APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0450 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: MTU America, Inc.

Manufacturer's Technical Representative: Ben Stratton

Mailing Address: 100 Power Drive, Mankato, MN 56001

Telephone: 507-625-7973 Email: ben.stratton@ps.rolls-royce.com

Product Information

Product Name: OM Model Diesel Generator Sets

Product Type: Electrical Power Generator

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

General Description: Diesel Powered Electrical Generators; 80kW to 200kW
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 Base Mounted Enclosure/Genset/Tank or Externally Isolated Enclosure/Genset

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: Mr. John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: 973-838-1780 Email: john.giuliano@thevmcgroup.com

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: Joel P. Giuliano Date: 11/5/15

Title: President Company Name: The VMC Group

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

Company Name: The VMC Group

Name: Mr. Ken Tarlow California License Number: SE2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: 973-838-1780 Email: ken.tarlow@thevmcgroup.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 1

Company Name: Pacific Earthquake Engineering Research Center UC Berkeley (PEER)

Contact Name: Clément Barthès

Mailing Address: 1301 S. 46th Street, Building 420, Richmond, CA 94804

Telephone: 510-665-3409 Email: clementbarthes@berkeley.edu

Testing Laboratory 2

Company Name: _____

Contact Name: _____

Mailing Address: _____

Telephone: _____ Email: _____

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = Isolated [4.50 (z/h = 1) & 1.88 (z/h = 0)] Rigid [1.44 (z/h = 1) & 1.13 (z/h = 0)]

S_{DS} (Design spectral response acceleration at short period, g) = 2.00 (z/h = 1) & 2.50 (z/h = 0)

a_p (In-structure equipment or component amplification factor) = 2.5 (Isolated) & 1.0 (Rigid)

R_p (Equipment or component response modification factor) 2.0 (Isolated) & 2.5 (Rigid)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0 (S_{DS} = 2.00) & 0.0 (S_{DS} = 2.50)

Equipment or Component Natural Frequencies (Hz) See attached

Overall dimensions and weight (or range thereof) = See attached

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, 2022

Signature: Date: January 4, 2016

Print Name: Timothy J. Piland Title: SSE

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

Condition of Approval (if applicable):

Table 1 - Certified Gensets

Model	Max Rating (kW)	Configuration [1]	Nominal Dimensional Data [2]				Tested / Interpolated / Extrapolated
			Length (in)	Width (in)	Height (in)	Weight (lbs)	
MTU4R0120DS125	125	Enclosed Rigid On Tank	180.0	48.0	130.0	12,020	UUT-5
MTU4R0120DS80 MTU4R0120DS90 MTU4R0120DS100 MTU4R0120DS110 MTU4R0120DS140	125	Open Off Tank	92.0	43.0	66.0	3,300	Interpolated
		Enclosed Off Tank	120.0	51.0	85.0	4,000	Interpolated
		Open On Tank	140.0	48.0	102.0	10,300	Interpolated
		Enclosed On Tank	140.0	51.0	121.0	11,000	Interpolated
MTU6R0120DS150 MTU6R0120DS165 MTU6R0120DS180 MTU6R0120DS220	200	Open Off Tank	102.0	43.0	66.0	4,200	Interpolated
		Enclosed Off Tank	145.0	51.0	96.0	5,000	Interpolated
		Open On Tank	250.0	48.0	102.0	16,400	Interpolated
		Enclosed On Tank	250.0	51.0	132.0	17,200	Interpolated
MTU6R0120DS200	200	Enclosed Isolated Off Tank	120.0	48.0	100.0	5,060	UUT-6B
		Enclosed Isolated On Tank	270.0	48.0	130.0	18,320	UUT-6A

1) Gensets are Certified as follows:

a) Rigid base mounted w/ or w/o enclosures, & w/ or w/o fuel tanks.

b) External spring isolated, w/ or w/o enclosures, & w/o fuel tanks.

2) Dimensional Data is Nominal and actual data may vary.

Table 2 - Certified Subcomponents

Component (MFR)	MTU Part Number	Notes	Tested / Interpolated / Extrapolated
Enclosures (MTU)	XSG21300.00008	80-125 kW Carbon Steel Enclosure	UUT-5
	XSG21300.00039	80-125 kW Carbon Steel Scoop	UUT-5
	XSG21300.00006	80-125 kW Aluminum Enclosure	Interpolated
	XSG21300.00038	80-125 kW Aluminum Scoop	Interpolated
	XSG21300.00016	150-200 kW Steel Enclosure	Interpolated
	XSG21300.00043	150-200 kW Steel Scoop	Interpolated
	XSG21300.00014	150-200 kW Aluminum Enclosure	UUT-6A / -6B
	XSG21300.00042	150-200kW Aluminum Scoop	UUT-6A / -6B
	XSD03300.00003	Lighting Kit (AC/DC)	UUT-5 / 6A / 6B
Carbon Steel Silencer (Phillips & Temro)	SUA106938	3" Space Saver 12" Dia.	UUT-5
	SUA106939	3 1/2" Space Saver 14" Dia.	UUT-6A / -6B
UL 142 Fuel Tank (MTU)	XG2141200025	115 Gallon - 80-125 kW	Extrapolated
	XG2141200026	230 Gallon - 80-125 kW	Extrapolated
	XG2141200027	230 Gallon Extended - 80-125 kW	Extrapolated
	XG2141200028	460 Gallon Extended - 80-125 kW	Extrapolated
	XG2141200029	690 Gallon Extended - 80-125 kW	UUT-5
	XG2141200030	200 Gallon - 150-225 kW	Interpolated
	XG2141200031	400 Gallon - 150-225 kW	Interpolated
	XG2141200032	400 Gallon Extended - 150-225 kW	Interpolated
	XG2141200033	800 Gallon Extended - 150-225 kW	Interpolated
	XG2141200034	1200 Gallon Extended - 150-225 kW	UUT-6A
Component (MFR)	**MTU Part Number**	**Notes**	**Tested / Interpolated / Extrapolated**
Engine (Mercedes-Benz)	SUA107006 / XG2140800001	80-125 kW	UUT-5
	SUA107007 / XG2140800002	150-200 kW	UUT-6A / -6B
Alternators (Marathon)	360 Frame	30-125 kW	UUT-5
	430 Frame	75-600 kW	UUT-6A / -6B
Radiator (Nissens)	XD0341100001	80-200 kW	UUT-5 / 6A / 6B

