal	Alarm	PS-9650LL	Generator		CNSWTCH#2		
	Generator #1 Overspeed	ZAIR-9650	DI	DDH	Normal	Alarm	ZS-9650	Generator		CNSWTCH#2		
	Generator #1 Battery Charger Failure	EAIR-9650	DI	DDH	Normal	Alarm	ES-9650	Generator		CNSWTCH#2		
	Switchgear #1 Generator Power	ZSOIR-9130	DI	DDH	Alarm	Normal	JS-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Breaker Open	ZSCIR-9130	DI	DDH	Normal	Open	ZSO-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Breaker Closed	ZAIR-9130	DI	DDH	Normal	Closed	ZSC-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Breaker Tripped	ZIR-9130	DI	DDH	Normal	Alarm	ZSX-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Breaker Out		DI	DDH	Normal	Removed	ZS-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feed Total Real Power	JIR-9130A	DDH	DDH	0-x	KW	JT-9130A	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feed Power Usage	JQIR-9130	DDH	DDH	0-x	KWH	JQT-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feed Phase True Power Factor	JIR-9130B	DDH	DDH	0-x	Watts/VA	JT-9130B	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feed Voltage	EIR-9130	DDH	DDH	0-x	Volts	ET-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feed Average Current	IIR-9130	DDH	DDH	0-x	Amps	IT-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feed Waveform	ZIR-9130	DDH	DDH	0-x	Cos	ZT-9130	Generator		CNSWTCH#2		
	Switchgear #1 Generator Feeder Reactive Power	JIR-9130C	DDH	DDH	0-x	KVAR	JT-9130C	Generator		CNSWTCH#2		



**Notes:**

1. Verify wiring connections with the Electrical Contractor before submitting shop drawings
2. All Spare I/O to include graphical and historical database programming
3. ISA tags determined using ANSI / ISA 5.1 Instrumentation and Signals Identification Standards (See Typical Letter Combinations below).

\* All Discrete Input Contacts shall be powered from input location

DI	Discrete Input
DO	Discrete Output
AI	Analog Input
AO	Analog Output
FTC	Field Wiring Terminal Cabinet
AO	Analog Output
FTC	Field Wiring Terminal Cabinet

**Abbreviations:**

Tags

AIR	Analysis Indicating Record
AAIR	Analysis Alarm Indicating Record
FIQR	Flow Indicating Quantity Record
	Power Alarm Indicating Record
LALR	Level Alarm Low Record
LIR	Level Indicating Record
LAHR	Level Alarm High Record
PALR	Pressure Alarm Low Record
PIR	Pressure Indicating Record
SCR	Speed Command Record
TAHR	Temperature Alarm High Record
WAHR	Force Alarm High Record
YAIR	Event / State Alarm Indicating Record
YCIR	Event / State Command Indicating Record
YIR	Event / State Indicating Record
ZCR	Position Command Record
ZCCR	Position Command Close Record
ZCOR	Position Command Open Record
ZIO	Position Indicating Open
ZIOR	Position Indicating Open Record

System Designations

xxx-xxx-RWI	Raw Water Intake		
xxx-PAC-xxx	PAC System		
xxx-FL1-xxx	Flocculation Tank #1		
xxx-FL2-xxx	Flocculation Tank #2		
xxx-SD1-xxx	Sedimentation Basin #1		
xxx-SD2-xxx	Sedimentation Basin #2		
xxx-xxx-1XXX	Electrical Room		
xxx-xxx-2XXX	Sludge Thickener / Wash Water Storage		
xxx-xxx-3XXX	Chemical Storage Area		
xxx-FT1-xxx	Filter #1		
xxx-FT2-xxx	Filter #2		
xxx-FT3-xxx	Filter #3		
xxx-FT4-xxx	Filter #4		
xxx-xxx-4XXX	GAC Building		
xxx-GC1-xxx	GAC Filter #1	xxx-xxx-5XXX	Finished Water
xxx-GC2-xxx	GAC Filter #2	xxx-xxx-6XXX	Electrical Room

