



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: **OSP – 0361 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Preferred Utilities Manufacturing Corporation

Manufacturer's Technical Representative: Marlon Maves

Mailing Address: 31-35 South Street, Danbury, CT 06810

Telephone: (203) 743-6741x1709 Email: mmaves@preferred-mfg.com

Product Information

Product Name: Fuel Management System Cabinets

Product Type: Control Panels

Product Model Number: See Certified Product Table

(List all unique product identification numbers and/or part numbers)

General Description: Wall-mounted panels that control generators, pumps, motors, etc. Seismic enhancements made to the test units and modifications required to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid wall mounted

Applicant Information

Applicant Company Name: Preferred Utilities Manufacturing Corporation

Contact Person: Marlon Maves

Mailing Address: 31-35 South Street, Danbury, CT 06810

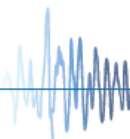
Telephone: (203) 743-6741x1709 Email: mmaves@preferred-mfg.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 1/6/2017

Title: Design Engineer/Project Manager Company Name: Preferred Utilities Manufacturing Corporation

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: Forell/Elsesser Engineers, Inc.

Name: Marco Scanu, SE California License Number: S4454

Mailing Address: 160 Pine St., 6th Flr., San Francisco, CA 94111

Telephone: (415) 837-0700 Email: m.scanu@forell.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
- Other (Please Specify): _____

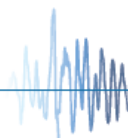
Testing Laboratory

Company Name: National Technical Systems

Contact Name: Breanne Siska

Mailing Address: 38995 Cherry Street, Newark, CA 94560

Telephone: (510) 578-3500 Email: Breanne.Siska@nts.com





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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 1.93

S_{DS} (Design spectral response acceleration at short period, g) = 2.57

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See attachment, UUT Summary Sheets

Overall dimensions and weight (or range thereof) = See attachment, Certified Products Table

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) = _____

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2015: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): Certified Products Table, Certified Subcomponents Table, UUT Summary Sheets

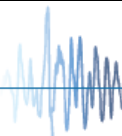
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature:  Date: June 20, 2017

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.57 z/h = 1

Condition of Approval (if applicable): _____



Preferred Utilities - Fuel Management System Cabinets

II. Certified Components

Preferred Utilities Enclosures (NEMA 4)

Width	Height	Depth	Maximum Weight	Manufacturer	Part Number	Tested
20.0 in	35.0 in	11.0 in	98.0 lbs	Preferred Utilities	90218	Test Report R93006 UUT-1
20.0 in	35.0 in	11.0 in	124.0 lbs	Preferred Utilities	90218-2	Test Report R93006 UUT-2A

Note: All Enclosures constructed of cold formed carbon steel

Hammond Enclosures (NEMA 4)

Width	Height	Depth		Manufacturer	Part Number	Tested
20.0 in	20.0 in	9.0 in	46.0 lbs	Hammond	EN4SD20208GY	Test Report R93006 UUT-3
20.0 in	20.0 in	11.0 in	56.0 lbs	Hammond	EN4SD202010GY	Test Report R93006 UUT-2B
20.0 in	20.0 in	11.0 in	35.0 lbs	Hammond	SQ1402337	Test Report PR052698.01 EUT-4 ³
20.0 in	20.0 in	12.0 in	130.0 lbs	Hammond	EN4SD202012GY	Interpolated
24.0 in	20.0 in	8.0 in	130.0 lbs	Hammond	EN4SD20248GY	Interpolated
24.0 in	20.0 in	10.0 in	130.0 lbs	Hammond	EN4SD202410GY	Interpolated
24.0 in	20.0 in	12.0 in	130.0 lbs	Hammond	EN4SD242012GY	Interpolated
20.0 in	24.0 in	8.0 in	130.0 lbs	Hammond	EN4SD24208GY	Interpolated
20.0 in	24.0 in	10.0 in	130.0 lbs	Hammond	EN4SD242010GY	Interpolated
24.0 in	24.0 in	8.0 in	130.0 lbs	Hammond	EN4SD24248GY	Interpolated
24.0 in	24.0 in	10.0 in	130.0 lbs	Hammond	EN4SD242410GY	Interpolated
24.0 in	24.0 in	12.0 in	130.0 lbs	Hammond	EN4SD242412GY	Interpolated
30.0 in	24.0 in	8.0 in	130.0 lbs	Hammond	EN4SD24308GY	Interpolated
20.0 in	30.0 in	8.0 in	130.0 lbs	Hammond	EN4SD30208GY	Interpolated
20.0 in	30.0 in	10.0 in	130.0 lbs	Hammond	EN4SD302010GY	Interpolated
20.0 in	35.0 in	11.0 in	130.0 lbs	Hammond	SE1400529	Test Report PR052698.01 EUT-2
24.0 in	30.0 in	8.0 in	226.0 lbs	Hammond	EN4SD30248GY	Interpolated
24.0 in	30.0 in	10.0 in	226.0 lbs	Hammond	EN4SD302410GY	Interpolated
24.0 in	30.0 in	12.0 in	226.0 lbs	Hammond	EN4SD302412GY	Interpolated
24.0 in	30.0 in	16.0 in	226.0 lbs	Hammond	EN4SD302416GY	Interpolated
30.0 in	30.0 in	8.0 in	226.0 lbs	Hammond	EN4SD30308GY	Interpolated
30.0 in	30.0 in	10.0 in	226.0 lbs	Hammond	EN4SD303010GY	Interpolated
30.0 in	30.0 in	12.0 in	226.0 lbs	Hammond	EN4SD303012GY	Interpolated
36.0 in	30.0 in	8.0 in	226.0 lbs	Hammond	EN4SD30368GY	Interpolated
24.0 in	36.0 in	8.0 in	226.0 lbs	Hammond	EN4SD36248GY	Interpolated
24.0 in	36.0 in	10.0 in	226.0 lbs	Hammond	EN4SD362410GY	Interpolated
24.0 in	36.0 in	12.0 in	226.0 lbs	Hammond	EN4SD362412GY	Interpolated
30.0 in	36.0 in	8.0 in	226.0 lbs	Hammond	EN4SD36308GY	Interpolated
30.0 in	36.0 in	10.0 in	226.0 lbs	Hammond	EN4SD363010GY	Interpolated
30.0 in	36.0 in	12.0 in	226.0 lbs	Hammond	EN4SD363012GY	Interpolated
30.0 in	36.0 in	16.0 in	226.0 lbs	Hammond	EN4SD363016GY	Interpolated
30.0 in	36.0 in	20.0 in	226.0 lbs	Hammond	EN4SD363020GY	Interpolated
36.0 in	36.0 in	8.0 in	226.0 lbs	Hammond	EN4SD36368GY	Interpolated
36.0 in	36.0 in	10.0 in	226.0 lbs	Hammond	EN4SD363610GY	Interpolated
36.0 in	36.0 in	12.0 in	226.0 lbs	Hammond	EN4SD363612GY	Interpolated
24.0 in	42.0 in	8.0 in	226.0 lbs	Hammond	EN4SD42248GY	Interpolated
30.0 in	42.0 in	8.0 in	226.0 lbs	Hammond	EN4SD42308GY	Interpolated
30.0 in	42.0 in	10.0 in	226.0 lbs	Hammond	EN4SD423010GY	Interpolated
30.0 in	42.0 in	12.0 in	226.0 lbs	Hammond	EN4SD423012GY	Interpolated
36.0 in	42.0 in	8.0 in	226.0 lbs	Hammond	EN4SD42368GY	Interpolated
36.0 in	42.0 in	10.0 in	226.0 lbs	Hammond	EN4SD423610GY	Interpolated
36.0 in	42.0 in	12.0 in	226.0 lbs	Hammond	EN4SD423612GY	Interpolated
36.0 in	42.0 in	16.0 in	226.0 lbs	Hammond	EN4SD423616GY	Interpolated
24.0 in	48.0 in	8.0 in	226.0 lbs	Hammond	EN4SD48248GY	Interpolated
24.0 in	48.0 in	10.0 in	226.0 lbs	Hammond	EN4SD482410GY	Interpolated
24.0 in	48.0 in	12.0 in	226.0 lbs	Hammond	EN4SD482412GY	Interpolated
30.0 in	48.0 in	8.0 in	226.0 lbs	Hammond	EN4SD48308GY	Interpolated
30.0 in	48.0 in	10.0 in	226.0 lbs	Hammond	EN4SD483010GY	Interpolated
36.0 in	48.0 in	8.0 in	226.0 lbs	Hammond	EN4SD48368GY	Interpolated
36.0 in	48.0 in	10.0 in	226.0 lbs	Hammond	EN4SD483610GY	Interpolated
36.0 in	48.0 in	13.0 in	226.0 lbs	Hammond	EN4SD483612GY	Test Report R93006 UUT-4
36.0 in	48.0 in	16.0 in	424.0 lbs	Hammond	EN4SD483616GY	Extrapolated
36.0 in	48.0 in	20.0 in	424.0 lbs	Hammond	EN4SD483620GY	Extrapolated
36.0 in	60.0 in	16.0 in	424.0 lbs	Hammond	EN4SD603616GY	Extrapolated
48.0 in	48.0 in	12.0 in	424.0 lbs	Hammond	SE1100629	Test Report PR052698.01 EUT-4 ³

