



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OSP – 0160 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Fuel Oil Systems

Manufacturer's Technical Representative: Doug Nakano

Mailing Address: 4659 Las Positas Road, Unit C, Livermore, CA 94551

Telephone: 925.556.5424

Email: dnakano@fueloilsystems.com

Product Information

Product Name: Master/Submaster Fuel Oil Control Panels

Product Type: Fuel Oil Control Panels

Product Model Number: See Attachment 1

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

General Description: Master and submaster fuel oil control panels used to control flow of fuel oil to
generators or other units.

Mounting Description: Rigid wall mounted.

Applicant Information

Applicant Company Name: Manwill Engineering LLC


Contact Person: Derek Manwill, SE

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: 541.241.2102

Email: derek@manwillSE.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: 

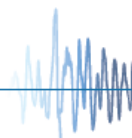
Date: June 26, 2017

Title: President

Company Name: Manwill Engineering LLC

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 12/16/15)



OSHPD

Page 1 of 3



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

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

Company Name: Manwill Engineering LLC

Name: Derek Manwill, SE California License Number: S6266

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: 541.241.2102 Email: derek@manwillSE.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): _____

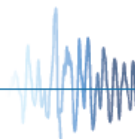
Testing Laboratory

Company Name: National Technical Systems - Fullerton

Contact Name: Don Bennett

Mailing Address: 1536 East Valencia Drive, Fullerton, CA 92831

Telephone: 714.879.6110 Email: don.bennett@nts.com





OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
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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) = 2.2

S_{DS} (Design spectral response acceleration at short period, g) = 2.95

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

Equipment or Component Natural Frequencies (Hz) = N/A (wall mounted)

Overall dimensions and weight (or range thereof) = See Attachments 1 & 2

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): Attachments 1 & 2

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

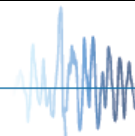
Signature:  Date: July 17, 2017

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.95 z/h = 1

Condition of Approval (if applicable): _____

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



ATTACHMENT 1: CERTIFIED COMPONENTS

SEISMIC COMPLIANCE REPORT

TABLE 1

DOCUMENT NO.: 17024CR1.0

MANUFACTURER:		FUEL OIL SYSTEMS					
PRODUCT FAMILY:		MASTER/SUBMASTER FUEL OIL CONTROL PANELS					
MODEL NUMBER		DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
		DEPTH	WIDTH	HEIGHT			
Master/Submaster Fuel Oil Control Panels							
Submaster Control Panel		8	24	30	89	Carbon steel	UUT 2
Master Control Panel		12	36	48	216	Carbon steel	UUT 1
MOUNTING:	Rigid wall mounted.				SEISMIC LEVEL	$S_{DS} = 2.95g$ for $z/h = 1$ $I_P = 1.5$	
NOTES:	Product Construction: NEMA 4 carbon steel enclosure. Options/Subcomponents: Enclosures may contain any combination of subcomponents listed in Table 2 to create a complete control panel.						

TABLE 2 - SUBCOMPONENTS

MANUFACTURER:		FUEL OIL SYSTEMS					
PRODUCT FAMILY:		MASTER/SUBMASTER FUEL OIL CONTROL PANELS					
MODEL NUMBER		DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
		DEPTH	WIDTH	HEIGHT			
Hoffman - Enclosures							
CSD30248		8	24	30	89	Carbon steel, wt. includes internals	UUT 2
CSD483612		12	36	48	216	Carbon steel, wt. includes internals	UUT 1
Eaton Wheelock - Alarm Bell							
43T-G6-115-S						6" Wheelock Alarm Bell	UUT 1, 2
Automation Direct - Programmable Logic Controllers							
D2-09B-1						DL-205 9-Slot PLC Rack	UUT 1, 2
D2-260						260 CPU Processor card	UUT 1, 2
D2-16NA						16-Point 110VAC Input Card	UUT 1, 2
D2-08TR						8-Point 110VAC Relay Output Card	UUT 1, 2
F2-04AD-1						4-Point Analog Input Card	UUT 1, 2
ZL-RTB20						Zip Link Connector Module	UUT 1, 2
ZL-D2-CBL19-1						Zip Link Cable 19-terminal 1-meter	UUT 1, 2
ZL-D2-CBL10-1						Zip Link Cable 10-terminal 1-meter	UUT 1, 2
Phoenix Contact - Terminal Blocks							
1051016						UT-4 term blocks Markers	UUT 1, 2
1051032						UT-4 term blocks Markers	UUT 1, 2
1053030						UT-10 term blocks Markers	UUT 1, 2
3030365						FBS 20-6 Plug-in bridge	UUT 1
Phoenix Contact - Power Supply							
2866446						24 VDC Power Supply	UUT 1, 2
Red Lion - HMI Interface Panels							
G306A000						Red Lion 6" HMI	UUT 2
G310C000						Red Lion 10" HMI	UUT 1
Automation Direct - Ethernet Switches							
SE-SW5U						Unmanaged 5-Port Ethernet Switch	UUT 1
SE-SW8U						Unmanaged 8-Port Ethernet Switch	UUT 1, 2
NOTES:		Table continues on the next page. Additional notes, information and seismic parameters are shown at the end of the table.					