Table 2 — Typical Letter Combinations

First Letters	Actuating or Measurement Variable	Controllers				Reversal Devices		Switches and Alarm Devices*			Transmitters			Solenoids, Relays, Coupling Devices	Primary Element	Test Point	Start or Probe	Warning Device, Alarm	Safety Device	Final Element	
		Recording	Indicating	Stand	Self-Actuated Control	Forwarding	Reversing	High**	Low	Control	Recording	Indicating	Stand								
A	Analysis	ARC	AC	AC		AR	RI	ASR	ASL	ASAL	ART	RT	RT	AT	AE	AP	AR			AV	
B	Burner/Combustion	BRC	BC	BC		BR	BI	BSR	BSL	BSAL	BRT	RT	RT	BT	BE		BR	BO		BV	
C	User's Choice													CT							
D	User's Choice													DT							
E	Voltage	ERC	EC	EC		ER	EI	ESR	ESL	ESAL	ERT	RT	RT	ET	EE					EV	
F	Flow Rate	FRC	FC	FC	FCV FCV	FR	FI	FSR	FSL	FSAL	FRT	RT	RT	FT	FE	FP		FO		FV	
FD	Flow Quantity	FDRC	FDIC			FDR	FDI	FDSR	FDL				FDRT	FDRT	FDRT	FDRT				FDV	
FF	Flow Ratio	FFRC	FFIC	FFIC		FFR	FFI	FFSR	FFL					FFRT	FFRT					FFV	
G	User's Choice																				
H	Hand		HIC	HC						HS										HV	
I	Current	IRC	IC			IR	II	ISR	ISL	ISAL	IRT	RT	RT	IT	IE					IV	
J	Pressure	JRC	JIC			JR	JI	JSR	JSL	JRAL	JRT	RT	RT	JT	JE					JV	
K	Time	KRC	KIC	KIC	KCV	KR	KI	KSR	KSL	KRAL	KRT	RT	RT	KT	KE					KV	
L	Level	LRC	LIC	LI	LIV	LR	LI	LSR	LSL	LSAL	LRT	RT	RT	LT	LE		LV	LV		LV	
M	User's Choice																				
N	User's Choice																				
O	User's Choice																				
P	Processor/Transmit	PRC	PRC	PRC	PCV	PR	PI	PSR	PSL	PSAL	PRT	RT	RT	PT	PE	PP			PSV PSE	PV	
PD	Pressure, Differential	PDRC	PDIC	PDIC	PDV	PDR	PDV	PDOR	PDOL				PDRT	PDRT	PDRT	PDRT				PDV	
Q	Quantity	QRC	QIC			QR	QI	QSR	QSL	QRAL	QRT	RT	RT	QT	QE					QV	
R	Rotation	RRC	RIC	RIC		RR	RI	RSR	RSL	RSAL	RRT	RT	RT	RT	RE		RR			RV	
S	Speed/Frequency	SRC	SIC	SIC	SCV	SR	SI	SSR	SSL	SSAL	SRT	RT	RT	ST	SE					SV	
T	Temperature	TRC	TIC	TIC	TCV	TR	TI	TSR	TSL	TSAL	TRT	RT	RT	TT	TE	TP		TR		TV	
TD	Temperature, Differential	TDRC	TDIC	TDIC	TDV	TRD	TDI	TDOR	TDOL				TDRT	TDRT	TDRT	TDRT				TDV	
U	Multivariable					UR	UI							UT						UV	
V	Visual/Alarm/Warning/Analysis					VR	VI	VSR	VSL	VRAL	VRT	RT	RT	VT	VE					VV	
W	Weight/Force	WRC	WIC	WIC	WCV	WR	WI	WSR	WSL	WSAL	WRT	RT	RT	WT	WE					WV	
WD	Weight/Force, Differential	WDRC	WDIC	WDIC	WDV	WRD	WDI	WDOR	WDOL				WDRT	WDRT	WDRT	WDRT					WDV
X	Unlabeled																				
Y	Open/Status/Presence		YIC	YIC		YR	YI	YSR	YSL					YT	YE					YV	
Z	Position/Direction	ZRC	ZIC	ZIC	ZCV	ZR	ZI	ZSR	ZSL	ZRAL	ZRT	RT	RT	ZT	ZE					ZV	
ZD	Position/Direction	ZDRC	ZDIC	ZDIC	ZDV	ZDR	ZDI	ZDOR	ZDOL				ZDRT	ZDRT	ZDRT	ZDRT					ZDV

Note: This table is not all-inclusive.  
 \*R, alarm. An annunciating device, may be used in the case of position or S, switch, the actuating device.  
 \*\*The letters H and L may be omitted in the unlabeled case.

Other Possible Combinations:  
 RC (Restriction Control)    RFR (Radar)  
 FRR, HIN (Control Station)    NGI (Timing Time Indicator)  
 FX (Auxiliary)    QCR (Rotating Counter)  
 TUR (Turning Reverser)    WAC (Weight/Weight-Loss Controller)  
 LAL (Laser Light)    HMC (Island Momentary Switch)

END OF SECTION

**SECTION 40 97 00**  
**ANALYTICAL INSTRUMENTS**

**PART 1 GENERAL**

1.01 SUMMARY

A. Section Includes:

1. pH analyzer.
2. Residual chlorine analyzer.
3. Turbidity analyzer.
4. Streaming current detector.

1.02 SUBMITTALS

- A. Shop Drawings: Submit in accordance with Section 01 33 00, Shop Drawings covering the items included under this Section.

**PART 2 PRODUCTS**

2.01 MANUFACTURERS

- A. Subject to compliance with specified requirements, manufacturers offering products which may be incorporated in Work include:

1. pH Analyzer (with temperature in certain applications):
  - a. Hach DPD1P electrode with sc200 Controller.
2. Residual Chlorine Analyzer
  - b. Hach CLF10sc.
3. Turbidity Analyzer
  - a. Raw & Post Coagulant Service: Hach Surface Scatter 7 with sc200 Controller.
  - b. Settled, Filtered, & Finished Water Service: Hach 1720E with sc200 Controller.

4. Streaming Current Detector
  - a. ChemTrac DuraTrac 4 with HydroACT 600 Controller.

B. General Requirements:

1. Power Requirement: 120 VAC.
2. Housing: NEMA 4X.
3. Mounting: Panel, wall, and pipe mounting as applicable.
4. Output: Isolated 4-20 mA into 600 ohms maximum.
5. Alarms: High and low level for each parameter.
6. Operator Interface: Local "front-of-panel" keyboard.
7. Cables: Provide sensor to controller or transmitter as needed.
8. Reagents: Provide 1 year supply.