Notes:

1. All Enclosures constructed of cold formed carbon steel
2. EN enclosures are standard Hammond part numbers. SQ and SE enclosures are customized by Hammond for Preferred Utilities through the addition of openings in the front panels and/or rear wiring access holes.
3. EUT-4 consisted of two integrally-connected enclosures; their weights are presented separately even though they are always sold together as one single unit with a maximum weight of 459 lbs.

Preferred Utilities - Fuel Management System Cabinets

II. Certified Subcomponents Table

Displays			
Description	Manufacturer	Part Number	Tested
OPERATOR INTERFACE TERMINAL 4 INCH WITH NEMA 4 FRONT	RED LION CONTROLS	OEMG3H02 CUSTOM G304K	Test Report R93006 UUT-3
OPERATOR INTERFACE TERMINAL 4 INCH WITH NEMA 4X FRONT	RED LION CONTROLS	G306MS00	Extrapolated
OPERATOR INTERFACE TERMINAL 10.4 INCH WITH NEMA 4X FRONT	RED LION CONTROLS	OEMG3D34 CUSTOM G310C2	Test Report R93006 UUT-2A & UUT-4
OPTIONAL COMMUNICATIONS CARD FOR OIT-6 AND OIT-10	RED LION CONTROLS	G3RS0000	Test Report R93006 UUT-4
OPERATOR INTERFACE TERMINAL 4 INCH WITH NEMA 4 FRONT	RED LION CONTROLS	OEMG3H09	Test Report PR052698.01 EUT-2
Motor Starters			
Description	Manufacturer	Part Number	Tested
MANUAL MOTOR STARTERS: 1/2 HP-480V (ADJUSTABLE FLA:63-1.0)	GENERAL ELECTRIC	GPS1BHAЕ	Extrapolated
MANUAL MOTOR STARTERS: 3/4HP-480V (ADJUSTABLE FLA:1-1.6)	GENERAL ELECTRIC	GPS1BHAF	Test Report PR052698.01 EUT-2
MANUAL MOTOR STARTERS: 1HP-480V (ADJUSTABLE FLA:1.6-2.5)	GENERAL ELECTRIC	GPS1BHAG	Interpolated
MANUAL MOTOR STARTERS: 2HP-480V (ADJUSTABLE FLA:2.5-4)	GENERAL ELECTRIC	GPS1BHAH	Test Report R93006 UUT-2B & UUT-4
MANUAL MOTOR STARTERS: 3HP-480V (ADJUSTABLE FLA:4-6.3)	GENERAL ELECTRIC	GPS1BHAJ	Test Report R93006 UUT-4
MANUAL MOTOR STARTERS: 5HP-480V (ADJUSTABLE FLA:6.3-10)	GENERAL ELECTRIC	GPS1BHAK	Test Report R93006 UUT-2B
MANUAL MOTOR STARTERS: 7.5HP-480V (ADJUSTABLE FLA:9-13)	GENERAL ELECTRIC	GPS1BHAL	Extrapolated
MANUAL MOTOR STARTERS: 10HP-480V (ADJUSTABLE FLA:11-16)	GENERAL ELECTRIC	GPS1BHAM	Extrapolated
MANUAL MOTOR STARTERS: 10HP-480 (ADJUSTABLE FLA:14-20)	GENERAL ELECTRIC	GPS1BSAN	Extrapolated
MANUAL MOTOR STARTERS: 15HP-480 (ADJUSTABLE FLA:19-25), TOGGLE	GENERAL ELECTRIC	GPS1BHAP	Extrapolated
MANUAL MOTOR STARTERS: 20HP-480 (ADJUSTABLE FLA:24-32)	GENERAL ELECTRIC	GPS1BSAR	Extrapolated
MANUAL MOTOR STARTER WITH CONTACTOR: 30HP-480 (ADJUSTABLE FLA:35-50)	GENERAL ELECTRIC	GP22TA06JA	Extrapolated
Motor Contactors			
Description	Manufacturer	Part Number	Tested
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	GENERAL ELECTRIC	CL00A310TJ	Test Report R93006 UUT-1, UUT-3 & UUT-4, Test Report PR052698.01 EUT-2, EUT-4
1NO 1NC AUXILIARY CONTACT FOR MMS - SIDE MOUNT	GENERAL ELECTRIC	GPAC11LRA	Test Report R93006 UUT-1, UUT-2B & UUT-4, Test Report PR052698.01 EUT-2
Motor Circuit Breakers			
Description	Manufacturer	Part Number	Tested
CIRC. BKR., 1 POLE, 15 AMP, 120/240 VAC, THERMAL-MAGNETIC	SQUARE D	QOU-115-SQUARE D	Test Report R93006 UUT-3
CIRCUIT BREAKER - 15 AMP SINGLE POLE	WESTINGHOUSE	QC-1015	Test Report R93006 UUT-1, Test Report PR052698.01 EUT-4
Switches			
Description	Manufacturer	Part Number	Tested
SW, 2 POS. SEL., NEMA 4/13	IDEC	ASD210N	Test Report R93006 UUT-1, UUT-2A, UUT-3 & UUT-4
SW, SEL, 3 POS.,MAINT,NEMA 4/13	IDEC	ASD320N	Test Report R93006 UUT-2A, UUT-3, UUT-4
PUSHBUTTON, RED MUSHROOM HEAD, PUSH-PULL,	IDEC	AYD311N-R	Test Report R93006 UUT-4
SW, 3 POS, 22MM, MAINTAINED, NEMA 4/13, STD KNOB, 2 N.O. 2N.C., 22.5MM ACTUATOR	AUTOMATION DIRECT	GCX1320-22	Test Report PR052698.01 EUT-2, EUT-4
SW, 2 POS, 22MM, MAINTAINED, NEMA 4/13, STD KNOB, 1 N.O., 22.5MM ACTUATOR	AUTOMATION DIRECT	GCX1300	Test Report PR052698.01 EUT-2, EUT-4
Lights			
Description	Manufacturer	Part Number	Tested
LIGHT, PILOT, 120V, WHITE LENS, W/LAMP, FULL VOLTAGE	IDEC	APD199N-2-120 IDEC	Test Report R93006 UUT-3
CONTROL POWER ON LIGHT	IDEC	APD199N-W-120	Test Report R93006 UUT-4
PILOT LIGHT-22 MM, METAL LED ILLUMINATED, WHITE LENS, 120 VAC	AUTOMATION DIRECT	GCX1236-120L	Test Report PR052698.01 EUT-4

