APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0404 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: MTU Onsite Energy Corporation

Manufacturer's Technical Representative: Ben Stratton, Mechanical Engineer

Mailing Address: 100 Power Drive, Mankato, MN 56001

Telephone: (507) 625-7973 Email: ben.stratton@mtu-online.com

Product Information

Product Name: MTU Master Control Panel

Product Type: Electrical Equipment

Product Model Number: MCP001
(List all unique product identification numbers and/or part numbers)

General Description: *The certified unit consists of an industrial PC and complementary input/output and remote modules and drive components, enabling it to operate as a complete system to display and control equipment. Seismic enhancement made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units.*

Mounting Description: Flexible wall mount, rigid wall mount, and rigid base mount (using manufacturer-provided stand).

Applicant Information

Applicant Company Name: DYNAMIC CERTIFICATION LABORATORIES

Contact Person: JOSEPH L. LA BRIE, S.E., MANAGING PARTNER

Mailing Address: 1315 GREG STREET, SUITE 109, SPARKS, NV 89431

Telephone: (775) 358-5085 Email: LABRIE@MAKEITRIGHT.NET

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: Date: 8/13/14

Title: MANAGING PARTNER Company Name: DYNAMIC CERTIFICATION LABORATORIES

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

Company Name: DYNAMIC CERTIFICATION LABORATORIES

Name: DR. AHMAD ITANI, S.E. California License Number: SE-5220

Mailing Address: 1315 GREG STREET, SUITE 109, SPARKS, NV 89431

Telephone: (775) 358-5085 Email: ITANI@SHAKETEST.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: DYNAMIC CERTIFICATION LABORATORIES

Contact Name: KELLY LAPLACE, QUALITY MANAGER

Mailing Address: 1315 GREG STREET, SUITE 109, SPARKS, NV 89431

Telephone: (775) 358-5085 Email: KELLY@SHAKETEST.COM

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.88

S_{DS} (Design spectral response acceleration at short period, g) = 2.5

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) = 2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = SEE ATTACHMENT

Overall dimensions and weight (or range thereof) = SEE ATTACHMENT

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, 2010: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☒ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☐ Other(s) (Please Specify): _____

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019

Signature: _____ Date: 9/8/2014

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.50 z/h = 1.0

Condition of Approval (if applicable): _____

Special Seismic Certification
Tested Components

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Tested Product Construction: 16 gage carbon steel enclosure, NEMA 1

Tested Options: Enclosure, display, controller, switch and 120VAC power supply

Tested Mounting Description: Flexible wall mount, rigid wall mount, or rigid base mount (using manufacturer-provided stand)

Product Line	Model Number	Serial Number	Dimensions (in)			Operating Weight (lb)	Mount	Sds (g), z/h=1	Unit
			Depth	Width	Height				
MTU Master Control Panel	MCP001	P2129	8.4	23.7	29.9	95	Flexible wall mount	2.5	UUT1a
			8.4	23.7	29.9	95	Rigid wall mount	2.5	UUT1b
			8.4	23.7	29.9	95	Rigid base mount (using manufacturer-provided stand)	2.5	UUT1c
	MCP001	374652-1-1-0614	8.4	23.7	29.9	98	Rigid wall mount	2.5	UUT2a
			8.4	23.7	29.9	98	Flexible wall mount	2.5	UUT2b

Special Seismic Certification
Certified Components

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Certified Product Construction: 16 gage carbon steel enclosure, NEMA 1

Certified Options: Enclosure, display, controller, switch and 120VAC power supply

Certified Mounting Description: Flexible wall mount, rigid wall mount, or rigid base mount (using manufacturer-provided stand)

Product Line	Model Number	Dimensions (in)			Maximum Operating Weight (lb)	Mount	Sds (g), z/h=1	Unit
		Depth	Width	Height				
MTU Master Control Panel	MCP001	8.4	23.7	29.9	98	Rigid wall mount, flexible wall mount, or rigid base mount (using manufacturer-provided stand)	2.5	UUT1a-c UUT2a-b

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Subcomponents: Enclosure, controller, power supplies and switch

Enclosure

Manufacturer Model Number	Manufacturer	Description	Construction	Unit
104996	Pro-Fab	Back plate - loose mount MCP	11 gauge steel ASTM A1011/A1008 carbon steel TYPE B	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
104198	Jor Mac	Enclosure	16 gauge steel – enclosure 14 gauge steel - door 11 gauge steel – back plate ASTM A1011/A1008 carbon steel TYPE B, NEMA 1	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b

Controllers

Manufacturer Model Number	Manufacturer	Description	Material	Unit
5PP520.1505-00	B&R	Microprocessor master control panel 15 inch HMI	Plastic / Steel	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20BC0087	B&R	Modbus/TCP I/O connection	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20BB80	B&R	Bus base module	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20PS9400	B&R	Supply module	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20TB12	B&R	Terminal block output 4 relay 12 pin 24VDC	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20TB1F	B&R	Terminal block input 16 pin	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20DIF371	B&R	Module digital input 16 pin	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20BM11	B&R	Bus module base 24VDC	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
X20DO4529	B&R	Module digital output 4 relay 12 pin	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b