C. Analytical Instrument Schedule: See following page.

### **PART 3 EXECUTION**

#### **3.01 GENERAL**

- A. Examination, Installation, Field Quality Control, Demonstration: In accordance with Section 40 91 00.

#### **3.02 FIELD QUALITY CONTROL**

- A. Installation Check: The manufacturer shall provide the services of a factory-trained representative to check the installation of all equipment installed in this Section.
  1. Satisfactorily calibrate each analyzer and instruct the plant personnel in the operation and maintenance of each analyzer.
- B. Manufacturer's representative shall include a half-day of start-up service by a factory-trained technician.
  1. Contractor will schedule a date and time for start-up.
  2. Contractor shall schedule the following people to be present during the start-up procedure.
    - a. Contractor
    - b. Company factory trained representative
    - c. Owner's personnel

<b>ANALYTICAL INSTRUMENT SCHEDULE</b>		
<b>Instrument Description/Location</b>	<b>Supplier</b>	<b>Remarks</b>
<b>pH Meters (With Transmitters)</b>		
Raw Water pH Meter/Raw Water Pump Station	Instrumentation Supplier	Provide temperature signal with pH, Hach DPD1P electrode with sc200 Controller
Pre-Coagulant pH Meter/Chemical Feed Area	Instrumentation Supplier	No temperature signal, Hach DPD1P electrode with sc200 Controller
Post-Coagulant pH Meter/Chemical Feed Area	Instrumentation Supplier	No temperature signal, Hach DPD1P electrode with sc200 Controller
Clearwell pH Meter/Finished Water Pump Room	Instrumentation Supplier	No temperature signal, Hach DPD1P electrode with sc200 Controller
Finished Water pH Meter/Finished Water Pump Room	Instrumentation Supplier	No temperature signal, Hach DPD1P electrode with sc200 Controller
<b>Streaming Current Detectors (With Transmitters)</b>		
Post-Coagulant Streaming Current Detector/Chemical Feed Area	Instrumentation Supplier	ChemTrac DuraTrac 4 with HydroACT 600 Controller
<b>Turbidimeters (With Transmitters)</b>		
Raw Water Turbidimeter/Raw Water Pump Station	Instrumentation Supplier	Hach Surface Scatter 7 with sc200 Controller
Pre-Coagulant Turbidimeter/Chemical Feed Area	Instrumentation Supplier	Hach Surface Scatter 7 with sc200 Controller
Train No. 1 Settled Water Turbidimeter/Chemical Feed Area	Instrumentation Supplier	Hach 1720E with sc200 Controller
Train No. 2 Settled Water Turbidimeter/Chemical Feed Area	Instrumentation Supplier	Hach 1720E with sc200 Controller
Filter No. 1 Effluent Turbidimeter/Filter Pipe Gallery	Filter Equipment Supplier	Hach 1720E with sc200 Controller
Filter No. 2 Effluent Turbidimeter/Filter Pipe Gallery	Filter Equipment Supplier	Hach 1720E with sc200 Controller
Filter No. 3 Effluent Turbidimeter/Filter Pipe Gallery	Filter Equipment Supplier	Hach 1720E with sc200 Controller
Filter No. 4 Effluent Turbidimeter/Filter Pipe Gallery	Filter Equipment Supplier	Hach 1720E with sc200 Controller
Combined Filter Effluent Turbidimeter/Filter Pipe Gallery	Filter Equipment Supplier	Hach 1720E with sc200 Controller
GAC Contactor No. 1 Effluent Turbidimeter/GAC Contactor Pipe Gallery	GAC Contactor Equipment Supplier	Hach 1720E with sc200 Controller
GAC Contactor No. 2 Effluent Turbidimeter/GAC Contactor Pipe Gallery	GAC Contactor Equipment Supplier	Hach 1720E with sc200 Controller

<b>ANALYTICAL INSTRUMENT SCHEDULE (continued)</b>		
<b>Instrument Description/Location</b>	<b>Supplier</b>	<b>Remarks</b>
GAC Contactor No. 3 Effluent Turbidimeter/GAC Contactor Pipe Gallery	GAC Contactor Equipment Supplier	Hach 1720E with sc200 Controller
GAC Contactor No. 4 Effluent Turbidimeter/GAC Contactor Pipe Gallery	GAC Contactor Equipment Supplier	Hach 1720E with sc200 Controller
Combined GAC Contactor Effluent Turbidimeter/GAC Contactor Pipe Gallery	GAC Contactor Equipment Supplier	Hach 1720E with sc200 Controller
<b>Chlorine Analyzers (With Transmitters)</b>		
Clearwell Influent Chlorine Analyzer/Finished Water Pump Room	System Integrator	Hach CLF10sc
Finished Water Chlorine Analyzer/Finished Water Pump Room	System Integrator	Hach CLF10sc
Note: When a particular type of instrument is furnished by separate suppliers the instruments shall be products of the same manufacturer to provide standardization.		

**END OF SECTION**

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**SECTION 40 99 90**  
**PACKAGE CONTROL SYSTEMS**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. This Section applies to pre-engineered control panels and systems provided by equipment manufacturers. Fabricated control panels that are not part of manufacturer pre-packaged systems shall comply with Section 40 95 13 – Process Control Panels and Hardware.
  