ATTACHMENT 1: CERTIFIED COMPONENTS

SEISMIC COMPLIANCE REPORT

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 17024CR1.0

MANUFACTURER:	STORED ENERGY SYSTEMS					
PRODUCT FAMILY:	BATTERY CHARGERS FOR GENSETS					
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
IDEC - Switches						
ASD210N					2-Position 1-N.O. Switch 30mm	UUT 1, 2
APD199DN-W-120					120 VAC Pilot Light 30mm	UUT 1, 2
ASD320N-B					3-Position 2-N.O. Switch 30mm	UUT 1, 2
BST-010					N.O. Auxiliary Contacts	UUT 1, 2
Red Lion - Communication Cable						
CBLKOY00					Red Lion to Koyo Com Cable	UUT 1, 2
Fuji Electric - Contactors & Relays						
SC-E03-110VAC					12A Motor Contactor 110VAC Coil	UUT 1
SC-E02-110VAC					9A Motor Contactor 110VAC Coil	UUT 1, 2
SZ-A11T					Aux Motor Contact Top 1-N.O. 1-N.C.	UUT 1, 2
TK-E02-800					5-8A Motor Overload Relay	UUT 2
TK-E02-1100					7-11A Motor Overload Relay	UUT 1
MOUNTING:	Mounted within unit.			SEISMIC LEVEL	S _{DS} = 2.95g for z/h = 1	I _p = 1.5
NOTES:	Product Construction/Options: Model number uniquely identifies manufacturer, materials and configuration of subcomponents.					

ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SEISMIC COMPLIANCE REPORT

UUT 1

DOCUMENT NO.: 17024CR1.0

MANUFACTURER:			FUEL OIL SYSTEMS			
MODEL NUMBER:			Master Control Panel			
UNIT FUNCTION:			Fuel Oil Control Panel			
SERIAL NUMBER:			CC-4836-10			
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
12	36	48	216	N/A	N/A	N/A
BUILDING CODE		TEST CRITERIA		LAB REPORT NO.		
2016 CBC		ICC-ES AC156		NTS 113-1825		
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.95	1	4.72	3.54	1.98	0.80	
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:		Rigid wall mounted using (4) 3/8" lag screws.				
CONSTRUCTION:		NEMA 4 carbon steel enclosure				
SUBCOMPONENTS:		Wheelock - alarm (43T-G6-115-S), Automation Direct - PLC (RTB20, ZL-D2-CBL19-1, ZL-D2-CBL10-1), Phoenix Contact - power supply (2866446), Red Lion - HMI panel (G310C000), Automation Direct - ethernet switches (SE-SW5U, SE-SW8U), IDEC - switches (ASD320N-B, BST-010), Fuji Electric - contactors/relays (SC-E03-110VAC, SC-E02-110VAC, SZ-A11T, TK-E02-1100)				
TESTING NOTES:		N/A				



UUT 2

MANUFACTURER:			FUEL OIL SYSTEMS			
MODEL NUMBER:			Submaster Control Panel			
UNIT FUNCTION:			Fuel Oil Control Panel			
SERIAL NUMBER:			CC-3624-6			
DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
8	24	30	89	N/A	N/A	N/A
BUILDING CODE		TEST CRITERIA		LAB REPORT NO.		
2016 CBC		ICC-ES AC156		NTS 113-1825		
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
2.95	1	4.72	3.54	1.98	0.80	
IMPORTANCE FACTOR, I_p = 1.5						
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.						
MOUNTING:			Rigid wall mounted using (4) 3/8" lag screws.			
CONSTRUCTION:			NEMA 4 carbon steel enclosure			
SUBCOMPONENTS:			Wheelock - alarm (43T-G6-115-S), Automation Dir RTB20, ZL-D2-CBL19-1, ZL-D2-CBL10-1), Phoenix Contact - power supply (2866446), Red Lion - HMI - ethernet switch (SE-SW8U), IDEC - switches (AS contactors/relays (SC-E02-110VAC, SZ-A11T, TK-			
TESTING NOTES:			N/A			