Preferred Utilities - Fuel Management System Cabinets

II. Certified Subcomponents Table

Communication Devices			
Description	Manufacturer	Part Number	Tested
MODBUS 485 TO BACNET MSTP CONVERTER	CONTROL SOLUTIONS	BB2-3010	Test Report R93006 UUT-1
OIT TERMINAL ADAPTER KIT	PREFERRED UTILITIES	190777	Test Report R93006 UUT-2A & UUT-4
OPERATOR INTERFACE TERMINAL BLIND BRIDGE	RED LION CONTROLS	OEMDA000	Test Report R93006 UUT-2A & UUT-4
COMMUNICATION CABLE, G3 / MODULAR CONTROLLER TO KOYO MODEL 2XX	RED LION CONTROLS	CBLKOYO0	Test Report R93006 UUT-3
CABLE ADAPTER - FOR OIT4, DB9 FEMALE TO RS232 FEMALE	RED LION CONTROLS	CBLADK03	Test Report R93006 UUT-3
SCADA INTERFACE SHIELDED PIGTAIL CABLE D2-DSCBL-2	KOYO	D2-DSCBL-2	Test Report R93006 UUT-4
Transformers			
Description	Manufacturer	Part Number	Tested
TRANSFORMER, 250 VA, 460/230/208 VAC PRIM., 115 VAC SEC.	HAMMOND	PH250MLI	Test Report R93006 UUT-2A & UUT-2B, Test Report PR052698.01 EUT-4
TRANSFORMER, 2000VA - 230/460 VAC PRIM. - 115 VAC SEC.	HAMMOND	SP2000MQMJ	Test Report PR052698.01 EUT-2, EUT-4
TRANSFORMER, 250 VA, 120 VAC PRI. / 24 VAC SEC, W/ SEC. FUSE CLIP	HAMMOND	PH250PG	Test Report PR052698.01 EUT-4
TRANSFORMER, 250 VA, 415/380 VAC PRIM., 220/115 VAC SEC.	HAMMOND	PH250MEMX	Test Report PR052698.01 EUT-4
TRANSFORMER - 500 VA, 208V PRIMARY / 120V SECONDARY, OPEN TYPE	HAMMOND	PH500SP	Test Report PR052698.01 EUT-4
TRANSFORMER, 500VA, 575,460,230V PRIMARY / 115/95V SECONDARY	HAMMOND	PH500MBMH	Test Report PR052698.01 EUT-4
TRANSFORMER, 750 VA, 208/230/460v PRIMARY/120V SC.	HAMMOND	PH750MLI	Test Report PR052698.01 EUT-4
TRANSFORMER, 1000VA, 460,230,208V PRIMARY/120V SECONDARY	HAMMOND	PH1000MLI	Test Report PR052698.01 EUT-4
TRANSFORMER, 1500VA, 575,460,230V PRIM/120V SEC	HAMMOND	PH1500MBMH	Test Report PR052698.01 EUT-4
TRANSFORMER - 2000 VA, 208V PRIMARY / 120V SECONDARY	HAMMOND	PH2000SP	Test Report PR052698.01 EUT-4
Power Supply			
Description	Manufacturer	Part Number	Tested
24 VDC POWER SUPPLY, 2.5A OUTPUT, 120VAC INPUT	CARLO GARVAZZI	SPD24601	Test Report R93006 UUT-1, UUT-2A & UUT-3
24VDC PWR SUPPLY, 5A OUTPUT, 120VAC	CARLO GARVAZZI	SPD241201	Test Report R93006 UUT-4
RECEPTACLE, DUPLEX, 15A 125V, BROWN	HUBBELL	LEV CR15-BRN	Test Report R93006 UUT-1 & UUT-4
JUNCTION BOX - 2WX4HX2-1/8D	T & B	58371-1/2	Test Report R93006 UUT-1 & UUT-4
Relays			
Description	Manufacturer	Part Number	Tested
EMERGENCY TRANSFER RELAY - 120V COIL - 10 AMP	TELEMECANIQUE	CA2KN22F7	Test Report R93006 UUT-4
EMERGENCY TRANSFER RELAY - 120V COIL - REVERSING	TELEMECANIQUE	LC2D25G7	Interpolated
EMERGENCY TRANSFER RELAY	TELEMECANIQUE	LC2D25O1L6	Interpolated
EMERGENCY TRANSFER RELAY - 120V COIL - 50 AMP	TELEMECANIQUE	LC1D50G6	Interpolated
EMERGENCY TRANSFER RELAY - 120V COIL - 62 AMPS	TELEMECANIQUE	LAR07AJS	Interpolated
EMERGENCY TRANSFER RELAY - 208V COIL - 7.5 HP@220V	TELEMECANIQUE	LC2D25LE7	Interpolated
EMERGENCY TRANSFER RELAY - 208V COIL - 10 HP @ 230V	TELEMECANIQUE	LAR04AL	Interpolated
EMERGENCY TRANSFER RELAY, 208V, 80 AMP	TELEMECANIQUE	LC2D80L6	Interpolated
EMERGENCY TRANSFER RELAY CONTACTOR MECH INTERLOCK FOR LC1D40	TELEMECANIQUE	LA9D4CM	Extrapolated
RELAY, PLUG-IN, SPDT, 120VAC, 60HZ	MAGNECRAFT	W199AX-4	Extrapolated
RELAY, PLUG-IN, DPDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XBXC-120A	Test Report R93006 UUT-1, UUT-2A, UUT-3 & UUT-4
RELAY, PLUG-IN, TPDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XCXC-120A	Test Report R93006 UUT-2A
RELAY LATCHING DPDT, 10 AMP CONTACTS 120 VAC 60 HZ	IDEC	RR2KP-U-AC120V	Extrapolated
RELAY, PLUG-IN, DPDT, 10 AMP CONTACTS 24VDC	IDEC	RH2B-U-DC24V	Test Report R93006 UUT-3
RELAY, DPDT, 10A, 48 VDC COIL	IDEC	RH2B-UDC48V	Interpolated
RELAY, PLUG-IN, 3PDT, 10A CONTACTS, 240VAC, 50/60HZ	IDEC	RR3PA-U-AC240V	Interpolated
RELAY, PLUG IN, 3PDT, 10A, 24VDC COIL	IDEC	RH3BUL-24VDC	Interpolated
RELAY, PLUG IN, 4PDT, 10A, 48VDC COIL	IDEC	RH4B-UDC48V	Interpolated
RELAY, PLUG-IN, 4PDT, 10 AMP CONTACTS 120VAC, 60HZ	IDEC	RH4B-U-AC120V	Test Report R93006 UUT-4
RELAY, PROGRAMMABLE TIME DELAY, 11 PIN,	SSAC	TRDU120A3	Test Report R93006 UUT-4
RELAY, PLUG-IN, 3PDT, 10 AMP CONTACTS 120VAC, 60HZ	IDEC	RR3PA-UAC120V	Test Report PR052698.01 EUT-2, EUT-4