Table 2 - Certified Subcomponents (Continued)

Component (MFR)	MTU Part Number	Notes	Tested / Interpolated / Extrapolated
Air Filter (Baldwin)	XG2112100001	80-200 kW	UUT-5 / 6A / 6B
Controller (MTU)	MGC-1500 Model	Each controller is a depopulated version of the controller with a higher number. The boxes of the 2000 and 3000 Models are the same. The 1500 Model box is smaller. All boxes are carbon steel.	UUT-5
	MGC-2000 Model		Interpolated
	MGC-3000 Model		UUT-6A / -6B
Jacket Water Heaters (Kim Hotstart)	XSG21300.00031	1500 W	UUT-5
	XSG21300.00032	1800 W	UUT-6A / -6B
Breakers (Square-D)	H Frame	150 Amp Max Rating	Extrapolated
	J Frame	250 Amp Max Rating	UUT-5
	LA Frame	400 Amp Max Rating	Interpolated
	LD Frame	600 Amp Max Rating	UUT-5
	M Frame	800 Amp Max Rating	Interpolated
	P Frame	1200 Amp Max Rating	UUT-6A / -6B
Component (MFR)	**MTU Part Number**	**Notes**	**Tested / Interpolated / Extrapolated**
Battery (Exide)	SUA120299	12V	UUT-5 / 6A / 6B
Battery Charger (SENS)	XSG30340.00092	6 A	UUT-5
	SUA85257	6 A	Interpolated
	SUA87358	6 A	Interpolated
	SUA85204	10 A	Interpolated
	SUA86468	10 A	Interpolated
	SUA83187	10 A	Interpolated
	XSG21360.00001	10 A	UUT-6A / -6B
Battery Charger (Guest)	XSG30340.00085	6 A	UUT-6A / -6B

Notes
4) All skids are carbon steel

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-5

VMA-49791-01

Model Line	Model Number	Manufacturer
OM-Model	MTU4R0120DS125	MTU

Product Construction Summary

Carbon Steel Skid, Carbon Steel Enclosure, Carbon Steel Fuel Tank

Options / Subcomponent Summary

Engine: Mercedes-Benz ; Alternator: Marathon ; Radiator: Nissens ; Enclosure: MTU ; Fuel Tank: MTU ; Silencer: Phillips & Temro ; Air Filter: Baldwin ; Controller: MTU ; Jacket Water Heater: Kim-Hotstart ; Breakers: Square-D ; Battery: Exide ; Battery Charger: SENS

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
12,020	180	48	130	7.4	6.8	7.2

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2013	ICC-ES AC156	2.5	0	1.5	2.50	1.00	1.67	0.67
		2.0	1	1.5	3.20	2.40	1.33	0.53

Test Mounting Details

Qty (10) 5/8" dia SAE Grade 8 Bolts

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-6A

VMA-49791-01

Model Line	Model Number	Manufacturer
OM-Model	MTU6R0120DS200	MTU

Product Construction Summary

Carbon Steel Skid, Aluminum Enclosure, Carbon Steel Fuel Tank

Options / Subcomponent Summary

Engine: Mercedes-Benz ; Alternator: Marathon ; Radiator: Nissens ; Enclosure: MTU ; Fuel Tank: MTU ; Silencer: Phillips & Temro ; Air Filter: Baldwin ; Controller: MTU ; Jacket Water Heater: Kim-Hotstart ; Breakers: Square-D ; Battery: Exide ; Battery Charger: SENS ; Battery Charger: Guest

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
18,320	270	48	130	3.9	4.9	8.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2013	ICC-ES AC156	2.5	0	1.5	2.50	1.00	1.67	0.67
		2.0	1	1.5	3.20	2.40	1.33	0.53

Test Mounting Details

Qty (20) 5/8" dia SAE Grade 8 Bolts

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-6B

VMA-49791-01

Model Line	Model Number	Manufacturer
OM-Model	MTU6R0120DS200	MTU

Product Construction Summary

Carbon Steel Skid, Aluminum Enclosure

Options / Subcomponent Summary

Engine: Mercedes-Benz ; Alternator: Marathon ; Radiator: Nissens ; Enclosure: MTU ; Silencer: Phillips & Temro ; Air Filter: Baldwin ; Controller: MTU ; Jacket Water Heater: Kim-Hotstart ; Breakers: Square-D ; Battery: Exide ; Battery Charger: SENS ; Battery Charger: Guest

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
5,060	120	48	100	3.9	5.9	10.6

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS} (g)	z/h	I_P	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2013	ICC-ES AC156	2.5	0	1.5	2.50	1.00	1.67	0.67
		2.0	1	1.5	3.20	2.40	1.33	0.53

Test Mounting Details

Qty (8) VMC MSS-3E-1600 spring vibration isolators, Qty (32) 5/8" dia SAE Grade 8 Bolts to fixture

All units were filled with contents and maintained structural integrity and functionality