- B. The following is a list of standards which may be referenced in this Section:
  - 1. Instrumentation, Systems, Automation Society (ISA): 550.1 Compatibility of Analog Signals for Electronic Process Instruments.
  - 2. National Electrical Manufacturers Association (NEMA):
    - a. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).
    - b. AB 1, Molded Case Circuit Breakers and Molded Case Switches.
    - c. ICS 2, Industrial Control Devices, Controllers and Assemblies.
  - 3. National Fire Protection Association (NFPA): 70, National Electrical Code (NEC).
  - 4. Underwriters Laboratories, Inc. (UL): 508A Standards for Safety, Industrial Control Panels.

**1.02 SYSTEM DESCRIPTION**

- A. This Section addresses assembled panels, installed instruments, and wiring specifically fabricated in the equipment manufacturer's factories for the sole purpose of controlling their specific system or equipment.
  
- B. Test panels and panel assemblies for proper operation prior to shipment from equipment manufacturer's factory.

**1.03 SUBMITTALS**

- A. Submit shop drawings and submittals in accordance with Section 01 33 00.
  
- B. Action Submittals:
  - 1. Bill of material, catalog information, descriptive literature, wiring diagrams, and Shop Drawings for components of control systems. Provide catalog information on electrical devices furnished with system.
  - 2. Provide dimensional layout drawings for control panels and enclosures.

3. Include panel elementary diagrams of prewired panels. Include in diagrams control devices and auxiliary devices, for example, relays, alarms, fuses, lights, fans, and heaters.
4. Provide interconnection wiring diagrams that include numbered designations showing external interfaces.

B. Informational Submittals:

1. Programmable Controller Submittals:
  - a. Complete set of user manuals.
  - b. Fully documented ladder logic listings.
  - c. Function listing for function blocks not fully documented by ladder logic listings.
  - d. Cross-reference listing.
2. Manufacturer's list of proposed spares, expendables, and test equipment.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Prior to shipment, include desiccant moisture control systems in shipping containers, boxes, crates, enclosures and related equipment as recommended by a desiccant manufacturer.

1.05 SPARES

- A. Provide spare parts as follows:
1. Fuse: 100 percent, five (5) minimum, of each type used.
  2. Surge Suppressors: 20 percent, one (1) minimum, of each type used.
  3. PLC's and remote I/O
    - a. One (1) of each card or module type used.
    - b. One (one) of each power supply used.

**PART 2 PRODUCTS**

2.01 GENERAL

- A. Comply with Section 40 91 00 Process Control and Instrumentation.

2.02 SIGNAL CHARACTERISTICS

- A. Analog Signals:
1. 4 to 20mA dc, in accordance with compatibility requirements of ISA S50.1.
  2. Unless otherwise specified or shown, use Type 2, two-wire circuits.



3. Transmitters: Load resistance capability conforming to Class L.
  4. Fully isolate input and output signals of transmitters and receivers.
- B. Pulse Frequency Signals: Use dc pulses whose repetition rate is linearly proportional to process variable over 10:1 range. Generate pulses by contact closures or solid-state switches.
1. Power Source: Less than 30 V dc.
- C. Discrete Signals:
1. Two-state logic signals.
  2. Utilize 120 V ac sources for control and alarm signals.
  3. Alarm signals shall be normally open, close to alarm isolated contacts rated for 5 amperes at 120V ac and 2 amperes at 30 V dc.

### 2.03 CORROSION PROTECTION

- A. In each control or electronics cabinet prior to shipment, provide a corrosion inhibiting vapor system that emits a chemical vapor to coat and protect metal parts from condensation and moisture.
- B. Corrosion-Inhibiting Vapor Capsule Manufacturers:
1. Northern Instruments: Model Zerust VC.
  2. Hoffmann Engineering: Model AHC series.

### 2.04 CONTROL PANELS

- A. Panel Construction and Interior Wiring: In accordance with the National Electrical Code (NEC), UL 508, state and local codes, and applicable sections of NEMA, ANSI, and ICECA.
- B. Conform to NEMA ratings as specified in individual equipment sections.
- C. Minimum Metal Thickness: 14-gauge.
- D. NEMA 250, Type 4X Panels: Type 316 stainless steel construction unless otherwise specified.
- E. Doors:
1. Three-point latching mechanisms in accordance with NEMA 250 Type 1 and 12 panels with doors higher than 18 inches.
  2. For other doors, stainless steel quick release clamps.

- F. Cutouts shall be cut, punched, or drilled and finished smoothly with rounded edges.
- G. Access: Front, suitable for installation with back and sides adjacent to or in contact with other surfaces, unless otherwise specified.
- H. Temperature Control:
  - 1. Size panels to adequately dissipate heat generated by equipment mounted on or in the panel.
  - 2. Furnish cooling fans with air filters if required to dissipate heat.
  - 3. For panels outdoors or in unheated areas, furnish thermostatically controlled heaters to maintain temperature above 40 degrees F or provide documentation that heaters are unnecessary.
- I. Push-to-Test Circuitry: For each push-to-test indicating light, provide a fused push-to-test circuit.
- J. Lighting: Provide at least one (1) hand switch controlled internal 100-watt incandescent light, or equivalent fluorescent or LED, for panels 12 cubic feet and larger.
- K. Provide at least one (1) 120-volt GFCI duplex receptacle for panels 12 cubic feet and larger.
- L. Finish:
  - 1. Metallic External Surfaces (Excluding Aluminum and Stainless Steel): Manufacturer's standard gray unless otherwise specified.
  - 2. Internal Surfaces: White enamel.
- M. Panel Manufacturers:
  - 1. Hoffman.
  - 2. H.F. Cox.
- N. Breather and Drains: Furnish with NEMA 250, Type 4 and 4X panels.
  - 1. Manufacturer and Product: Cooper Crouse-Hinds; ECD Type 4X Drain and Breather; Drain Model ECD1-N4D, Breather Model ECD1-N4B.