**Preferred Utilities - Fuel Management System Cabinets
II. Certified Subcomponents Table**

Relay Bases			
Description	Manufacturer	Part Number	Tested
SOCKET, PLUG-IN TYPE, 8 PIN OCTAL BASE, SCREW TERMINALS	IDEC	SR2P-06	Test Report R93006 UUT-1, UUT-2A, UUT-3 & UUT-4
SOCKET, PLUG-IN TYPE, 11 PIN BASE, SCREW TERMINALS	IDEC	SR3P-05	Test Report R93006 UUT-2A & UUT-4, Test Report PR052698.01 EUT-2, EUT-4
SOCKET, DIN RAIL MOUNT, FOR DPDT COMPACT BLADE TERMINAL RELAY	IDEC	CON040WAL	Test Report R93006 UUT-3
SOCKET, 4PDT, BLADE TYPE, SNAP MOUNT	IDEC	SR4B-05	Test Report R93006 UUT-4
Preferred Utilities PWC Modules			
Description	Manufacturer	Part Number	Tested
PLANT WIDE CONTROLLER WITH CPU, DISPLAY AND KEYBOARD	PREFERRED UTILITIES	PWCN4-CADHRO	Test Report R93006 UUT-1 & UUT-2A
PWC EMPTY MODULE SLOT FILLER FACEPLATE	PREFERRED UTILITIES	90183	Test Report R93006 UUT-1
PWC STANDARD PUMP SET PANEL SINGLE PHASE WIRE HARNESS	PREFERRED UTILITIES	190141	Test Report R93006 UUT-1
PWC STANDARD PUMP SET PANEL THREE PHASE WIRE HARNESS	PREFERRED UTILITIES	190142	Test Report R93006 UUT-2A
PWC DIN BOARD, 15 CH. 120 VAC DISCRETE INPUTS	PREFERRED UTILITIES	190608	Test Report R93006 UUT-1 & UUT-2A
PWC AIN BOARD, 8 CH., UNIVERSAL ANALOG INPUTS	PREFERRED UTILITIES	190609	Test Report R93006 UUT-2A
PWC HOA-ROUTBOARD, 5 CH. RELAY OUTPUT WITH HAND-OFF-AUTO BYPASS SWITCH	PREFERRED UTILITIES	190611	Test Report R93006 UUT-1
PWC ROUT BOARD, 8 CH. RELAY OUTPUT BOARD	PREFERRED UTILITIES	190617	Test Report R93006 UUT-2A
PWC A/M-AOUT BOARD, 5 CH. ANALOG OUTPUT WITH AUTO/MANUAL BYPASS STATION	PREFERRED UTILITIES	190613	Test Report R93006 UUT-2A
PWC 4-20 MA OUTPUT DAUGHTER BOARD, FOR USE IN A/M-AOUT 190613	PREFERRED UTILITIES	190616	Test Report R93006 UUT-2A
Koyo PLC Modules			
Description	Manufacturer	Part Number	Tested
DL 205 PLC, 4-SLOT BASE, INTERNAL 110/220 VAC POWER	KOYO	D2-04B-1	Test Report R93006 UUT-3
DL205 CPU260, 30.4K WORDS TOTAL MEMORY, FLASH MEMORY,	KOYO	D2-260	Test Report R93006 UUT-3 & UUT-4
DL 205 PLC, INPUT MODULE, 8 PT, 110 VAC	KOYO	D2-08NA-1	Test Report R93006 UUT-3 & UUT-4
DL 205 PLC, OUTPUT MODULE, 8 PT, RELAY	KOYO	D2-08TR	Test Report R93006 UUT-3 & UUT-4
DL 205 PLC, 9 SLOT BASE, INTERNAL 110/220 VAC POWER	KOYO	D2-09B-1	Test Report R93006 UUT-4
DL 205 PLC, MODULE, FILLER	KOYO	D2-FILL	Test Report R93006 UUT-3 & UUT-4
DL 205 PLC, INPUT MODULE, 4PT, ANALOG	KOYO	F2-04AD-1	Test Report R93006 UUT-4
DL 205 PLC, OUTPUT MODULE, 2PT, ANALOG	KOYO	F2-04DA-1	Test Report R93006 UUT-4
EXPANSION BASE CONTROLLER MODULE D2-CM	KOYO	D2-CM	Test Report R93006 UUT-4
BASE EXPANSION MODULE FOR LOCAL EXPANSION D2-EM	KOYO	D2-EM	Test Report R93006 UUT-4
BASE EXPANSION CABLE D2-EXCBL-1	KOYO	D2-EXCBL-1	Test Report R93006 UUT-4
ETHERNET COMMUNICATION MODULE, MASTER/SLAVE ON AN ETHERNET W/MODBUS TCP/IP	KOYO	H2-ECOM100	Test Report R93006 UUT-4
Tank Gauge			
Description	Manufacturer	Part Number	Tested
FUEL SENTRY TANK GAUGE	PREFERRED UTILITIES	TG-EL-D4A-00-0-0	Test Report R93006 UUT-4
PRINTER FOR USE WITH TG-EL-D4A, INCLUDES 120VPWR SUPPLY AND CONNECTOR	PREFERRED UTILITIES	TG-EL-D4A-PRINTER	Test Report R93006 UUT-4