Power Supplies

Manufacturer Model Number	Manufacturer	Description	Material	Unit
2866514	Phoenix	Diode rectifier module 12-24 VDC 10A	Steel	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
2866213	Phoenix	UPS capacitive 24VDC din rail mountable	Steel	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
2866323	Phoenix	Power supply 120VAC to 24VDC 10A	Steel	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b
FAZ-C10/1-NA-SP	Eaton	BREAKER 10A 1P 48/240 VDC/VAC thermal-magnetic, din rail mountable	Plastic	UUT1a, UUT1b, UUT1c, UUT2a, UUT2b

Switches

Manufacturer Model Number	Manufacturer	Description	Material	Unit
2832771	Phoenix	Ethernet switch, 8-PORT unmanaged	Aluminum	UUT2a, UUT2b
2832849	Phoenix	Ethernet switch, 16-PORT unmanaged	Aluminum	UUT2a, UUT2b
2832632	Phoenix	Industrial ethernet switch, 8-PORT managed	Plastic	UUT2a, UUT2b

Note: Manufacturing process for the listed Phoenix switches is ISO 9001 certified.

UUT1a

UNIT UNDER TEST (UUT) Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Model Number: MCP001 (S/N: P2129)

Product Construction Summary:
16 gage carbon steel enclosure, NEMA 12K

Options / Component Summary:
Flexible wall mount. The unit features an enclosure, display, controller, switch and 120VAC power supply.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
		Depth	Width	Height	Front-Back	Side-Side	Vertical
95	UUT1a	8.4	23.7	29.9	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was attached to the flexible test wall with four (4) 3/16-inch diameter Grade 5 bolts, using the manufacturer-provided holes at the back of the panel.

UUT1b

UNIT UNDER TEST (UUT) Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Model Number: MCP001 (S/N: P2129)

Product Construction Summary:
16 gage carbon steel enclosure, NEMA 12K

Options / Component Summary:
Rigid wall mount. The unit features an enclosure, display, controller, switch and 120VAC power supply.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
		Depth	Width	Height	Front-Back	Side-Side	Vertical
95	UUT1b	8.4	23.7	29.9	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was attached to the rigid test wall with four (4) 3/16-inch diameter Grade 5 bolts, using the manufacturer-provided holes at the back of the panel.

UUT1c

UNIT UNDER TEST (UUT) Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Model Number: MCP001 (S/N: P2129)

Product Construction Summary:
16 gage carbon steel enclosure, NEMA 12K

Options / Component Summary:
Rigid base mount (using manufacturer-provided stand). The unit features an enclosure, display, controller, switch and 120VAC power supply.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
		Depth	Width	Height	Front-Back	Side-Side	Vertical
95	UUT1c	8.4	23.7	29.9	3.8	5.5	15.0

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was attached to the manufacturer-provided stand with four (4) M8 x 1.25 bolts, Class 8.8, using the manufacturer-provided holes at the back of the panel. The stand was constructed of 8 gage, ASTM A1011/A1008 carbon steel, Type B. The stand was attached to the shake table interface plate using four (4) 3/8-inch diameter Grade 5 bolts.

UUT2a

UNIT UNDER TEST (UUT) Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Model Number: MCP001 (S/N: 374652-1-1-0614)

Product Construction Summary:
16 gage carbon steel enclosure, NEMA 1

Options / Component Summary:
Rigid wall mount. The unit features an enclosure, display, controller, switch and 120VAC power supply.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
		Depth	Width	Height	Front-Back	Side-Side	Vertical
98	UUT2a	8.4	23.7	29.9	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was attached to the rigid test wall with four (4) 3/16-inch diameter Grade 5 bolts, using the manufacturer-provided holes at the back of the panel.

UUT2b

UNIT UNDER TEST (UUT) Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: MTU Onsite Energy Corporation

Product Line: MTU Master Control Panel

Model Number: MCP001 (S/N: 374652-1-1-0614)

Product Construction Summary:

16 gage carbon steel enclosure, NEMA 12K

Options / Component Summary:

Flexible wall mount. The unit features an enclosure, display, controller, switch and 120VAC power supply.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (in)				Lowest Natural Frequency (Hz)		
		Depth	Width	Height	Front-Back	Side-Side	Vertical
98	UUT2a	8.4	23.7	29.9	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
CBC 2013	2012 ICC-ES AC156	2.5	1.0	1.5	4.00	3.00	1.67	0.67

Unit Mounting Description:

The unit was attached to the flexible test wall with four (4) 3/16-inch diameter Grade 5 bolts, using the manufacturer-provided holes at the back of the panel.