## 2.05 CONTROL PANEL ELECTRICAL

- A. Listing Mark for Enclosures: Mark stating "Listed Enclosed Industrial Control Panel" per UL 508A.

- B. Instrumentation, control, and electrical components, terminals, wires, and enclosures shall be UL recognized or UL listed.
  
- C. Control Panels without Motor Starters:
  - 1. Furnish main circuit breaker and a circuit breaker on each individual branch circuit distributed from power panel.
  - 2. Locate to provide clear view of and access to breakers when door is open. Group on single subpanel. Provide typed directory.
  - 3. Circuit Breakers:
    - a. Coordinate for fault in branch circuit trips, branch breaker, and not main breaker.
    - b. Branch Circuit Breakers: 15 amps at 250 V ac.
    - c. Breaker Manufacturers and Products:
      - 1) Heineman Electric Co. Series AM.
      - 2) Airpax/North American Philips Controls Corp. Series 205.
  
- D. Control Panels with 3-Phase Power Supplies and Motor Starters:
  - 1. Interlock main circuit breaker with panel door.
    - a. Mount logic controls, branch circuit breakers, overload reset switches, and other control circuit devices.
    - b. Mount operator controls and indications on front access door.
  - 2. Circuit Breakers:
    - a. In accordance with NEMA AB 1.
    - b. 18,000-ampere RMS symmetrical rating, minimum at 480 volts, unless otherwise specified.
    - c. Breakers, Except Motor Branch Breakers: Molded case magnetic.
    - d. 65,000-ampere RMS symmetrical rating, minimum at 480 volts, unless otherwise specified in package system equipment specification sections.
    - e. Tripping: Indicate with operator handle position.
  - 3. Magnetic Motor Starters:
    - a. Full voltage, NEMA ICS 2, Class A, Size 1 minimum.
    - b. Include three-pole bimetallic or eutectic alloy thermal overload relays sized for each motor.
    - c. Manual reset type with reset button mounted on panel door.
  - 4. Motor Control: 120V ac (except intrinsically safe circuits where applicable).
    - a. Power Control Transformer:
      - 1) Sufficient capacity to serve connected load, including for duplex outlet plus 100 VA (minimum).
      - 2) Limit voltage variation to 15 percent during contact pickup.
      - 3) Fuse one side of secondary winding and ground the other.
      - 4) Furnish primary winding fuses in ungrounded conductors.
  - 5. Power Monitoring Relay:

- a. Protect 3-phase equipment from single phasing, phase imbalance, or phase reversal.
  - b. Separate, isolated contact outputs shall stop motors and activate alarm light during abnormal conditions.
  - c. Transient Voltage Protection: 10,000 volts.
  - d. Manufacturer and Product: Furnas; Class 47.
- 6. Power Distribution Blocks: Furnish to parallel feed tap on branch circuit protective devices. Do not "leap frog" power conductors.
  - 7. Terminations for Power Conductors: Suitable for use with 75 degree C wire at full NFPA 70, 75 degrees C ampacity.

E. Wiring:

- 1. AC Circuits
  - a. Type: 600-volt, Type MTW stranded copper.
  - b. Size: For current to be carried, but not less than No. 14 AWG.
- 2. Analog Signal Circuits:
  - a. Type: 300-volt, Type 2 stranded copper, twisted shielded pairs.
  - b. Size: No. 18 AWG, minimum.
- 3. Other DC Circuits.
  - a. Type: 600-volt, Type MTW stranded copper.
  - b. Size: No. 18 AWG, minimum.
- 4. Separate analog and other dc circuits at least 6 inches from any ac power and control wiring.
- 5. Enclose wiring in sheet metal raceways or plastic wiring ducts. Wire identification shall be provided which shall consist of numbering and tagging at each termination.
  - a. Wire Tags: Machine printed, heat shrink.
  - b. Manufacturers:
    - 1) Brady PermaSleeve.
    - 2) Tyco Electronics.

F. Wiring Interface:

- 1. For analog and discrete signals, terminate at numbered terminal blocks.
- 2. For special signals, terminate power (240 volts or greater) at manufacturer's standard connectors.
- 3. For panel, terminate at equipment on which it is mounted.

G. Terminal Blocks:

- 1. Quantity:
  - a. For external connections.
  - b. Wire spare or unused panel mounted elements to their panel's terminal blocks.