Preferred Utilities - Fuel Management System Cabinets

II. Certified Subcomponents Table

Miscellaneous			
Description	Manufacturer	Part Number	Tested
ALARM BELL, 120 V, 6 IN. DIA.	WHELOK	43T-G6-115-S-23	Test Report R93006 UUT-1, UUT-2A & UUT-4
SONALERT, MALLORY, 30-120VAC VOLTAGE/2900 HZ	SONALERT	SC-110R	Test Report R93006 UUT-3
SONALERT, MALLORY, 48-120VAC/DC VOLTAGE/3300 HZ, NEMA 4X/12, 22.5MM PANEL HOLE	MALLORY SONNALERT	ZA120LACT	Test Report PR052698.01 EUT-2, EUT-4
DEVAR TEMPERATURE TRANSMITTER, SUBPLATE MOUNTED WITH BRACKET, RG 0 TO 300 DEG., F, SM SERIES	DEVAR INC.	SM-812-EC-0013-M31D	Test Report R93006 UUT-2A & UUT-4
SHAFT FOR ABB DISC SW, 12 DEEP PNL	ABB CONTROLS INC.	OXS6X330	Test Report R93006 UUT-2B, Test Report PR052698.01 EUT-2
CONVERSION MECHANISM FOR ABB DISC. SW	ABB CONTROLS INC.	OTZW8	Test Report R93006 UUT-2B
DIODE, 1N4004, RECTIFIER, 400V, 1A	MOTOROLA	1N4004	Test Report R93006 UUT-3
SIGNAL ISOLATOR, DC CURRENT OR VOLTAGE, 24VDC	WEIDMULLER	8594810000	Test Report R93006 UUT-4
FUEL SYSTEM CONTROLLER, 120 VAC, 24 DIN, 10 ROUT, 8 AIN, 3 AOUT	PREFERRED UTILITIES	FSC-120	Test Report PR052698.01 EUT-2, EUT-4
CONNECTOR ADAPTER, DB9 FEMALE TO 10 POINT SCREW TERMINAL	PREFERRED UTILITIES	92693	Test Report PR052698.01 EUT-2, EUT-4
COVER FOR CL CONTACTORS (CL00, CL01, CL02)	GENERAL ELECTRIC	GPF10C02	Test Report PR052698.01 EUT-2
LINK FOR CONT. TO MMS (CL00, CL01, CL02)	GENERAL ELECTRIC	GPF1L02AA	Test Report PR052698.01 EUT-2
NON FUSIBLE DISC. SWITCH, 3 POLE, 40 AMP 600 VAC	ABB CONTROLS INC	OT40F3	Test Report PR052698.01 EUT-2
HANDLE FOR ABB DISCONNECT SW., PANEL MOUNT, PADLOCKABLE,	ABB CONTROLS INC	OHBS2AJ1	Test Report PR052698.01 EUT-2
BASE MOUNTING PLATE, FOR WH BREAKER	WESTINGHOUSE	207B513G01	Test Report PR052698.01 EUT-4
RES 2.2K OHM, 2 W, 5 %, Metal Film, Axial, Flame Retardant	YAGEO	2.2KW-2-ND	Test Report PR052698.01 EUT-4
PUMP & MOTOR ASSY - 1200 GPH #2 OIL @ 25 PSI FOR PF-305/405/505	VIKING PUMP	HJ475	Test Report PR052698.01 EUT-4
PUMP SET LEAK DETECTOR	PREFERRED UTILITIES	PS-LDS	Test Report PR052698.01 EUT-4
GAUGE, PRESSURE, 2-1/2 IN., RG. 0-100 PSI WITH FLUTTERGUARD W/LOGO	ASHCROFT	2-1/2" 1005H 1/4"L XSF 0/100#	Test Report PR052698.01 EUT-4
GAUGE, COMPOUND, 2-1/2", RG. 30 IN HG - 0 -15 PSI W/FUTTERGUARD W/PREFERRED UTILITIES SPECIAL LOGO	ASHCROFT	5 1005 02L XSF VAC AND 15 PSI	Test Report PR052698.01 EUT-4
DIFFERENTIAL PRESSURE SWITCH/INDICATOR SET AT 15 PSI (NO TEXT)	MID-WEST INSTRUMENTS	522-0045	Test Report PR052698.01 EUT-4
DIFFERENTIAL PRESSURE SWITCH/INDICATOR SET AT 2 PSI (NO TEXT)	MID-WEST INSTRUMENTS	522-0044	Test Report PR052698.01 EUT-4
WATER PROBE ADAPTER FOR RVFS FILTERS	RACOR	71809	Test Report PR052698.01 EUT-4
WATER PROBE ASSY RACOR FILTER	RACOR	RK30880E	Test Report PR052698.01 EUT-4
VALVE, BALL, SIZE 1-1/2" NPT, SHORT HANDLE	APOLLO	70-107-15	Test Report PR052698.01 EUT-4
VALVE, BALL, 1/4" MALE X 1/4" FEMALE NPT.	WEBSTONE	41687	Test Report PR052698.01 EUT-4
COALESCING FUEL OIL FILTER - 25 GPM #2 OIL	RACOR	FBO-14	Test Report PR052698.01 EUT-4
NIPPLE, 1/4 in. NPT, 1-1/2 in. Long, SCH 40	GENERIC	10697-.25	Test Report PR052698.01 EUT-4
NIPPLE, 1.5 IN, NPT, 6 IN LG. SCH. 40 ASTM-106A	GENERIC	10706-1.5	Test Report PR052698.01 EUT-4
NIPPLE, 1.5 IN, NPT, 5.5 IN LG.	GENERIC	10705-1.5	Test Report PR052698.01 EUT-4
NIPPLE, 1.5 IN NPT, 4 IN LG.	GENERIC	10702-1.5	Test Report PR052698.01 EUT-4
NIPPLE, 1.5 in. NPT, 2 in. Long, SCH 40	GENERIC	10698-1.5	Test Report PR052698.01 EUT-4
NIPPLE, 1.5 in. NPT, 2.5 in. Long, SCH 40	GENERIC	10699-1.5	Test Report PR052698.01 EUT-4
NIPPLE, 1-1/2 in. IPS CLOSE LENGTH, SCH 40 ASTMA 106	GENERIC	10685-1.5	Test Report PR052698.01 EUT-4
ELBOW, 90 DEG., STREET, 1/4" NPT, 150# BLK	GENERIC	10683-.25	Test Report PR052698.01 EUT-4
TEE, REDUCING, 1.5X1.5X1/2 NPT, 150# BLK M.I.	GENERIC	10688-1.5X1.5X.5	Test Report PR052698.01 EUT-4
TEE, REDUCING, 1-1/2" X 1/2" X 1-1/2" NPT,	GENERIC	10688-1.5X.5X1.5	Test Report PR052698.01 EUT-4
TEE, 1/4 IN NPT, 150# BLACK M.I.	GENERIC	10691-.25	Test Report PR052698.01 EUT-4
TEE, REDUCING, 1.5X1.5X1/2 NPT, 150# BLK M.I.	GENERIC	10688-1.5X1.5X.5	Test Report PR052698.01 EUT-4
UNION, 1.5" NPT, 300# BLK M.I.	GENERIC	10686-1.5	Test Report PR052698.01 EUT-4
TUBING- SEAMLESS COPPER REFRIGERATION- 5/16~ X .032 WALL	GENERIC	KB280-T05-.032	Test Report PR052698.01 EUT-4
BUSHING, 1/2 X 1/4 NPT, 150# BLACK M.I.	GENERIC	10687-.50X.25	Test Report PR052698.01 EUT-4
FITTING, 5/16 IN. O.D. TUBE X 1/4 IN.	GENERIC	11300	Test Report PR052698.01 EUT-4
STRAINER - SIMPLEX - 1-1/2" NPT WITH 100 MESH BASKETS	TITAN FLOW CONTROL	BS2510150-100	Test Report PR052698.01 EUT-4
CABINET INNER TOP SUB PANEL FOR FSC ENCLOSURE	HAMMOND	SE1400530	Test Report PR052698.01 EUT-2
CABINET INNER SUB PANEL FOR DOUBLE DOOR ENCLOSURE 48"H 48"W FREESTANDING	HAMMOND	18P4533	Test Report PR052698.01 EUT-4
CABINET INNER SUB PANEL FOR FSC ENCLOSURE	HAMMOND	EP2020	Test Report PR052698.01 EUT-4

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Date: 5/19/2017

Test Report R93006 – UUT 1

Standard PWC

14 ga. Cold Formed Carbon Steel

20"W x 11"D x 35"H, 98 lbs

Wall mounted using: (4) - 3/8" bolts

UUT-1

Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.57	1	4.11	3.08	1.72	0.69
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					



Subcomponents	Manufacturer	Part #
PLANT WIDE CONTROLLER WITH CPU, DISPLAY AND KEYBOARD	PREFERRED UTILITIES	PWCN4-CADHRO
PLANT WIDE CONTROLLER INTERNAL ENCLOSURE 21"X18"	PREFERRED UTILITIES	90217
PLANT WIDE CONTROLLER EXTERNAL ENCLOSURE 35"X20"X10"	PREFERRED UTILITIES	90218
PWC DIN BOARD, 15 CH. 120 VAC DISCRETE INPUTS	PREFERRED UTILITIES	190608
PWC HOA-ROUTBOARD, 5 CH. RELAY OUTPUT WITH HAND-OFF-AUTO BYPASS SWITCH	PREFERRED UTILITIES	190611
PWC EMPTY MODULE SLOT FILLER FACEPLATE	PREFERRED UTILITIES	90183
PWC STANDARD PUMP SET PANEL SINGLE PHASE WIRE HARNESS	PREFERRED UTILITIES	190141
CIRCUIT BREAKER, 15 AMP SINGLE POLE	WESTINGHOUSE	QC-1015
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	GENERAL ELECTRIC	CL00A310TJ
MOTOR STARTER AUX. CONTACTOR	GENERAL ELECTRIC	GPAC11LRA
RELAY, PLUG-IN, DPDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XBXC-120A
SOCKET, PLUG-IN TYPE, 8 PIN OCTAL BASE, SCREW TERMINALS	IDEC	SR2P-06
SW, 2 POS. SEL., NEMA 4/13	IDEC	ASD210N
MODBUS 485 TO BACNET MSTP CONVERTER	CONTROL SOLUTIONS	BB2-3010
24 VDC POWER SUPPLY, 2.5A OUTPUT, 120VAC INPUT	CARLO GARVAZZI	SPD24601
RECEPTACLE, DUPLEX, 15A 125V, BROWN	HUBBELL	LEV CR15-BRN
JUNCTION BOX - 2WX4HX2-1/8D	T & B	58371-1/2
ALARM BELL, 120 V, 6 IN. DIA.	WHEELOK	43T-G6-115-S-23

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Date: 5/19/2017

UUT-2a/2b

Test Report R93006 – UUT 2a

Customized PWC

14 ga. Cold Formed Carbon Steel

20"W x 11"D x 35"H, 124 lbs

Wall mounted using: (4) - 3/8" bolts



UUT-2a above

Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.57	1	4.11	3.08	1.72	0.69
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					