- c. Spare Terminals: 20 percent of connected terminals, but not less than 10.
- 2. General: Group to keep 120 V ac circuits separate from 24 V dc circuits.
  - a. Connection Type: Screw connection clamp.
  - b. Compression Clamp:
    - 1) Hardened steel clamp with transversal grooves penetrating wire strands providing a vibration-proof connection.
    - 2) Guides strands of wire into terminal.
  - c. Screws: Hardened steel, captive, and self-locking.
  - d. Current Bar: Copper or treated brass.
  - e. Insulation:
    - 1) Thermoplastic rated for minus 55 to plus 110 degrees C.
    - 2) Two funnel shaped inputs to facilitate wire entry.
  - f. Mounting:
    - 1) Rail.
    - 2) Terminal block must be extractable from an assembly without displacing adjacent blocks.
    - 3) End Stops: One at each end of rail, minimum.
  - g. Wire Preparation: Stripping only.
  - h. Jumpers: Allow jumper installation without loss of space on or rail.
  - i. Marking System:
    - 1) Terminal number shown on both sides of terminal block.
    - 2) Allow use of preprinted and field marked tags.
    - 3) Terminal strip numbers shown on end stops.
    - 4) Mark terminal block and terminal strip numbers as shown.
- 3. Terminal Block, 120-Volt Power:
  - a. Rated Voltage: 600 Vac.
  - b. Rated Current: 30 amperes.
  - c. Wire Size: 22-10 AWG.
  - d. Rated Wire Size: 10 AWG.
  - e. Color: Gray body.
  - f. Spacing: 0.25 inch, maximum.
  - g. Manufacturer and Product: Entelec Type M4/6.
- 4. Terminal Block, Ground:
  - a. Wire Size: 22-12 AWG.
  - b. Rated Wire Size: 12 AWG.
  - c. Color: Green and yellow body.
  - d. Spacing: 0.25 inch, maximum.
  - e. Grounding: Ground terminal blocks electrically grounded to the mounting rail.
  - f. Manufacturer and Product: Entelec Type M4/6.P.
- 5. Terminal Block, Blade Disconnect Switch:
  - a. Use: Provide one for each discrete input and output field interface wire.
  - b. Rated Voltage: 600V ac.
  - c. Rated Current: 10 amperes.

- d. Wire Size: 22-12 AWG.
  - e. Rated Wire Size: 12 AWG.
  - f. Color: Gray body, orange switch.
  - g. Spacing: 0.25 inch, maximum.
  - h. Manufacturer and Product: Entrelec; Type M4/5 SN.
6. Terminal Block, Fused, 24V dc:
- a. Rated Voltage: 600V dc.
  - b. Rated Current: 6.3 amperes.
  - c. Wire Size: 22-12 AWG.
  - d. Rated Wire Size: 12 AWG.
  - e. Color: Gray body.
  - f. Fuse: 5 by 20 GMA fuses.
  - g. Fuse Marking: Fuse amperage rating shown on top of terminal block.
  - h. Indication: LED diode dc.
  - i. Leakage Current: 5.2 mA maximum.
  - j. Spacing: 0.32 inch, maximum.
  - k. Manufacturer and Product: Entrelec Type M4/5 SFD.
7. Terminal Block, Fused, 120V ac:
- a. Rated Voltage: 600V dc.
  - b. Rated Current: 6.3 amperes.
  - c. Wire Size: 22-12 AWG.
  - d. Rated Wire Size: 12 AWG.
  - e. Color: Gray body.
  - f. Fuse: 5 by 20 GMA fuses.
  - g. Fuse Marking: Fuse amperage rating shown on top of terminal block.
  - h. Indication: Neon lamp 110V ac.
  - i. Leakage Current: 1.8 mA maximum.
  - j. Spacing: 0.32 inch, maximum.
  - k. Manufacturer and Product: Entrelec; Type M4/5 SFL.
- H. Grounding: Internal copper grounding bus for ground connections on panels, consoles, racks, and cabinets.
- I. Relays:
- 1. General:
    - a. Relay Mounting: Plug-in type socket.
    - b. Relay Enclosure: Provide dust cover.
    - c. Socket Type: Screw terminal interface with wiring.
    - d. Socket Mounting: Rail.
    - e. Furnish hold-down clips.
  - 2. Control Circuit Switching Relay, Nonlatching:
    - a. Type: Compact general purpose plug-in.
    - b. Contact Arrangement: 3 Form C contacts.

- c. Contact Rating: 10A at 28 V dc or 240 V ac.
  - d. Contact Material: Silver cadmium oxide alloy.
  - e. Coil Voltage: As noted or shown.
  - f. Coil Power: 1.8 watts (dc), 2.7 VA (ac).
  - g. Expected Mechanical Life: 10,000,000 operations.
  - h. Expected Electrical Life at Rated Load: 100,000 operations.
  - i. Indication Type: Neon or LED indicator lamp.
  - j. Push-to-test button.
  - k. Manufacturer and Product: Potter and Brumfield; Series KUP.
3. Control Circuit Switching Relay, Latching:
- a. Type: Dual coil mechanical latching relay.
  - b. Contact Arrangement: 2 Form C contacts.
  - c. Contact Rating: 10 A at 28 V dc or 120 V ac.
  - d. Contact Material: Silver cadmium oxide alloy.
  - e. Coil Voltage: As noted or shown.
  - f. Coil Power: 2.7 watts (dc), 5.3 VA (ac).
  - g. Expected Mechanical Life: 500,000 operations.
  - h. Expected Electrical Life at Rated Load: 50,000 operations.
  - i. Manufacturer and Product: Potter and Brumfield; Series KB/KBP.
4. Control Circuit Switching Relay, Time Delay:
- a. Type: Adjustable time delay relay.
  - b. Contact Arrangement: 2 Form C contacts.
  - c. Contact Rating: 10 A at 240 V ac.
  - d. Contact Material: Silver cadmium oxide alloy.
  - e. Coil Voltage: As specified or shown.
  - f. Operating Temperature: Minus 10 to 55 degrees C.
  - g. Repeatability: Plus or minus 2 percent.
  - h. Delay Time Range: Select range such that time delay setpoint falls between 20 to 80 percent of range.
  - i. Time Delay Setpoint: As specified or shown.
  - j. Mode of Operation: As specified or shown.
  - k. Adjustment Type: Integral potentiometer with knob external to dust cover.
  - l. Manufacturer and Products: Potter and Brumfield.
    - 1) Series CB for 0.1-second to 100-minute delay time ranges.
    - 2) Series CK for 0.1- to 120-second delay time ranges.