Subcomponents	Manufacturer	Part #
PLANT WIDE CONTROLLER WITH CPU, DISPLAY AND KEYBOARD	PREFERRED UTILITIES	PWCN4-2- CADHRO
PLANT WIDE CONTROLLER INTERNAL ENCLOSURE 21" X 18"	PREFERRED UTILITIES	90217
PLANT WIDE CONTROLLER EXTERNAL ENCLOSURE 35" X 20" X 10"	PREFERRED UTILITIES	90218-2
PWC DIN BOARD, 15 CH. 120 VAC DISCRETE INPUTS	PREFERRED UTILITIES	190608
PWC ROUT BOARD, 8 CH. RELAY OUTPUT BOARD	PREFERRED UTILITIES	190617
PWC AIN BOARD, 8 CH., UNIVERSAL ANALOG INPUTS	PREFERRED UTILITIES	190609
PWC A/M-AOUT BOARD, 5 CH. ANALOG OUTPUT WITH AUTO/MANUAL BYPASS STATION	PREFERRED UTILITIES	190613
PWC 4-20 MA OUTPUT DAUGHTER BOARD, FOR USE IN A/M-AOUT 190613	PREFERRED UTILITIES	190616
PWC STANDARD PUMP SET PANEL THREE PHASE WIRE HARNESS	PREFERRED UTILITIES	190142
EMERGENCY TRANSFER RELAY - 460V COIL - 15 HP@460V	TELEMECANIQUE	LC2D25T7
TRANSFORMER, 250 VA, 460/230/208 VAC PRIM., 115 VAC SEC.	HAMMOND	PH250MLI
SW, 2 POS. SEL., NEMA 4/13	IDEC	ASD210N
SW, SEL, 3 POS., MAINT, NEMA 4/13	IDEC	ASD320N
RELAY, PLUG-IN, DPDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XBXC-120A
RELAY, PLUG-IN, 3PDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XCXC-120A
SOCKET, PLUG-IN TYPE, 8 PIN OCTAL BASE, SCREW TERMINALS	IDEC	SR2P-06
SOCKET, PLUG-IN TYPE, 11 PIN BASE, SCREW TERMINALS	IDEC	SR3P-05
OPERATOR INTERFACE TERMINAL 10.4 INCH WITH NEMA 4X FRONT	RED LION CONTROLS	OEMG3D34 CUSTOM G310C2
OIT TERMINAL ADAPTER KIT	PREFERRED UTILITIES	190777
OPERATOR INTERFACE TERMINAL BLIND BRIDGE	RED LION CONTROLS	OEMDA000
24 VDC POWER SUPPLY, 2.5A OUTPUT, 120VAC INPUT	CARLO GARVAZZI	SPD24601
DEVAR TEMPERATURE TRANSMITTER, SUBPLATE MOUNTED WITH BRACKET, RG 0 TO 300 DEG., F, SM SERIES	DEVAR INC.	SM-812-EC-0013-M31D
ALARM BELL, 120 V, 6 IN. DIA.	WHEELOK	43T-G6-115-S-23

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Date: 5/19/2017

Test Report R93006 – UUT 2b

Motor starter

14 ga. Cold Formed Carbon Steel

20"W x 11"D x 20"H, 56 lbs

Wall mounted using: (4) - 3/8" bolts

UUT-2a/2b



UUT-2b below

Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.57	1	4.11	3.08	1.72	0.69
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					

Subcomponents	Manufacturer	Part #
CABINET - 20" H X 20" W X 10" D - NEMA 4	HAMMOND	EN4SD202010GY
MANUAL MOTOR STARTERS: 2HP-480V (ADJUSTABLE FLA:2.5-4)	GENERAL ELECTRIC	GPS1BHAK
MANUAL MOTOR STARTERS: 5HP-480V (ADJUSTABLE FLA:6.3-10)	GENERAL ELECTRIC	GPS1BHAK
1NO 1NC AUXILIARY CONTACT FOR MMS - SIDE MOUNT	GENERAL ELECTRIC	GPAC11LRA
SHAFT FOR ABB DISC SW, 12 DEEP PNL	ABB CONTROLS INC.	OXS6X330
CONVERSION MECHANISM FOR ABB DISC. SW	ABB CONTROLS INC.	OTZW8
EMERGENCY TRANSFER RELAY - 460V COIL - 15 HP@460V	TELEMECANIQUE	LC2D25T7
TRANSFORMER, 250 VA, 460/230/208 VAC PRIM., 115 VAC SEC.	HAMMOND	PH250MLI

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Date: 5/19/2017

Test Report R93006 – UUT 3

Standard Filtration System PLC
14 ga. Cold Formed Carbon Steel
20"W x 9"D x 20"H, 46 lbs
Wall mounted using: (4) - 3/8" bolts

UUT-3



Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.57	1	4.11	3.08	1.72	0.69
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					

Subcomponents	Manufacturer	Part #
FILTRATION CABINET, 20"HX20"WX8"D, NEMA 4	HAMMOND	EN4SD20208GY
CIRC. BKR., 1 POLE, 15 AMP, 120/240 VAC, THERMAL-MAGNETIC	SQUARE D	QOU-115-SQUARE D
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	GENERAL ELECTRIC	CL00A310TJ
SW, 2 POS. SEL., NEMA 4/13, MAINT, STD KNOB, 1 N.O. AND 1 DUMMY BLK.	IDEC	ASD210N
SW, SEL, 3 POS.,MAINT,NEMA 4/13, STD KNOB, (2) N.O. CONTACTS	IDEC	ASD320N
LIGHT, PILOT, 120V, WHITE LENS, W/LAMP, FULL VOLTAGE	IDEC	APD199N-2-120 IDEC
DL 205 PLC, 4-SLOT BASE, INTERNAL 110/220 VAC POWER	KOYO	D2-04B-1
DL205 CPU260, 30.4K WORDS TOTAL MEMORY, FLASH MEMORY,	KOYO	D2-260
DL 205 PLC, INPUT MODULE, 8 PT, 110 VAC	KOYO	D2-08NA-1
DL 205 PLC, OUTPUT MODULE, 8 PT, RELAY	KOYO	D2-08TR
DL 205 PLC, MODULE, FILLER	KOYO	D2-FILL
OPERATOR INTERFACE TERMINAL 4 INCH WITH NEMA 4 FRONT	RED LION CONTROLS	OEMG3H02 CUSTOM G304K
COMMUNICATION CABLE, G3 / MODULAR CONTROLLER TO KOYO MODEL 2XX	RED LION CONTROLS	CBLKOYO0
CABLE ADAPTER - FOR OIT4, DB9 FEMALE TO RS232 FEMALE	RED LION CONTROLS	CBLADK03
RELAY, PLUG-IN, DPDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XBXC-120A
SOCKET, PLUG-IN TYPE, 8 PIN OCTAL BASE, SCREW TERMINALS	IDEC	SR2P-06
RELAY, DPDT, 10 A, 24 VDC COIL, PLUG-IN BLADE TERMINAL	IDEC	RH2B-U-DC24V
SOCKET, DIN RAIL MOUNT, FOR DPDT COMPACT BLADE TERMINAL RELAY	IDEC	CON040WAL
DIODE, 1N4004, RECTIFIER, 400V, 1A	MOTOROLA	1N4004
24 VDC POWER SUPPLY, 2.5A OUTPUT, 120VAC INPUT	CARLO GARVAZZI	SPD24601
SONALERT, MALLORY, 30-120VAC VOLTAGE/2900 HZ	SONALERT	SC-110R

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Date: 5/19/2017

Test Report R93006 – UUT 4

Customized PLC

14 ga. Cold Formed Carbon Steel

36"W x 13"D x 48"H, 226 lbs

Wall mounted using: (4) - 3/8" bolts

UUT-4

Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.57	1	4.11	3.08	1.72	0.69
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					



Subcomponents	Manufacturer	Part #
CABINET, 48"HX36"WX12"D, NEMA 4	HAMMOND	EN4SD483612GY
MANUAL MOTOR STARTERS: 2HP-480V (ADJUSTABLE FLA:2.5-4)	GENERAL ELECTRIC	GPS1BHAH
MANUAL MOTOR STARTERS: 3HP-480V (ADJUSTABLE FLA:4-6.3)	GENERAL ELECTRIC	GPS1BHAJ
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	GENERAL ELECTRIC	CL00A310TJ
1NO 1NC AUXILIARY CONTACT FOR MMS - SIDE MOUNT	GENERAL ELECTRIC	GPAC11LRA
EMERGENCY TRANSFER RELAY - 120V COIL - 10 AMP	TELEMECANIQUE	CA2KN22F7
RELAY, PLUG-IN, DPDT, 10 AMP CONTACTS 120VAC, 60HZ	MAGNECRAFT	750XBXC-120A
RELAY, PROGRAMMABLE TIME DELAY, 11 PIN,	SSAC	TRDU120A3
RELAY, PLUG-IN, ENCLOSED, 4PDT, 120V.60HZ., V	IDEC	RH4B-U-AC120V
SOCKET, PLUG-IN TYPE, 8 PIN OCTAL BASE, SCREW TERMINALS	IDEC	SR2P-06
SOCKET, PLUG-IN TYPE, 11 PIN BASE, SCREW TERMINALS	IDEC	SR3P-05
SOCKET, 4PDT, BLADE TYPE, SNAP MOUNT	IDEC	SR4B-05
PUSHBUTTON, RED MUSHROOM HEAD, PUSH-PULL,	IDEC	AYD311N-R
SW, SEL, 3 POS., MAINT, NEMA 4/13	IDEC	ASD320N
SW, 2 POS. SEL., NEMA 4/13	IDEC	ASD210N
CONTROL POWER ON LIGHT	IDEC	APD199N-W-120
24VDC PWR SUPPLY, 5A OUTPUT, 120VAC	CARLO GARVAZZI	SPD241201
DL 205 PLC, 9 SLOT BASE, INTERNAL 110/220 VAC POWER	KOYO	D2-09B-1
KOYO DL205 CPU260, 30.4K WORDS TOTAL MEMORY, FLASH MEMORY,	KOYO	D2-260
DL 205 PLC, INPUT MODULE, 8 PT, 110 VAC	KOYO	D2-08NA-1
DL 205 PLC, OUTPUT MODULE, 8 PT, RELAY	KOYO	D2-08TR
DL 205 PLC, INPUT MODULE, 4PT, ANALOG	KOYO	F2-04AD-1
DL 205 PLC, OUTPUT MODULE, 2PT, ANALOG	KOYO	F2-04DA-1

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UUT-4 Subcomponents Cont'd

Subcomponents	Manufacturer	Part #
ETHERNET COMMUNICATION MODULE, MASTER/SLAVE ON AN EHTERNET W/MODBUS TCP/IP	KOYO	H2-ECOM100
DL 205 PLC, MODULE, FILLER	KOYO	D2-FILL
EXPANSION BASE CONTROLLER MODULE D2-CM	KOYO	D2-CM
BASE EXPANSION MODULE FOR LOCAL EXPANSION D2-EM	KOYO	D2-EM
BASE EXPANSION CABLE D2-EXCBL-1	KOYO	D2-EXCBL-1
OPERATOR INTERFACE TERMINAL 10.4 INCH WITH NEMA 4X FRONT	RED LION CONTROLS	OEMG3D34 CUSTOM G310C2
OPTIONAL COMMUNICATIONS CARD FOR OIT-6 AND OIT-10	RED LION CONTROLS	G3RS0000
OIT TERMINAL ADAPTER KIT	PREFERRED UTILITIES	190777
OPERATOR INTERFACE TERMINAL BLIND BRIDGE	RED LION CONTROLS	OEMDA000
SCADA INTERFACE SHIELDED PIGTAIL CABLE D2-DSCBL-2	KOYO	D2-DSCBL-2
DEVAR TEMPERATURE TRANSMITTER, SUBPLATE MOUNTED WITH BRACKET, RG 0 TO 300 DEG., F, SM SERIES	DEVAR INC.	SM-812-EC-0013-M31D
FUEL SENTRY TANK GAUGE	PREFERRED UTILITIES	TG-EL-D4A-00-0-0
PRINTER FOR USE WITH TG-EL-D4A, INCLUDES 120VPWR SUPPLY AND CONNECTOR	PREFERRED UTILITIES	TG-EL-D4A-PRINTER
JUNCTION BOX - 2WX4HX2-1/8D **MUST HAVE UL STAMP**	T & B	58371-1/2
RECEPTACLE, DUPLEX, 15A 125V, BROWN	HUBBELL	LEV CR15-BRN
ALARM BELL, 120 V, 6 IN. DIA.	WHEELOK	43T-G6-115-S-23
SIGNAL ISOLATOR, DC CURRENT OR VOLTAGE, 24VDC	WEIDMULLER	8594810000

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Date: 5/19/2017

Test Report PR052698.01 – EUT 2

Fuel System Controller – S16L8116

14 ga. Cold Formed Carbon Steel

20"W x 11"D x 35"H, 130 lbs

Wall mounted using: (4) - 3/8" bolts



Figure 2: EUT-2

Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.84	1	4.54	3.41	1.90	0.76
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					

Subcomponents	Manufacturer	Part #
CABINET, 35" X 20" X 10", FSC - NEMA 4 DUAL DOORS W/ CUTOUT - LESS INNER PANELS	HAMMOND	SE1400529
CABINET INNER TOP SUB PANEL FOR FSC ENCLOSURE	HAMMOND	SE1400530
CABINET INNER SUB PANEL FOR FSC ENCLOSURE	HAMMOND	EP2020
TRANSFORMER, 2000VA - 230/460 VAC PRIM. - 115 VAC SEC.	HAMMOND	SP2000MQMJ
FUEL SYSTEM CONTROLLER, 120 VAC, 24 DIN, 10 ROUT, 8 AIN, 3 AOUT	PREFERRED UTILITIES	FSC-120
OPERATOR INTERFACE TERMINAL 4 INCH WITH NEMA 4 FRONT	RED LION CONTROLS	OEMG3H09
CONNECTOR ADAPTER, DB9 FEMALE TO 10 POINT SCREW TERMINAL	PREFERRED UTILITIES	92693
COVER FOR CL CONTACTORS (CL00, CL01, CL02)	GENERAL ELECTRIC	GPF10C02
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	GENERAL ELECTRIC	CL00A310TJ
1NO 1NC AUXILIARY CONTACT FOR MMS - SIDE MOUNT	GENERAL ELECTRIC	GPAC11LRA
MANUAL MOTOR STARTERS: 3/4 HP-480V (ADJUSTABLE FLA:1-1.6)	GENERAL ELECTRIC	GPS1BHAF
LINK FOR CONT. TO MMS (CL00, CL01, CL02)	GENERAL ELECTRIC	GPF1L02AA
SW, 3 POS, 22MM, MAINTAINED, NEMA 4/13, STD KNOB, 2 N.O. 2N.C., 22.5MM ACTUATOR	AUTOMATION DIRECT	GCX1320-22
SW, 2 POS, 22MM, MAINTAINED, NEMA 4/13, STD KNOB, 1 N.O., 22.5MM ACTUATOR	AUTOMATION DIRECT	GCX1300
SONALERT, MALLORY, 48-120VAC/DC VOLTAGE/3300 HZ, NEMA 4X/12, 22.5MM PANEL HOLE	MALLORY SONNALERT	ZA120LACT
SHAFT FOR ABB DISC SW, 12 DEEP PNL	ABB CONTROLS INC	OXS6X330
NON FUSIBLE DISC. SWITCH, 3 POLE, 40 AMP 600 VAC	ABB CONTROLS INC	OT40F3
HANDLE FOR ABB DISCONNECT SW., PANEL MOUNT, PADLOCKABLE,	ABB CONTROLS INC	OHBS2AJ1
SOCKET, PLUG-IN TYPE, 11 PIN BASE, SCREW TERMINALS	IDEC	SR3P-05
RELAY, PLUG-IN, 3PDT, 10 AMP CONTACTS 120VAC, 60HZ	IDEC	RR3PA-UAC120V

Test Report PR052698.01 – EUT 4 (Upper (a) and Lower Compartment (b))

Fuel System Controller – SE1100629

14 ga. Cold Formed Carbon Steel

20"W x 11"D x 20"H Upper Compartment

48"W x 12"D x 48"H Lower Compartment, 459 lbs total

Wall mounted using: (4) - 3/8" bolts

Building Code	Test Criteria	S _{DS} (g)	z/h	Horizontal		Vertical	
				A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-H}
CBC 2016	ICC-ES AC 156	2.63	1	4.21	3.16	1.76	0.70
Natural Frequencies			Test Results				
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT was full of operating content during test				
n/a	n/a	n/a					