J. Intrinsic Safety Barriers:

- 1. Intrinsically Safe Relays: Monitor discrete signals that originate in hazardous area and are used in a safe area.
  - a. Manufacturer and Product: MTL, Inc.; Series MTL 2000.
- 2. Intrinsically Safe Barriers: Interface analog signals as they pass from hazardous area to safe area.
  - a. Manufacturer and Product: MTL, Inc.; Series MTL 3000.

- K. Programmable Logic Controllers (PLCs)
1. Overview: Provide PLC systems if noted in the respective process equipment specifications. Each system shall include an industrially hardened operator interface. Program each system to implement specific functional control and monitoring requirements specified in each process specification Section.
  2. PLC's shall be Siemens Simatic and shall comply with specification Section 40 94 00.
- L. Front-of-Panel Devices in Conjunction with NEMA 250, Type 1 and 12 Panels:
1. Potentiometer Units:
    - a. Three-terminal, oil-tight construction, resolution of 1 percent and linearity of plus or minus 5 percent.
    - b. Single-hole, panel mounting accommodating panel thicknesses between 1/8 and 1/4 inch.
    - c. Include legend plates with service markings.
    - d. Manufacturers and Products:
      - 1) Allen-Bradley: Model 800T.
      - 2) Eaton/Cutler-Hammer: Model 10250T
  2. Indicating Lights:
    - a. Heavy-duty, push-to-test type, oil-tight, industrial type with integral transformer for 120 Vac applications.
    - b. Screwed on prismatic glass lenses in colors noted and factory engraved legend plates for service legend.
    - c. Manufacturers and Products:
      - 1) Eaton/Cutler-Hammer; Type 10250T
      - 2) General Electric; CR2940U
  3. Pushbutton, Momentary:
    - a. Heavy-duty, oil-tight, industrial type with full guard and momentary contacts rated for 10 amperes continuous at 120 V ac.
    - b. Standard size legend plates with black field and white markings for service legend.
    - c. Manufacturers and Products:
      - 1) Square D; Class 9001, Type K.
      - 2) Eaton/Cutler-Hammer, Type T.
      - 3) General Electric; Type CR-2940.
  4. Selector Switch:
    - a. Heavy-duty, oil-tight, industrial type with contacts rated for 120 V ac service at 10 amperes continuous.
    - b. Standard size, black field, legend plates with white markings for service legend.
    - c. Operators: Black knob type.



- d. Single-hole mounting, accommodating panel thicknesses from 1/16 inch to 1/4 inch.
  - e. Manufacturers and Products for Units with up to Four Selection Positions:
    - 1) Eaton/Cutler-Hammer; Type T.
    - 2) Square D; Type K.
  - f. Manufacturers and Products for Units with up to 12 Selection Positions:
    - 1) Rundel-Idec; Standard Cam Switch.
    - 2) Electroswitch; 31.
- M. Front-of-Panel Devices Used in Conjunction with NEMA 250, Type 4X Panels:
- 1. Potentiometer, Watertight:
    - a. Three-terminal, heavy-duty NEMA 250, Type 4X watertight construction, resolution of 1 percent and linearity of plus or minus 5 percent.
    - b. Single-hole, panel mounting accommodating panel thicknesses between 1/8 and 1/4 inch.
    - c. Include engraved legend plates with service markings.
    - d. Manufacturer and Product: Allen-Bradley; Bulletin 800H.
  - 2. Indicating Lights, Watertight:
    - a. Heavy-duty, push-to-test type, NEMA 250, Type 4X watertight, industrial type with integral transformer for 120 V ac applications and corrosion-resistant service.
    - b. Screwed on prismatic lenses and factory engraved legend plates for service legend.
    - c. Manufacturers and Products:
      - 1) Square D; Type SK.
      - 2) Allen-Bradley; Type 800H.
  - 3. Pushbutton, Momentary, Watertight:
    - a. Heavy-duty, NEMA 250, Type 4X watertight, industrial type with momentary contacts rated for 120 V ac service at 10 amperes continuous and corrosion-resistant service.
    - b. Standard size, black field, legend plates with white markings for service legend.
    - c. Manufacturers and Products:
      - 1) Square D; Type SK.
      - 2) Allen-Bradley; Type 800H.
  - 4. Selector Switch, Watertight:
    - a. Heavy-duty, NEMA 250, Type 4X watertight, industrial type with contacts rated for 120 V ac service at 10 amperes continuous and corrosion-resistant service.
    - b. Standard size, black field, legend plates with white for service legend.
    - c. Operators: Black knob type.

- d. Single-hole mounting, accommodating panel thicknesses 1/16 to 1/4 inch.
- e. Manufacturer and Products:
  - 1) Square D; Class 9001, Type SK.
  - 2) Allen-Bradley; Type 800H.

2.07 NAMEPLATES, NAMETAGS, AND SERVICE LEGENDS

- A. Nametags: Permanently mounted bearing entire ISA tag number.
  - 1. Panel Mounted: Plastic, mounted to instrument behind panel face.
  - 2. Field Mounted: Engraved Type 316 stainless steel, 22-gauge minimum thickness, attached with stainless steel.
- B. Service Legends (Integrally Mounted with Instrument) and Nameplates:
  - 1. Engraved, rigid, laminated plastic type with adhesive back. Furnish service legends and nameplates to adequately describe functions of panel face mounted instruments.
  - 2. Color: White with black letters.
  - 3. Letter Height: 3/16 inch.
  - 4. For each panel, face mounted laminated nameplate inscribed with the panel name and tag number. Color shall be white with black letters 1/2-inch high.
- C. Standard Light Colors and Inscriptions: Unless otherwise specified in individual equipment specifications, use the following color code and inscriptions:

<b>Tag</b>	<b>Inscription(s)</b>	<b>Color</b>
ON	ON	Red
OFF	OFF	Green
OPEN	OPEN	Red
CLOSED	CLOSED	Green
LOW	LOW	Amber
FAIL	FAIL	Amber
HIGH	HIGH	Amber
AUTO	AUTO	White
MANUAL	MANUAL	Yellow
LOCAL	LOCAL	White
REMOTE	REMOTE	Yellow
FORWARD	FORWARD	Red
REVERSE	REVERSE	Blue

- 1. Lettering: Black on white and amber lenses; white on red and green lenses.

2. Standard Pushbutton Colors and Incriptions:
  - a. Use following unless otherwise noted in individual Loop Specifications or Instrument List:
  - b. Lettering Color:
    - 1) Black on white and yellow buttons.
    - 2) White on black, red, and green buttons.

<b>Tag Function</b>	<b>Inscription(s)</b>	<b>Color</b>
OO	ON OFF	Black Black
OC	OPEN CLOSE	Black Black
OCA	OPEN CLOSE AUTO	Black Black Black
OOA	ON OFF AUTO	Black Black Black
MA	MANUAL AUTO	Black Black
SS	START STOP	Black Black
RESET	RESET	Black
EMERGENCY STOP	EMERGENCY STOP	Red

## 2.08 ELECTRICAL SURGE AND TRANSIENT PROTECTION

- A. General: Equip control panels with surge-arresting devices to protect equipment from damage due to electrical transients induced in interconnecting lines from lightning discharges and nearby electrical devices.
- B. Suppressor Locations:
  1. At point of connection between each equipment item, including ac powered transmitters and associated power supply conductors (direct wired equipment).
  2. On analog pairs at each end when the pair travels outside of building. Also provide in other locations where equipment sensitivity to surges and transients requires additional protection beyond that inherent to design of equipment.
- C. Power Supply Suppressor Assemblies:
  1. Suitable for connection to 120-volt, single-phase power supplies; EDCO HSP Series.

2. Suitable for connection to 480-volt, three-phase power supplies; Square D J9200-9A.
- D. Analog Signal Cable Suppressor Assemblies:
1. Epoxy encapsulated within a phenolic enclosure.
  2. Flame retardant.
  3. Four-lead devices; include a threaded mounting/grounding stud.
  4. Manufacturers and Products:
    - a. EDCO; SRA-64Series.
    - b. Joslyn; Series 1800 and 1669.
- E. Grounding: Coordinate surge suppressor grounding in field panels and field instrumentation as specified in Section 26 05 26, Grounding and Bonding for Electrical Systems, and suppressor manufacturer's requirements. Furnish control panels with an integral copper grounding bus for connection of suppressors and other required instrumentation.

### **PART 3 EXECUTION**

#### **3.01 ELECTRICAL POWER AND SIGNAL WIRING**

- A. Restrain control and signal wiring in control panels by plastic ties or ducts. Secure hinge wiring at each end so bending or twisting will occur around the longitudinal axis of wire. Protect bend area with a sleeve.
- B. Arrange wiring neatly, cut to proper length, and remove surplus wire. Install abrasion protection for wire bundles passing through holes or across edges of sheet metal.
- C. Use manufacturer's recommended tool with sized anvil for crimp terminations. No more than one wire may be terminated in a single crimp lug. No more than two lugs may be installed on a single screw terminal.
- D. Do not splice or tap wiring except at device terminals or terminal blocks.

#### **3.02 PROTECTION**

- A. Protect enclosures and other equipment containing electrical, instrumentation and control devices, including spare parts, from corrosion through the use of corrosion-inhibiting vapor capsules.
- B. Periodically replace capsules in accordance with capsule manufacturer's recommendations. Replace capsules at Substantial Completion.

**END OF SECTION**

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