Figure 4: EUT-4

FSC Controller

Subcomponents	Manufacturer	Part #
CABINET - 20" H X 20" W X 10" D - NEMA 4 PRECUT WITH OIT-4 & (4) 22.5mm HOLES	HAMMOND	SQ1402337
CABINET INNER SUB PANEL FOR FSC ENCLOSURE	HAMMOND	EP2020
FUEL SYSTEM CONTROLLER, 120 VAC, 24 DIN, 10 ROUT, 8 AIN, 3 AOUT	PREFERRED UTILITIES	FSC-120
CONNECTOR ADAPTER, DB9 FEMALE TO 10 POINT SCREW TERMINAL	PREFERRED UTILITIES	92693
SW, 3 POS, 22MM, MAINTAINED, NEMA 4/13, STD KNOB, 2 N.O. 2N.C., 22.5MM ACTUATOR	AUTOMATION DIRECT	GCX1320-22
SW, 2 POS, 22MM, MAINTAINED, NEMA 4/13, STD KNOB, 1 N.O., 22.5MM ACTUATOR	AUTOMATION DIRECT	GCX1300
PILOT LIGHT-22 MM, METAL LED ILLUMINATED, WHITE LENS, 120 VAC	AUTOMATION DIRECT	GCX1236-120L
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	GENERAL ELECTRIC	CL00A310TJ
CIRCUIT BREAKER - 15 AMP, SINGLE POLE	WESTINGHOUSE	QC-1015
BASE MOUNTING PLATE, FOR WH BREAKER	WESTINGHOUSE	207B513G01
RES 2.2K OHM, 2 W, 5 %, Metal Film, Axial, Flame Retardant	YAGEO	2.2KW-2-ND
SOCKET, PLUG-IN TYPE, 11 PIN BASE, SCREW TERMINALS	IDEC	SR3P-05
RELAY, PLUG-IN, 3PDT, 10 AMP CONTACTS 120VAC, 60HZ	IDEC	RR3PA-UAC120V
SONALERT, MALLORY, 48-120VAC/DC VOLTAGE/3300 HZ, NEMA 4X/12, 22.5MM PANEL HOLE	MALLORY SONNALERT	ZA120LACT
PILOT LIGHT-22 MM, METAL LED ILLUMINATED, WHITE LENS, 120 VAC	HAMMOND	SQ1402337
IEC 3 POLE CONTACTORS, MOTOR STARTER, 10 AMPS0701-B	HAMMOND	EP2020
CIRCUIT BREAKER - 15 AMP, SINGLE POLE	WESTINGHOUSE	QC-1015

EUT-4 Subcomponents Cont'd

FILTRATION SYSTEM

Subcomponents	Manufacturer	Part #
CABINET - 48" H X 48" W X 12" D, NEMA 4, DOUBLE DOOR, FREESTANDING WITH 36" DOORS	HAMMOND	SE1100629
CABINET INNER SUB PANEL FOR DOUBLE DOOR ENCLOSURE 48"H 48"W FREESTANDING	HAMMOND	18P4533
PUMP & MOTOR ASSY - 1200 GPH #2 OIL @ 25 PSI FOR PF-305/405/505	VIKING PUMP	HJ475
PUMP SET LEAK DETECTOR	PREFERRED UTILITIES	PS-LDS

DISCHARGE MANIFOLD FOR PF-400 SERIES FILTRATION UNITS

Subcomponents	Manufacturer	Part #
GAUGE, PRESSURE, 2-1/2 IN., RG. 0-100 PSI WITH FLUTTERGUARD W/LOGO	ASHCROFT	2-1/2" 1005H 1/4"L XSF 0/100#
DIFFERENTIAL PRESSURE SWITCH/INDICATOR SET AT 15 PSI (NO TEXT)	MID-WEST INSTRUMENTS	522-0045
WATER PROBE ADAPTER FOR RVFS FILTERS	RACOR	71809
WATER PROBE ASS'Y RACOR FILTER	RACOR	RK30880E
VALVE, BALL, SIZE 1-1/2" NPT, SHORT HANDLE	APOLLO	70-107-15
VALVE, BALL, 1/4" MALE X 1/4" FEMALE NPT.	WEBSTONE	41687
COALESCING FUEL OIL FILTER - 25 GPM #2 OIL	RACOR	FBO-14
NIPPLE, 1/4 in. NPT, 1-1/2 in. Long, SCH 40	GENERIC	10697-.25
NIPPLE, 1.5 IN, NPT, 5.5 IN LG.	GENERIC	10705-1.5
NIPPLE, 1.5 IN NPT, 4 IN LG,	GENERIC	10702-1.5
NIPPLE, 1.5 in. NPT, 2.5 in. Long, SCH 40	GENERIC	10699-1.5
NIPPLE, 1-1/2 in. IPS CLOSE LENGTH, SCH 40 ASTMA 106	GENERIC	10685-1.5
ELBOW, 90 DEG., STREET, 1/4" NPT, 150# BLK	GENERIC	10683-.25
TEE, REDUCING, 1-1/2" X 1/2" X 1-1/2" NPT,	GENERIC	10688- 1.5X.5X1.5
TEE, 1/4 IN NPT, 150# BLACK M.I.	GENERIC	10691-.25
TEE, REDUCING, 1.5X1.5X1/2 NPT,150# BLK M.I.	GENERIC	10688- 1.5X1.5X.5
UNION, 1.5" NPT, 300# BLK M.I.	GENERIC	10686-1.5
TUBING- SEAMLESS COPPER REFRIGERATION- 5/16~ X .032 WALL	GENERIC	KB280-T05-.032
BUSHING, 1/2 X 1/4 NPT, 150# BLACK M.I.	GENERIC	10687-.50X.25
FITTING, 5/16 IN. O.D. TUBE X 1/4 IN.	GENERIC	11300

OSP APPLICATION
Preferred Utilities – Fuel Management System Cabinets
III. UUT Summary Sheets

Date: 5/19/2017

EUT-4 Subcomponents Cont'd

SUCTION MANIFOLD FOR PF-504/PF-505

Subcomponents	Manufacturer	Part #
DIFFERENTIAL PRESSURE SWITCH/INDICATOR SET AT 2 PSI (NO TEXT)	MID-WEST INSTRUMENTS	522-0044
GAUGE, COMPOUND, 2-1/2", RG. 30 IN HG - 0 -15 PSI W/FUTTERGUARD W/PREFERRED UTILITIES SPECIAL LOGO	ASHCROFT	5 1005 02L XSF VAC AND 15 PSI
STRAINER - SIMPLEX - 1-1/2" NPT WITH 100 MESH BASKETS	TITAN FLOW CONTROL	BS25I0150-100
VALVE, BALL, SIZE 1-1/2" NPT, SHORT HANDLE	APOLLO	70-107-15
VALVE, BALL, 1/4" MALE X 1/4" FEMALE NPT.	WEBSTONE	41687
ELBOW, 90 DEG., STREET, 1/4" NPT, 150# BLK	GENERIC	10683-.25
NIPPLE, 1/4 in. NPT, 1-1/2 in. Long, SCH 40	GENERIC	10697-.25
NIPPLE, 1.5 IN, NPT, 6 IN LG. SCH. 40 ASTM-106A .	GENERIC	10706-1.5
NIPPLE, 1-1/2 in. IPS CLOSE LENGTH, SCH 40 ASTMA 106	GENERIC	10685-1.5
NIPPLE, 1.5 in. NPT, 2 in. Long, SCH 40	GENERIC	10698-1.5
TEE, REDUCING, 1.5X1.5X1/2 NPT,150# BLK M.I.	GENERIC	10688-1.5X1.5X.5
TEE, REDUCING, 1-1/2" X 1/2" X 1-1/2" NPT,	GENERIC	10688-1.5X.5X1.5
TEE, 1/4 IN NPT, 150# BLACK M.I.	GENERIC	10691-.25
UNION, 1.5" NPT, 300# BLK M.I.	GENERIC	10686-1.5
TUBING- SEAMLESS COPPER REFRIGERATION- 5/16~ X .032 WALL	GENERIC	KB280-T05-.032
BUSHING, 1/2 X 1/4 NPT, 150# BLACK M.I.	GENERIC	10687-.50X.25
FITTING, 5/16 IN. O.D. TUBE X 1/4 IN.	GENERIC	11300